NAVIGANT

EXISTING FACILITIES PROGRAM
Market Characterization and Assessment Report

Prepared for:
New York State Energy Research and Development Authority

nyserda
Energy. Innovation. Solutions.

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Executive Summary

The New York State Energy Research and Development Authority (NYSERDA) seeks to better understand the effectiveness of its current Existing Facilities Program (EFP) and the market for nonresidential energy efficiency projects in New York. This Market Characterization and Assessment (MCA) evaluation focuses on the market and context within which the EFP operates. In addition to reviewing program to-date activity, the research seeks to validate program assumptions regarding market characteristics, provide additional details regarding market structure and opportunities, and ensure consistency with NYSERDA's prior program evaluation activities. NYSERDA program staff and managers can use the evaluation results to adjust program implementation as needed to ensure maximum market interest and uptake of program offerings.

Study Approach and Scope

This report presents findings from an initial market characterization—based largely on secondary research and interviews with NYSERDA program staff and outreach contractors—and follow-on market assessment work, which focused on end-user and service provider surveys. However, the report follows a slightly different framework than past market characterization studies in that it considers the opportunities facing the EFP from the perspective of a private-sector enterprise. In this context, one might consider the energy savings achieved equivalent to the profits sought by a typical business. The report explores the drivers and barriers associated with the "purchase" decision (i.e., program participation) of the EFP's two primary target audiences – energy end users and the service providers that help implement their energy efficiency improvement projects.

EFP targets various sectors of energy end-use customers, including commercial and industrial (C&I) businesses, health care facilities, colleges and universities, state and local governments, schools, hospitality/hotels, data centers, and communications facilities. The program targets these customers through two types of incentives – prequalified and performance-based.

Based on discussions with program staff, this report focuses only on electrical efficiency projects that received (or would be eligible for) performance-based incentives.[1] The overall and per-project energy savings for performance-based measures far outweigh those from prequalified measures. From a business model perspective, these higher per-project energy savings (i.e., the return on investment of program dollars) encourage NYSERDA to focus its limited staff resources on developing and implementing performance-based projects. In addition, the team focused the end-use customer analysis on three priority market sectors that have delivered the greatest shares of performance-based electricity savings to date: 1) institutions (comprising health care facilities and colleges and universities); 2) offices (sub-segmented into owner-occupied offices and office property managers); and 3) large retail chain stores.

[1] The study specifically excluded: 1) gas efficiency projects; 2) peak load reduction (e.g., demand response/load curtailment and energy storage); and 3) industrial and manufacturing facility projects. These exclusions were agreed upon in consultation with NYSERDA evaluation and program staff in August 2010.

The Commercial (excluding Large Retail Chains), Large Retail Chain Store, and Office sectors represent the majority (56 percent) of program savings. The share of total energy savings falls heavily toward performance-based measures, confirming program staff's assertion that such projects result in a greater share of energy savings across all sectors in the EFP. This underscores the relative value of performance-based measures and highlights the potential benefits of encouraging more widespread interest and participation in such projects. The following key findings and recommendations focus on these performance-based projects and measures.

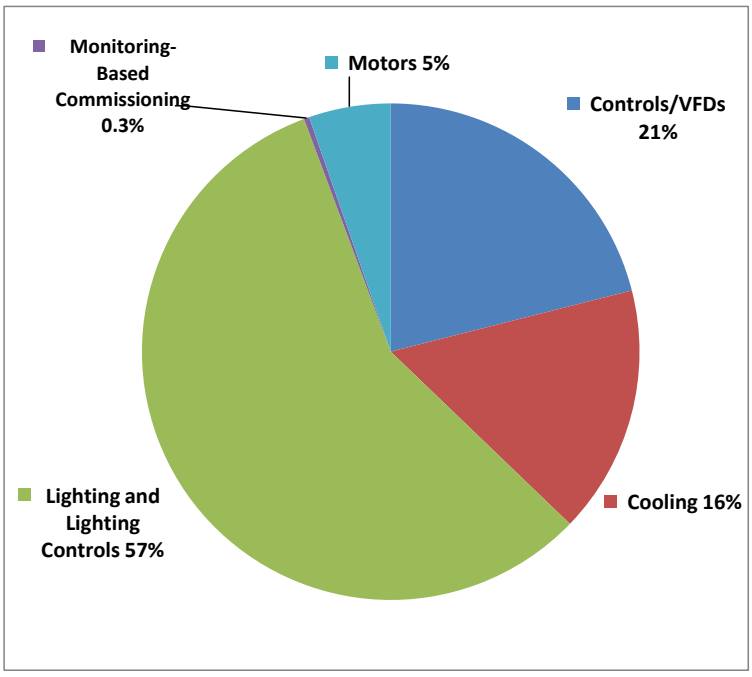
Key End-User Findings

End-user findings fall into two categories – those from the MCA team's analysis of the EFP program database and findings that arose from the end-user surveys.

Database Key Findings

The MCA team characterized the program's performance-based savings based on the types of equipment and systems responsible for those savings. Figure ES-1 shows the distribution of performance-based savings across each measure category as reported in the EFP database.

Figure ES-1. Savings by Performance-Based Measure



Source: EFP program database

As shown, lighting and lighting controls produce the majority of savings (57 percent) among performance-based measures, with controls and VFDs and cooling measures also representing large shares. While the majority of performance-based savings come from lighting and lighting control measures, the MCA team also sought to understand the average savings provided by each performance-

based measure in the various equipment categories. Table ES-1 shows the average savings for each category of performance-based measure offered by the EFP.

Table ES-1. Performance-Based Measures and Savings

Measure Category	Count of Project Measures	Total kWh	Average kWh per Project Measure
Controls/VFDs	234	68,293,976	291,855
Cooling	94	52,496,438	558,473
Lighting and Lighting Controls	1,014	185,494,502	182,933
Monitoring-Based Commissioning	1	1,126,348	1,126,348
Motors	61	17,276,818	283,227
Grand Total	1,404	324,688,082	231,259

Note: For this table, each "project measure" includes all units (e.g., light fixtures) installed in a measure category under a particular project. For example, one measure may include 400 light fixtures for a project. N = 1,404 measures.
Source: MCA team analysis[2]

As shown, performance-based lighting and lighting controls measures represent a lower amount of per-project savings compared to each of the other categories. (Note that monitoring-based commissioning incentives were not offered by EFP until November 16, 2010.) While lighting measures have contributed the greatest share of performance-based savings to date, improving federal lighting standards will likely decrease the amount of energy savings the program can claim from lighting measures as baseline and measure lifetime assumptions change.[3] Better characterizing the opportunity for and acceptance of non-lighting measures in different market sectors could help program staff increase customer uptake of high-savings measures. As a result, the MCA team placed particular emphasis on understanding the drivers and barriers influencing end-users' decisions to implement non-lighting efficiency projects.

The MCA team also reviewed performance-based project data for the priority market sectors in an attempt to identify patterns in how organizations implement these projects. In the majority of cases, individual projects involve only a single facility site and energy system (e.g., lighting). In a handful of cases, applicants undertook simultaneous performance-based upgrades of multiple sites or systems (e.g., lighting and cooling). Table ES-2 summarizes the number of unique applicants, project sites, and types of performance-based measures implemented by participants in each of the priority sectors.

[2] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.
[3] S. Mufson. "New Lighting Standards Announced," *Washington Post*, June 30, 2009. Accessed March 9, 2010 at: http://www.washingtonpost.com/wp-dyn/content/article/2009/06/29/AR2009062904273.html.

Table ES-2. Performance-Based Measure Activity among Priority Sectors

Sector	Unique Applicants	Unique Sites	Sites with Multiple Measure Categories	Number of Measures per Category			
				Controls/ VFDS	Cooling	Lighting and Lighting Controls	Motors
Office	69	72	3	12	12	62	2
Large Retail Chain Stores	18	190	0	26	NA	171	NA
Colleges & Universities	12	12	0	4	1	8	NA
Health Care & Hospitals	NA	34	1	9	7	22	2

Note: Applicant information for the Health Care & Hospitals sector was too incomplete to assess the number of unique applicants.
Source: MCA team analysis

As shown, some applicant organizations applied for projects and measures that involved multiple sites; however, few project sites involved multiple measure categories. Notably, large retail chain stores show high potential for a facility portfolio approach to performance-based savings projects. As noted above, 18 individual companies implemented performance-based EFP projects at 190 individual store locations.

The MCA team used these preliminary findings from program data to inform its approach to and analysis of the end-user surveys. The following sections present key findings from the survey analysis for each of the three priority sectors.

Survey Findings

The MCA team conducted telephone surveys with end-use customers and energy efficiency service providers participating in the EFP, as well as with comparison non-participant groups eligible to participate in the program. This section provides key end-user survey findings related to the specific drivers, barriers, and opportunities around energy efficiency in each of the three priority market sectors.

Institutions

For the purposes of this study, the MCA team defined "institutional" as comprising hospitals and health care facilities as well as colleges and universities. Because end users in this sector provide a range of services to their clients (e.g., students, patients), facility types can vary widely. For example, a sports medicine clinic or university recreation facility may house a swimming pool and hot tubs, whereas a nursing home or dormitory may comprise living space and dining facilities. Based on secondary research conducted prior to the surveys, the MCA team found that interest in energy efficiency among end users in this sector has continued to increase, with some organizations making commitments to energy efficiency and sustainability that may present an important opportunity for NYSERDA and the EFP. Table ES-3 summarizes the key survey findings for the institutional sector end users.

Table ES-3. Key Findings: Institutional End Users

Category	Institutional Facilities
EFP Program Participation and Support	» Institutions reveal a more diverse distribution of performance-based energy savings across measure categories than other priority market segments.
Reasons and Drivers for Efficiency Improvements	» Half of participating organizations replace HVAC and motor-based equipment only when it breaks. » Incentives have been more likely to drive lighting upgrades than improvements with other systems. » Participants are more likely to cite a desire to upgrade to more efficient equipment as the main factor considered in efficiency projects.
Project Funding	» Nearly half of participants cited capital budgets as their most important source of funding; more than one-third cited NYSERDA incentives.
Barriers to Efficiency Improvements	» Concerns about upfront costs, lack of internal capital, and competition with other priorities are the top three barriers to energy efficiency investments. » Lack of internal or capital funding is a greater barrier for non-participants.
Key Opportunities	» About half of non-participants have upgraded lighting systems in the past three years. About 30 percent have upgraded HVAC, motors or building management systems (BMS). » Fewer organizations plan to implement lighting projects in the next 2-3 years than projects involving HVAC, motors or BMS. » BMS and retro-commissioning (RCx) gained considerable mention as intended near-term projects.

Source: MCA team analysis

As shown in the above table, institutional projects reveal a more diverse distribution of performance-based energy savings across measure categories than other priority market sectors. This diversity may provide an opportunity to produce useful case studies on a wide range of performance-based projects. In addition, about half of non-participants have upgraded lighting systems in the past three years, and fewer organizations plan to implement lighting projects in the next two to three years than projects involving HVAC, motors or building management systems (BMS). This finding indicates that institutions may generally be moving past lighting retrofits to energy efficiency upgrades with energy-intensive systems.

Offices

The New York office sector comprises two main sub-segments of key decision makers: owner occupants and commercial real estate (CRE) property managers. A recent CRE Market Report completed for NYSERDA by HR&A Advisors[4] established that 86 percent of the state's commercial office space lies within the greater New York City (NYC) metropolitan area, and that Manhattan contains the greatest concentration of NYSERDA program-eligible office space in the state. Buildings with varying ownership

[4] NYSERDA Focus CRE Commercial Real Estate Market Report. HR&A Advisors. Summer 2010.

and occupant relationships involve different decision-making structures, drivers, and barriers. Split-incentives (i.e., between property owners and tenants) can act as an additional barrier that potentially masks or offsets occupant motivations and drivers. As a result, the process that tenants and property owners follow to lease and build out office spaces has been described as "sprawling with a wide variety of possible players and moving parts."[5] An in-depth analysis of these numerous relationships and arrangements falls beyond the scope of this report. Rather, the MCA team focused its efforts on macro-level drivers and barriers, how those factors may differ from other priority sectors, and emerging trends and opportunities for efficiency improvements in the office sector. Table ES-4 summarizes the key findings for the Office sector end users.

Table ES-4. Key Findings: Office End Users

Category	Offices
EFP Program Participation and Support	» Office sector projects reveal a less diverse distribution of performance-based energy savings across measure categories than the institutional sector. Seventy percent of these savings have come from lighting and lighting controls projects.
Reasons and Drivers for Efficiency Improvements	» Incentives have been more likely to drive lighting and HVAC upgrades for offices than for institutions. » Major renovations are a more prominent motivator for replacing lighting and HVAC equipment for property managers than for owner occupants.
Project Funding	» A majority (73 percent) of owner-occupant participants cited incentives as the most important funding source for performance-based projects; property managers emphasized incentives and capital budgets equally.
Barriers to Efficiency Improvements	» Not meeting financial requirements represented the greatest single barrier among owner-occupant participants. » Property managers' greatest barriers included concerns about time required to manage projects, uncertainty about energy savings, and concerns about equipment performance. » Two-thirds of property managers cited split incentives as a major barrier.
Key Opportunities	» More than 80 percent of non-participants property managers have upgraded some lighting and/or HVAC systems in the past three years. Forty-six percent have installed BMS. » Significant potential remains for improvements to all systems for owner occupants. » BMS and RCx gained considerable mention as intended near-term projects.

Source: MCA team analysis

As shown in the above table, 70 percent of office sector performance-based savings comprise lighting and lighting controls upgrades; the remainder is split between controls/VFDs (21 percent) and cooling (8 percent). Among owner occupants, however, only 30 percent have upgraded lighting systems in the past

[5] Cortese, Amy and Dan Harris, New Buildings Institute. "Harnessing Market Forces to Address the Landlord Tenant Split Incentive in the Commercial Building Market." ACEEE Summer Study on Energy Efficiency in Buildings. 2010.

three years, with fewer having upgraded HVAC systems. While most property managers have made some lighting and HVAC upgrades in the past several years, survey responses suggest that additional opportunities exist, particularly among owner occupants.

In terms of NYSERDA's role in encouraging those efficiency improvements, the majority of respondents cited EFP incentives as their most important funding source. (Property managers also mentioned capital budgets.) In addition, respondents noted concerns regarding equipment performance and the corresponding energy savings. This implies that broader distribution of successful project case studies and other NYSERDA educational outreach could provide valuable input to project decision-making processes.

Large Retail Chain Stores

Large retail chain stores' participation in performance-based projects has been characterized by a relatively small number of organizations (N = 18) that have implemented projects at multiple sites (an average of 10.5 sites per organization). Such repetition of improvements (particularly lighting upgrades) across relatively uniform facilities may require less involvement and consultation with service providers than the (more diverse) projects in other priority sectors.

Based in part on this limited target population, the MCA team met considerable difficulty in gaining access to and responses from appropriate contacts in the retail chain store sector. As a result, the survey team was unable to achieve a sufficient sample size for statistical evaluation of the Large Retail Chain Store sector. Instead, the team adopted a qualitative approach to analyzing the resulting data, relying primarily on secondary research and NYSERDA's EFP tracking database to characterize projects completed by Large Retail Chain Store sector participants. Table ES-5 summarizes the key findings for the Large Retail Chain Store sector.

Table ES-5. Key Findings: Large Retail Chain Stores

Category	Large Retail Chain Stores
EFP Program Participation and Support	» Almost all (96 percent) of this sector's performance-based savings arise from lighting and lighting controls projects. » Large retailers appear less likely than other priority sectors to rely on service providers to assist with the EFP program application process.
Reasons and Drivers for Efficiency Improvements	» Retail chains tend to replicate successful measures and lessons learned across their building portfolio. » Primary drivers include lower operating costs and addressing customer experience (i.e., in the store) and expectations (from a public relations perspective).
Project Funding	» Efficiency investments compete closely with other projects (including opening new stores). » Retailers have rapid payback requirements (two years or less) for projects in existing buildings.
Barriers to Efficiency Improvements	» Financial concerns represent the primary barriers to efficiency improvements for retailers, including a lack of funding and insufficient payback or return on investment. Uncertainty about savings/performance is a secondary barrier.
Key Opportunities	» N/A based on lack of eligible non-participant responses.

Source: MCA team analysis

Unlike the other priority sectors, almost all (96 percent) of this sector's performance-based savings arise from lighting and lighting controls projects. In addition, large chain retailers appear to rely less heavily on service providers to assist with the EFP application process. Both the literature and EFP database suggest that these organizations replicate a limited scope of rapid payback measures (e.g., lighting) across their building portfolios.

Key Service Provider Findings

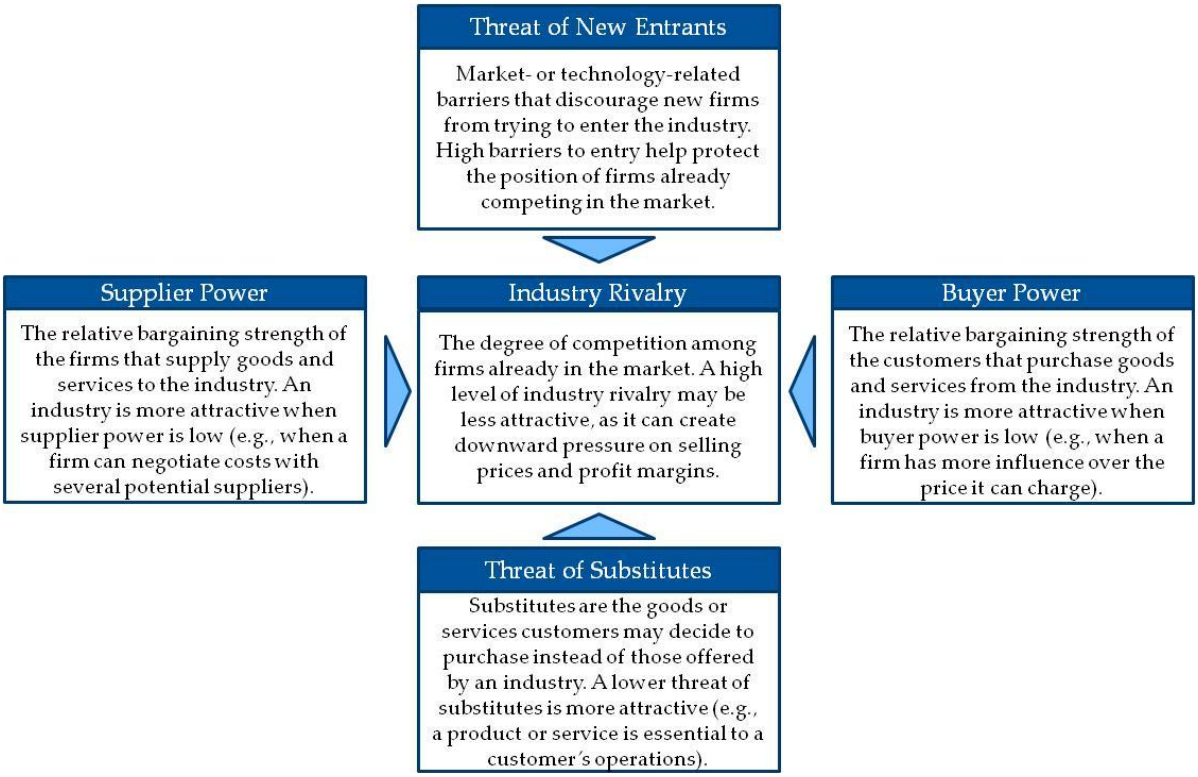
The MCA team also considered the market for energy efficiency retrofits from the perspective of the EFP's other target audience, energy efficiency service providers (including ESCOs). NYSERDA largely relies on the energy efficiency services sector as a channel to educate energy end users about the incentives available under the EFP and to generate interest in retrofit projects that will benefit from program funds. Many efficiency programs identify these service providers generally as trade allies, referring to the mutual benefits that accrue from implementation of retrofits that utilize program funding. While the program targets the increased energy savings, the service provider benefits from additional project revenue and potential competitive advantages that may not have occurred without program incentives.

Viewing the program through the business model lens, these service providers are also beneficiaries of EFP incentives and represent an audience from which NYSERDA seeks specific actions in response to its program offerings. By better understanding the drivers, barriers, and business practices of the service

provider market, NYSERDA can enhance outreach, improve program processes, and increase service provider interest and participation in the EFP.

The MCA team approached the characterization and assessment of the service provider market using Michael Porter's Five Forces model, a common industry analysis framework.[6] The Five Forces model explores the attractiveness of a particular industry by examining the relative influence of market-related factors that lie outside of the control of any one firm. By characterizing the source and scale of the collective challenges facing an industry, a firm can determine where its strengths may provide a competitive advantage or where it has weaknesses that it may need to address. Figure ES-2 illustrates the Five Forces model, providing a brief definition of each of the five factors it considers.

Figure ES-2. Porter's Five Forces Model



Source: Adapted from M. Porter, "Competitive Advantage: Creating and Sustaining Superior Performance," 1985.

The team used the Five Forces framework to both characterize the service provider market and serve as a guide for structuring its surveys and subsequent analysis. Table ES-4 summarizes the MCA team's key findings for the service provider market using four of the five factors. (The team excluded "Supplier Power," since the study focuses on the relationships between service providers, end users, and the EFP.) Each box in Figure ES-3 lists key survey findings related to each factor and indicates the relative degree to which the EFP might influence each of these factors.

[6] M. Porter. "Competitive Advantage: Creating and Sustaining Superior Performance," 1985.

Figure ES-3. Key Service Provider Findings

Threat of New Entrants (Moderate) EFP Influence: Limited	Industry Rivalry (Moderate) EFP Influence: Limited to Moderate
• The modest addition of new firms in the market reflects a perceived increase in demand for energy efficiency service in New York. • Non-participant firms currently provide relatively little competitive pressure on the market for performance-based efficiency improvements. • 30- to 40 percent of service providers have added at least one type of efficiency-related service in the past three years. • EFP can increase the threat of entrants through outreach to non-participant firms.	• Most participant service providers focus on electricity efficiency; about 30 percent serve both gas and electric systems. • Nearly half of participant firms focus efficiency services on certain sectors, especially large retail and office buildings. • 64 percent of participant firms focus to some degree on lighting systems, versus only 18 percent for HVAC. • EFP has limited influence on rivalry, but can appeal to firms' desire to differentiate amidst competition.
Buyer Power (Moderate) **EFP Influence: Moderate**	**Threat of Substitutes (High)** **EFP Influence: Moderate to High**
• Most end users rely on outside firms to implement performance-based EFP projects, decreasing buyer power. • On the other hand, urgency and necessity play a more limited role in decisions for performance-based projects. These end users are more driven by financial considerations, incentives and a drive for energy efficiency. This increases buyer power relative to service providers. • EFP can increase buyer power through technical expertise and the provision of efficiency-specific funding.	• Steady or increasing demand for efficiency services suggests that the recession has had limited effect. • While participant firms have succeeded in steering customers past upfront cost concerns, budget limitations and payback requirements continue to present challenges. • Financial assistance plays an important role, with most participating firms offering it in some form. However, only about half of participant firms use performance contracts. • EFP can lower the threat of substitutes by providing efficiency-specific funding.

Source: MCA team analysis

As shown above, new firms have entered the energy efficiency market in New York at a modest rate over the past five years. Of those, the majority focus on electrical efficiency. In fact, most participant firms focus their activities solely on electrical efficiency, with only 30 percent serving both gas and electrical systems. Sixty-four percent of participant firms focus to some degree on lighting systems, with only 18 percent focusing on HVAC.

While service providers generally feel that the economic recession has had limited effect on demand for energy efficiency improvements, end-users' budget limitations and payback requirements continue to present a significant barrier to efficiency projects. Notably, most firms that participate in performance-based projects offer some type of project financing; however, only half reported using performance contracts.

Recommendations

The MCA team considered the above end-user and service provider findings through the lens of the EFP as a business, but with program staff targeting end-user energy savings in place of revenues or profits. This section summarizes the MCA team's recommendations for the key growth opportunities and program positioning EFP staff should consider as it moves forward.

The MCA team presented these recommendations in the context of the EFP's "offering", which comprises the key program features and benefits it provides to its two target audiences. Table ES-6 provides an overview of these features and benefits and is followed by the key recommendations for each target audience.

Table ES-6. Summary of Key Features and Benefits of the EFP's Performance-based Offering

Feature	End User Benefits	Service Provider Benefits
Competitive Incentives	Supplement end users' capital budgets and make a meaningful contribution to overcoming financial barriers.	Position service providers to capture new business from customers interested in deeper energy and cost savings.
Savings Verification	Provides trustworthy, third-party validation of project designs while reducing uncertainty around projected energy savings.	M&V requirements contribute to service providers' design quality and to their subsequent reputation in the market.
Comprehensive Approach	End users maximize the impact of incentives by identifying untapped opportunities or bundling projects.	EFP staff helps service providers identify and learn about offerings that best leverage their own expertise.
Technical Expertise	Staff help end users identify likely areas and systems to reduce energy use and costs and help provide information needed to support project decisions.	Staff helps service providers learn and navigate the application process and provide information customers need to reach favorable project decisions.

Source: MCA team analysis

Service Provider Recommendations

Increased competition in the service provider market stands to benefit end users through downward pressure on prices and increased bargaining power. However, a majority of participating end users in the institutional and owner-occupied office sectors indicated that too few quality firms exist in the service provider market.

» ***Recommendation #1***: NYSERDA should seek to increase the number of quality firms engaging end users in performance-based EFP projects. In so doing, the program can drive additional competition among firms working on performance-based projects, potentially leading to higher volumes of projects, lower costs to end users, or new competitive offerings from service providers (e.g., multi-firm partnerships or new approaches to project financing).

» ***Recommendation #2***: The EFP should aim to convince new firms to learn about and undertake projects supported by performance-based incentives by marketing the program's perceived benefits to service providers – that the program is an indicator of a firm's advanced capabilities, commitment to maximizing energy savings, and overall higher-quality services. An anticipated increase in demand for high-quality energy efficiency services will create particular opportunities for firms with past performance-based project experience while drawing new firms to attempt performance-based projects.

Overarching End-User Recommendations

Most performance-based projects implemented by end users in the priority sectors involved a single energy-use system. In addition, the majority of performance-based savings have come from lighting and lighting controls projects, but non-lighting measures represent greater per-project savings opportunities. Looking forward, non-participants cited both lighting and HVAC improvements as holding considerable energy savings potential for their facilities, and many intend to implement lighting, HVAC, BMS, and (to a lesser extent) RCx efforts in the next three years.

» ***Recommendation #3:*** NYSERDA should seek to increase its performance-based energy savings through a two-fold approach. First, program staff should seek organic growth opportunities by marketing additional performance-based projects to facility owners who have previously completed such projects. Second, staff should capture a portion of small-scale projects being planned by non-participants and convert them to larger, performance-based projects. This will enable EFP staff to capitalize on that portion of the market with at least some awareness and willingness to pay for efficiency upgrades.

» ***Recommendation #4:*** NYSERDA should raise awareness of EFP's potential role in implementing opportunities identified through benchmarking efforts by: a) encouraging end users to implement larger, performance-based projects that they would not otherwise pursue without NYSERDA's independent review or validation of project designs and b) continuing to market the performance-based programs' contributions to addressing the persistent cost and financial barriers facing end users. Specifically, NYSERDA should increase its focus on the value of M&V in enhancing the quality and lowering the risk of large, whole-system or whole-building efficiency improvement projects.

» ***Recommendation #5:*** For the upstate end-user market, program staff can market the success of past performance-based projects, as well as the improvements downstate facilities are undertaking to comply with PlaNYC requirements, as evidence of performance-based projects' contribution to deeper energy and cost savings.

Priority Market Sector Recommendations

The MCA team recommends the program pursue the following sector-specific opportunities:

Institutional Sector:

- ***Recommendation #6:*** By conducting project-specific case studies on the more diverse, non-lighting projects in the institutional sector, program staff can identify key lessons and best practices from these projects to encourage additional end users to undertake non-lighting projects.

- ***Recommendation #7:*** NYSERDA should avoid missed opportunities by capturing and converting the projects that non-participants intend to undertake into larger, performance-based projects.

Office Sector:

- ***Recommendation #8:*** The office sector has also shown, though to a lesser extent, diversity in its approach to performance-based projects. Program staff should seek to learn from the specific motivations and results of non-lighting projects to help encourage additional implementation of such projects among both past performance-based participants and newly recruited end users.

- ***Recommendation #9:*** NYSERDA should seek to leverage existing relationships with property managers to gather feedback on the program and seek opportunities to replicate successful projects in other buildings in those property managers' portfolios.

Large Retail Chain Store Sector:

- ***Recommendation #10:*** The MCA team recommends that NYSERDA undertake a short-term, focused outreach effort (using program staff) to explore the potential for additional performance-based opportunities in this sector. For the 18 organizations that have previously participated in performance-based projects, a program representative could contact company representatives to inquire about their interest in repeating lighting projects at additional locations as well as opportunities for projects targeting other systems (e.g., cooling or controls).[7]

[7] The MCA team attempted such inquiries, but had limited success in gaining access to appropriate company representatives. NYSERDA staff may have better success based on credibility and attachment to the program.

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1. Introduction

The New York State Energy Research and Development Authority (NYSERDA) seeks to better understand the effectiveness of its current Existing Facilities Program (EFP) and the market for nonresidential energy efficiency projects in New York State. The Market Characterization and Assessment (MCA) team has conducted an analysis of this market and the program's to-date activity. This report presents findings from the MCA team's initial market characterization—based largely on secondary research and interviews with NYSERDA program staff and outreach contractors—and follow-on market assessment work, which focused on a set of end-user and service provider surveys.

The report follows a slightly different framework than past market characterization studies in that it considers the opportunities facing the EFP from the perspective of a private-sector enterprise. In this context, one might consider the energy savings achieved equivalent to the profits sought by a typical business. The report explores the drivers and barriers associated with the "purchase" decision (i.e., program participation) of the EFP's two primary target audiences – energy end users and the service providers that help implement their energy efficiency improvement projects.

This section introduces NYSERDA's EFP and further outlines the approach the MCA team took for this study and report. Section 1.1 provides a brief overview of the EFP, including its mission, history, and objectives. Section 1.2 discusses the evaluation approach, including its objectives, scope, and methods employed. Finally, Section 1.3 discusses the organization of the report around the business plan framework.

1.1 Program Overview

This section provides a brief overview of NYSERDA's EFP. Section 1.1.1 summarizes the program's overall mission; Section 1.1.2 provides a brief history of the program and an update on its current status; and Section 1.1.3 presents the program's specific objectives as they relate to the State's broader energy goals.[8]

1.1.1 Mission

NYSERDA's EFP aims to help build market infrastructure for and increase investment in electrical and gas energy efficiency, peak demand reduction, and demand response projects in New York State. EFP provides technical and financial support that reduces risk to end users and offsets a portion of the upfront costs associated with installation of new technologies and equipment.

The program sources its funds through the Public Service Commission's (PSC's) Systems Benefits Charge (SBC) and Energy Efficiency Portfolio Standard (EEPS) contributions paid by most energy end-use customers. NYSERDA established the EFP in part to return a significant portion of the contributions submitted by New York's business owners through energy efficiency and demand response (DR) improvement incentives.

[8] Much of Section 1.1 is adapted from the *Final EFP Program Logic Model Report*. May 26, 2010. Navigant Consulting.

1.1.2 History and Current Status

The EFP represents a consolidation of two prior NYSERDA programs—the Peak Load Management Program (PLMP) and the Enhanced Commercial and Industrial Performance Program (ECIPP)—and provides incentives for projects with gas or electric savings. Building upon the success of these two programs, the July 2008 merger presented a less complicated, more accessible program to potential customers in the marketplace. EFP targets various sectors of energy end-use customers, including commercial and industrial (C&I) businesses, health care facilities, colleges and universities, state and local governments, schools, hospitality/hotels, data centers, and communications facilities.

EFP includes two types of incentives: prequalified and performance-based:

- **Prequalified** incentives encourage customers working on energy projects and equipment replacement projects to purchase and install more energy-efficient measures. Some of the electric measures available to qualifying customers include lighting, heating, ventilation, and air conditioning (HVAC), chillers, motors, variable frequency drives (VFDs), and interval meters. Gas measures include high-efficiency furnaces and boilers, domestic hot water heating equipment, and commercial kitchen equipment.[9] The maximum incentive is $30,000.

- **Performance-based** incentives help customers or Energy Service Companies (ESCOs) working on larger-scale projects to achieve more significant gas or electric consumption reductions. These incentives range much higher (up to $2 million for non-manufacturing facilities) than those for prequalified projects. Performance-based projects require an engineering analysis and are potentially subject to measurement and verification (M&V) requirements. NYSERDA expects the various types of performance-based incentives to result in the following impacts:

    - Electric efficiency incentives encourage the implementation of projects that deliver verifiable annual electric savings.[10]
    - Combined heat and power (CHP) incentives contribute to the installation cost of clean, efficient, and commercially available CHP systems.
    - Industrial and data center process efficiency incentives help offset the costs of projects focused on increasing productivity, and decreasing electricity consumption on a per-unit-of-production basis.
    - Demand response incentives provide help with a portion of the cost for technology, such as load curtailment and shifting (LC/S) and distributed generation (DG), that enable facilities to participate in the New York Independent System Operator (NYISO) DR programs (which reduce electricity load in response to emergency or market-based price signals).

[9] As of August 9, 2011, the EFP and Industrial and Process Efficiency (IPE) Program had received applications for natural gas efficiency projects that committed budgeted funds. The program has since stopped accepting Performance-Based and Pre-Qualified Gas efficiency applications except for National Fuel Gas customers that use less than 12,000 Mcf annually. NYSERDA website. Accessed April 4, 2012.

[10] Industrial facilities may continue to apply for performance-based gas savings through the IPE program.

- Monitoring-based commissioning (MBCx) incentives contribute to the installation of information gathering technologies that provide critical data to monitor and alter building operation. These incentives seek to achieve persistent energy savings through long-term operational changes in host facilities.[11]

Energy efficiency and demand reduction projects contribute to improvements in New York's energy system reliability and security, while helping businesses and industries to reduce operating costs. Allowing customers, ESCOs, and contractors to access multiple incentive strategies to support their energy projects will enable the New York ESCO community to continue growing the market for energy efficiency in existing buildings, process equipment, and non-building efficiency measures.

1.1.3 Objectives

The EFP represents one part of NYSERDA's larger C&I program portfolio. The C&I portfolio is designed to address all SBC III and EEPS goals by promoting competitive markets for energy efficiency services and engendering widespread adoption of high-efficiency technologies. The market infrastructure and demand side goals for the broader C&I portfolio are listed in Table 1-1.

Table 1-1. Goals for NYSERDA's C&I Programs

Market Infrastructure/Policy	Demand Side
» Expanded delivery channels for energy efficiency and demand response services » Larger, robust, and sustainable market for energy efficiency services and products » Increased capacity of energy services companies to deliver quality projects that produce reliable benefits » Increased number of firms with experience and confidence in delivering energy efficiency and peak load reduction measures	» Projects demonstrate persistent energy savings and provide other benefits to end users. » Customers have reliable information on which to base energy-related decisions. » Customers have confidence in energy savings estimates and value the energy efficiency and green building features of their projects. » Access to energy efficiency services is improved for all types of customers, including underserved customers.

Source: GDS Associates, Inc. *Existing Facilities Program: Program Logic Model Report – Final Report,* Prepared for NYSERDA, November 2010.

The EFP contributes directly to the achievement of these goals by encouraging ESCOs to expand their services and by improving the credibility of ESCOs and other contractors through technical review and verification. Experience with EFP and the review and verification activities associated with many EFP projects should improve the number and capacity of energy services firms to deliver quality projects that produce reliable results. Similarly, EFP contributes to demand side goals by providing incentives to commercial, industrial, and institutional customers for projects that save energy; the associated technical review and verification activities also reduce risk to these end users. Better services and measures

[11] Monitoring-based commissioning incentives were not offered by EFP until November 16, 2010.

offered by increasing numbers of well-qualified firms should result in improved access to energy efficiency services for all types of customers.

NYSERDA measures the program's success through assessing the amount of leveraged funds and the energy and demand savings achieved. Additionally, EFP works to encourage applications from eligible customers and supports the installation of equipment and technology that allows end users to permanently reduce their demand at system-coincident peak or to participate in NYISO DR programs. These programs can involve registering callable load or participating in dynamic pricing programs. The activities supported by EFP are designed to reduce coincident peak demand, improve gas and electrical energy efficiency for commercial, industrial, and institutional customers, reduce operating expenses for customers, and provide a cleaner, healthier environment for all New York.

1.2 Evaluation Overview

This section presents a summary of this MCA evaluation. Section 1.2.1 summarizes the objectives of the MCA evaluation, while Section 1.2.2 discusses the methods instituted for the research and analysis efforts.

1.2.1 Evaluation Objectives

The MCA research focuses on the market and context within which the EFP operates. The research seeks to validate program assumptions regarding market characteristics, provide additional details regarding market structure and opportunities, and ensure consistency with NYSERDA's prior program evaluation activities. NYSERDA program staff and managers can use the evaluation results to adjust program implementation as needed to ensure maximum market interest and uptake of program offerings.

The primary objectives of the MCA evaluation effort are to:

- Develop a comprehensive understanding of current and emerging markets (e.g., market structure and market actors).
- Provide baseline and background information required by NYSERDA to define and deliver programs to target markets.
- Track changes in markets over time with a specific focus on market indicators that program offerings are likely to impact.

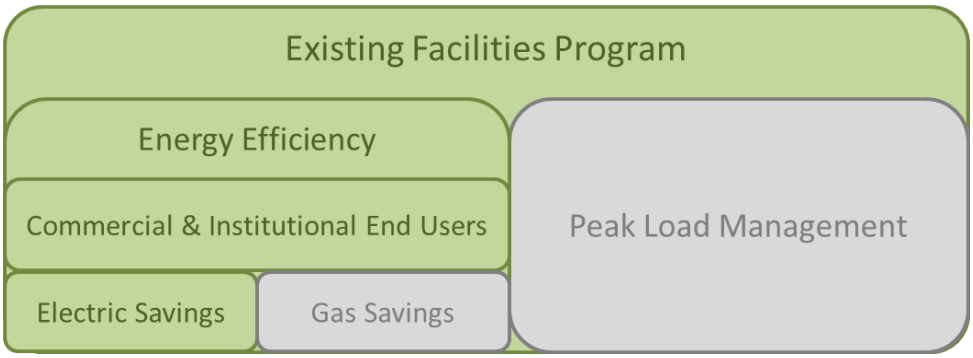
1.2.2 Scope

Based on conversations with NYSERDA, the MCA team narrowed the scope of this analysis and report to focus on energy efficiency projects incentivized by the EFP. The team did not include projects related to peak load reduction (e.g., demand response/load curtailment and energy storage).[12] NYSERDA should consider including those peak load reduction projects in future evaluations. In addition, based on discussions with program staff, this report focuses only on electrical efficiency projects implemented by commercial and institutional energy end users. It specifically excludes: 1) gas efficiency projects; and 2)

[12] Navigant Memorandum to NYSERDA: Revised Work Plan for the MCA Evaluation of the Existing Facilities Program (EE). October 14, 2010.

industrial and manufacturing facility projects.[13] Figure 1-1 summarizes the scope of this report, with included areas shown in green.

Figure 1-1. Summary of Report Scope



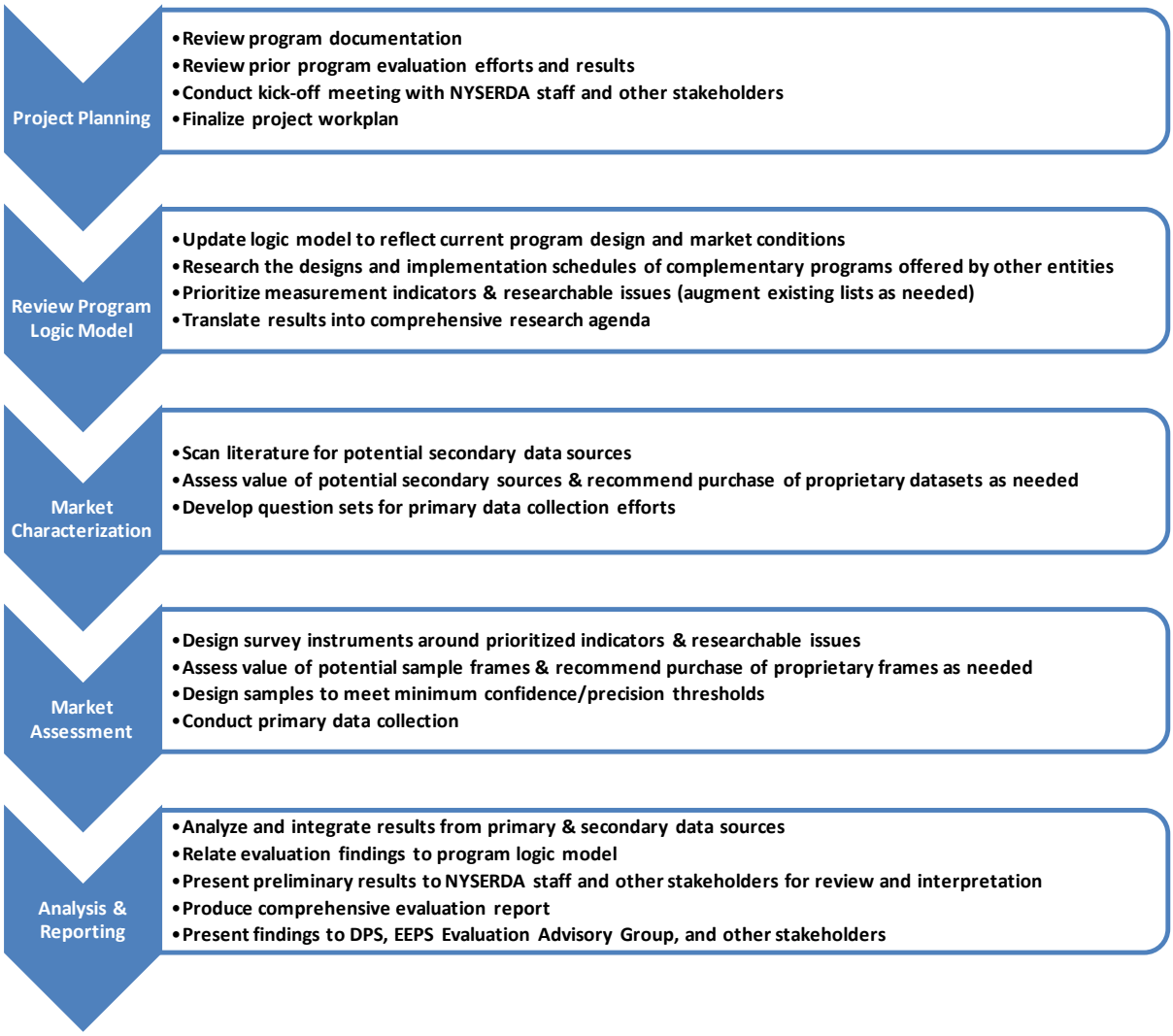
Source: MCA team analysis

1.2.3 Methods

The MCA evaluation plan for the EFP consists of multiple activities (blue arrows) and associated research tasks (bulleted lists), as shown in Figure 1-2. This subsection summarizes the methodologies utilized by the MCA team to address various research tasks contributing to each evaluation activity. Additional details are provided in this report's appendices.

[13] The decision to focus this MCA analysis on electric savings occurred in consultation with NYSERDA evaluation and program staff in August 2010. The decision to exclude gas efficiency measures was based on several factors, including 1) that a parallel EFP impact evaluation would also focus primarily on electrical savings; 2) scope and budget limitations of the MCA analysis; and 3) that NYSERDA was early on in the gas incentive portion of the program when this study began, providing little participation data to analyze. For more, see Navigant Memo to NYSERDA: "EFP Market Characterization and Market Assessment Kick-off Meeting Minutes (8/19/10)." Dated August 26, 2010.

Figure 1-2. Synopsis of EFP MCA Evaluation Activities and Research Tasks



1.2.3.1 Program Logic Model

The MCA team submitted an updated logic model report for the EFP. This review of the program logic model was the first since the PLMP and the ECIPP merged to form the EFP. As part of this exercise, the team updated the existing ECIPP and PLMP *Program Logic Model Reports*[14] to reflect current program designs and the state of the market. The report includes the following information:

- The context within which the various program components operate
- The market barriers and inefficiencies the components seek to address

[14] GDS Associates, Inc. *New York Energy $mart℠ Enhanced Commercial Industrial Performance Program – Updated Program Logic Model Report,* Prepared for NYSERDA, June 2007 and GDS Associates, Inc. *New York Energy $mart℠ Peak Load Management Program – Updated Program Logic Model Report,* Prepared for NYSERDA, July 2007.

- The implementation approaches and anticipated outputs and outcomes
- Logic model diagrams showing the linkages between program operation and anticipated outputs/outcomes
- Relevant measurement indicators and researchable issues
- Complementary energy efficiency programs fielded by other entities[15] to identify potential leveraging opportunities wherein NYSERDA and the other program administrators can collaborate to achieve broader and deeper program impacts.

The final logic model report developed for the EFP is included in Appendix A.

1.2.3.2 Market Characterization

The MCA team's market characterization results rely primarily on secondary data sources, supplemented by information gathered during primary data collection efforts. Key data sources used for this activity included the EFP tracking database, previous program evaluation reports prepared for NYSERDA and for similar programs operating in other jurisdictions, McGraw-Hill Construction Dodge databases, the U.S. Department of Energy's (DOE's) Commercial Buildings Energy Consumption Survey (CBECS) data, U.S. Census County Business Patterns Reports, membership lists and other publicly available data from relevant professional organizations, and other sources identified and deemed valuable during a scan of relevant literature.

1.2.3.3 Market Assessment

The MCA team generated Market Assessment results through primary data collection efforts with program staff, NYSERDA outreach contractors, end-use customers, and energy efficiency service providers. The MCA team's initial efforts included in-depth interviews with program staff and outreach contractors to help inform the detailed evaluation approach, prioritize market sectors for additional focus, and identify key trends for further investigation. A sample data collection guide for these interviews is included in Appendix B.

The latter portion of this data collection effort comprised telephone surveys with end-use customers and energy efficiency service providers participating in the EFP, as well as with comparison non-participant groups eligible to participate in the program. The MCA team designed its initial sampling methodology for these four primary target segments (participating and non-participating end users and participating and non-participating energy efficiency service providers) to meet 90/10 absolute confidence/precision criteria at each of two geographic sub-segment levels (upstate and downstate).

Based on conversations with NYSERDA program staff, the MCA team took further steps to narrow the focus of the Market Characterization and Assessment in order to provide greater depth of analysis and more actionable recommendations. These include the following:

- The team initially focused the end-use customer analysis on four priority market sectors: 1) offices; 2) health care; 3) colleges and universities; and 4) large retail chain stores. Based on low response rates and other difficulties encountered in the sampling efforts, the team re-categorized

[15] Including utilities, the NYISO, and other third-party administrators.

these sectors into three segments 1) institutions (comprising health care facilities and colleges and universities); 2) offices (sub-segmented into owner-occupied offices and office property managers); and 3) large retail chain stores. See Appendix C for details on this re-categorization and subsequent sampling targets and weighting methodologies. The selection of these priority market sectors is further detailed in Section 2.2.

» The team also focused its evaluation efforts on performance-based energy efficiency measures. While the EFP offers both prequalified and performance-based incentives, the overall and per-project energy savings for performance-based measures far outweigh those from prequalified measures (see Section 2.3).[16] From a business model perspective, these higher per-project energy savings (i.e., the return on investment of program dollars) encourage NYSERDA to focus its limited staff resources on developing and implementing performance-based projects. Based on the nature of prequalified incentives (i.e., smaller, simpler equipment repairs or replacements), sector-specific outreach by program staff is likely to generate higher energy savings per project and end-user interaction by focusing on larger, system-focused performance-based projects. This focus on performance-based projects required additional distinctions about the end users and service providers that the MCA team considered to be either participants or non-participants for the purposes of this evaluation.

Additional details on the team's approach to market segmentation and sample preparation are described in Appendix C. The MCA team structured data collection instruments around the prioritized measurement indicators and researchable issues identified in the final *Program Logic Model Report*; example survey instruments appear in Appendix D.

1.3 Organization of the Report

As mentioned at the beginning of Section 1, this MCA report takes a less conventional approach to evaluating the market for the EFP. Industry literature and evaluations focusing on C&I energy efficiency programs have increasingly incorporated perspectives and frameworks resembling corporate strategy and marketing-based approaches to achieving their objectives. For example, one recent market evaluation report discussed the need for program participants to consider "exit strategies" (a key aspect of every venture capital-backed business plan) to convert early-stage, incentive-driven energy efficiency efforts to long-term, integrated energy management strategies.[17] Others have explored opportunities for program administrators and implementation contractors to apply innovative market segmentation strategies to their program design and implementation plans.[18,19]

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[16] In the EFP project database, a single Project Number may be associated with multiple measures (both prequalified and performance-based) or multiple facility sites. Any database references in this study specifically state whether they involve measure-, site-, or project-level energy savings.

[17] J. Peters, et al. "2008 BetterBricks Overall Market Progress Evaluation Report." Northwest Energy Efficiency Alliance.

[18] S. Moss and M. Cubed. "Market Segmentation and Energy Efficiency Program Design." California Institute for Energy and Environment, 2008.

[19] M. Sullivan. "Behavioral Assumptions Underlying Energy Efficiency Programs for Businesses." California Institute for Energy and Environment, 2009.

This report builds upon these concepts by considering the EFP through the lens of a private-sector business. In this case, rather than targeting bottom-line growth in revenues and profits on behalf of shareholders, the EFP's business is driven by bottom-line growth in energy savings and demand reduction on behalf of NYSERDA's stakeholders (i.e., SBC fund contributors). The program's target markets comprise both the energy end-use customers who ultimately represent the demand for energy efficiency improvements and the service providers that help design and implement those projects.

The remainder of this report follows the general framework of a high-level business plan written for the EFP. Rather than appearing in a stand-alone section, the key market characterization and market assessment findings appear at the conclusion of each of the end-user and service-provider analysis sections (Sections 2 and 3). The MCA team's recommendations appear in Section 4. The report format is as follows:

- **Section 2 – End-Use Customer Analysis** presents a detailed analysis of the EFP's primary target market— the energy end-use customer. It describes the overall market for existing commercial and institutional buildings in the state; explores recent trends in the energy efficiency retrofit market; defines the priority market sectors; and explores current customer perceptions and behaviors as well as emerging trends for each of those sectors.
- **Section 3 – Service Provider Market Analysis** explores the EFP's secondary target market—the energy efficiency service provider. This section provides an in-depth analysis of the market structure, drivers and barriers, recent market trends, and business strategies that characterize the service provider industry.
- **Section 4 – Recommendations – EFP's Offering and Opportunity** presents the MCA team's assessment of the EFP's value proposition as it relates to each target market and the end-user priority market sectors. This section presents the synthesis of findings from the end user and service provider research to provide succinct insights into emerging opportunities for the program to capture additional energy savings.
- **Section 5 – Conclusion** briefly summarizes the key findings and recommendations from the preceding sections.

2. End Use Customer Analysis

This section of the report considers the market for energy efficiency retrofits from the perspective of the EFP's primary target audience, the energy end-use customer. Viewing the program through the business model lens, these customers represent the market actors who make the ultimate purchase decision that drives the EFP's bottom line (as measured by energy savings). That decision—whether or not to implement an energy efficiency project—arises from the end users' consideration of interrelated drivers, barriers, and organizational priorities. By understanding these factors and how they differ among distinct market sectors, EFP staff can identify emerging opportunities and tailor program offerings to maximize participation and energy savings.

This End-Use Customer Analysis begins in Section 2.1 with an overview of the current market for commercial and institutional energy efficiency retrofits. This section combines a characterization of New York's existing building stock with a summary of recent trends affecting awareness of and demand for energy efficiency. Section 2.2 introduces the priority market sectors identified by NYSERDA and the MCA team to receive particular focus in this analysis. Section 2.3 presents a comparative analysis of how each of these priority market sectors has participated to-date in the EFP. Finally, Section 2.4 provides findings related to the specific drivers, barriers, and opportunities around energy efficiency in each priority market sector, drawing heavily from the primary market research conducted for the Market Assessment.

2.1 EFP's End-User Target Audience

This section characterizes the primary target audience for the EFP's energy efficiency incentives—the C&I building sector. It begins with a description of the overall population of these buildings, including the number, size, and age of facilities across the state. In the context of the business model approach to the program, these buildings represent the totality of the EFP's "potential customers." The section continues by describing trends in the demand for C&I energy efficiency retrofits, drawing both from recent industry literature and data pulled from EFP's project-tracking database. For the business model perspective, the recent activity of these program participants represents the past purchasing behavior of the EFP's "current customers."

2.1.1 New York's Existing Building Stock

This section describes the EFP's general target audience—New York's existing buildings market. A number of sources were used to outline the existing buildings market in terms of number of establishments, building area, age of buildings, and energy intensity including:

- U.S. Census Bureau, County Business Patterns, 2009[20]
- U.S. Energy Information Administration, CBECS, 2003
- McGraw-Hill Building Stock Database, 2008
- U.S. Green Building Council, Leadership in Energy and Environmental Design (LEED) Project Directory, 2011

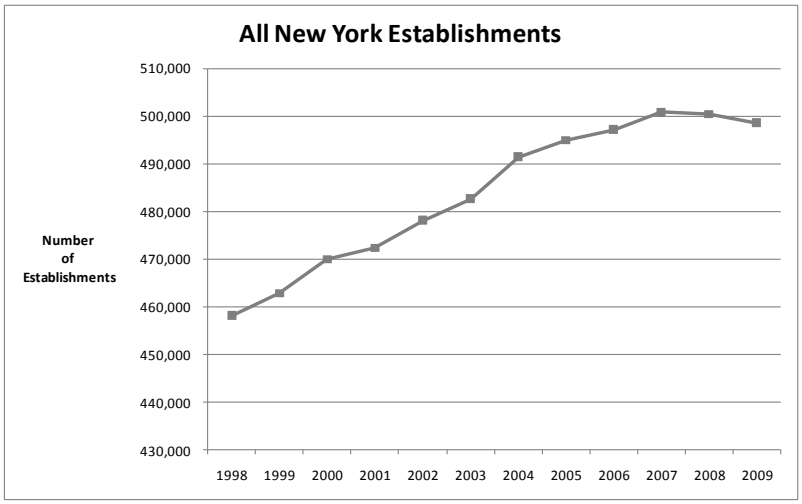
[20] The County Business Patterns data excludes public administration.

The market classifications for the U.S. Census data, which is based on the North American Industry Classification System (NAICS) classification, and the McGraw-Hill Building Stock Database are different. Therefore, these two databases cannot be directly compared.

2.1.1.1 Number of Establishments

According to the U.S. Census, there were 498,544 commercial and institutional establishments in the state of New York in 2009.[21] As can be seen in Figure 2-1, the number of establishments in New York declined in 2008 and again in 2009. This decline is likely due to the general economic downturn in the U.S. during those years.

Figure 2-1. Number of Commercial and Institutional Establishments in New York from 1998-2009

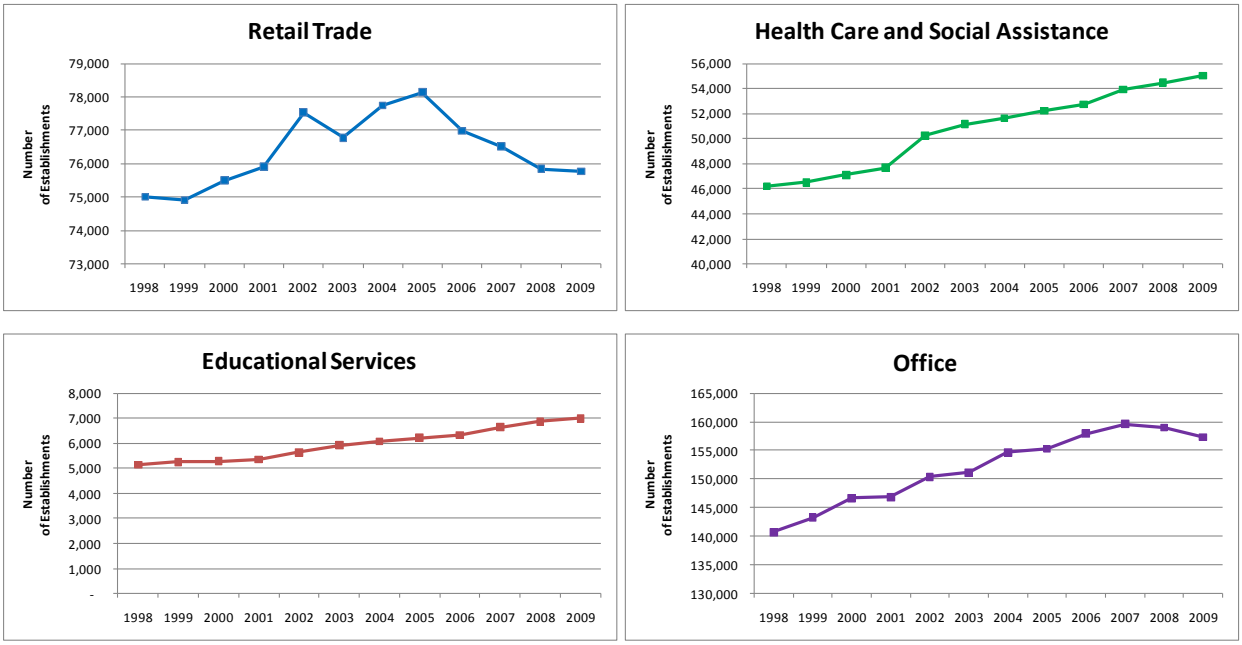


Note: This chart does not include data from the "Manufacturing" sector 1 since the study excluded industrial and manufacturing facility projects. Data is statewide (includes Nassau and Suffolk Counties), as historical data was not separable at the county level.
Source: U.S. Census Bureau, County Business Patterns, New York, 2009.

Figure 2-2 shows the number of establishments between 1998 and 2009 for the classifications most closely aligned with each of the priority market sectors targeted in this analysis (see Section 2.2). While the number of establishments has increased for Health Care and Social Assistance and Educational Services, it has decreased for the Retail Trade and Office classifications. The decrease in the Retail Trade sector occurred between 2005 and 2009, while the decrease in the number of Office establishments occurred between 2007 and 2009.

[21] An establishment is a single physical location at which business is conducted or services or industrial operations are performed. It is not necessarily identical with a company or enterprise, which may consist of one or more establishments. When two or more activities are carried on at a single location under a single ownership, all activities generally are grouped together as a single establishment. The entire establishment is classified on the basis of its major activity and all data are included in that classification. "Manufacturing" is not included in these values.

Figure 2-2. Number of Establishments in New York by Sector between 1998 and 2009



Note: Data is statewide (includes Nassau and Suffolk Counties), as historical data was not separable at the county level. "Office" is not an NAICS classification and for the purposes of this section includes the following market sectors: Information, Finance and Insurance, Real Estate, Rental and Leasing, Professional, Scientific, and Technical Services, Management of Companies and Enterprises, Administrative and Support, and Waste Management and Remediation Services. "Educational Services" does not include approximately 90 public colleges and universities and 5,000 public K-12 schools. (Data was collected for private institutions only.) Note the differences in scales between the different market sectors.
Source: U.S. Census Bureau, County Business Patterns, New York, 2009.

Despite the reduction in the number of Retail Trade establishments in recent years, the sector comprised the largest overall share (15 percent) in terms of number of establishments in 2009.[22] The Professional, Scientific, and Technical Services sector represented 12 percent and Health Care and Social Assistance followed at 11 percent of the total market share in 2009.

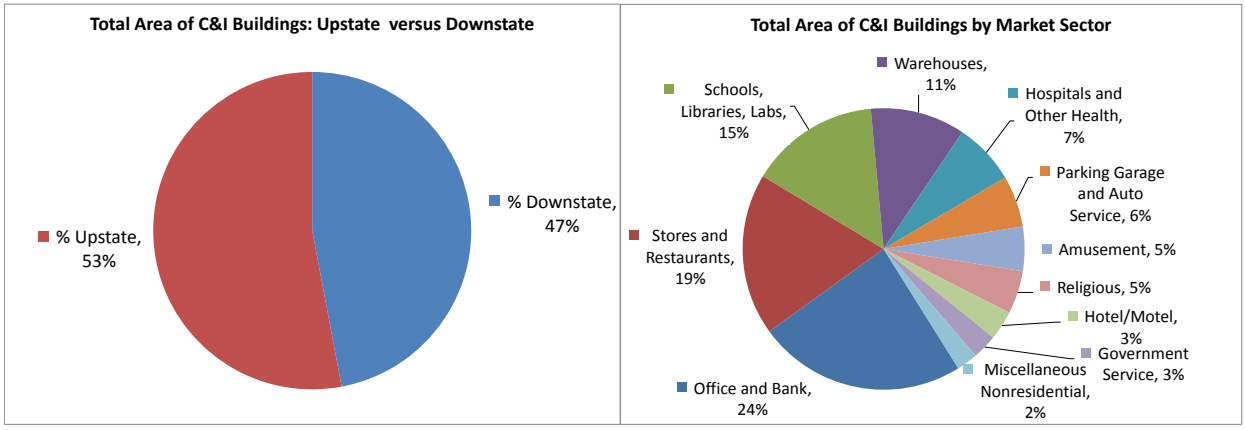
2.1.1.2 Building Area

The total area of C&I buildings in NYSERDA's target market (excluding Nassau and Suffolk Counties) is approximately 2.8 billion square feet, according to the McGraw-Hill Construction Building Stock data.[23] As shown in Figure 2-3, more than half of that area (53 percent) lies in the upstate region, while the remaining 47 percent is located downstate.[24] In terms of priority sectors, the office sector represents

[22] See Table E-1 in Appendix E.
[23] See Table E-1 in Appendix E. Does not include data on the following segments from the data set: Dormitories, Multi-Family, One-Family, Manufacturing.
[24] The downstate region includes the following counties: Bronx, Kings, New York, Queens, Richmond, and Westchester.

about 24 percent of the total area of eligible C&I buildings, while schools and hospitals represent 15 percent and 7 percent, respectively.

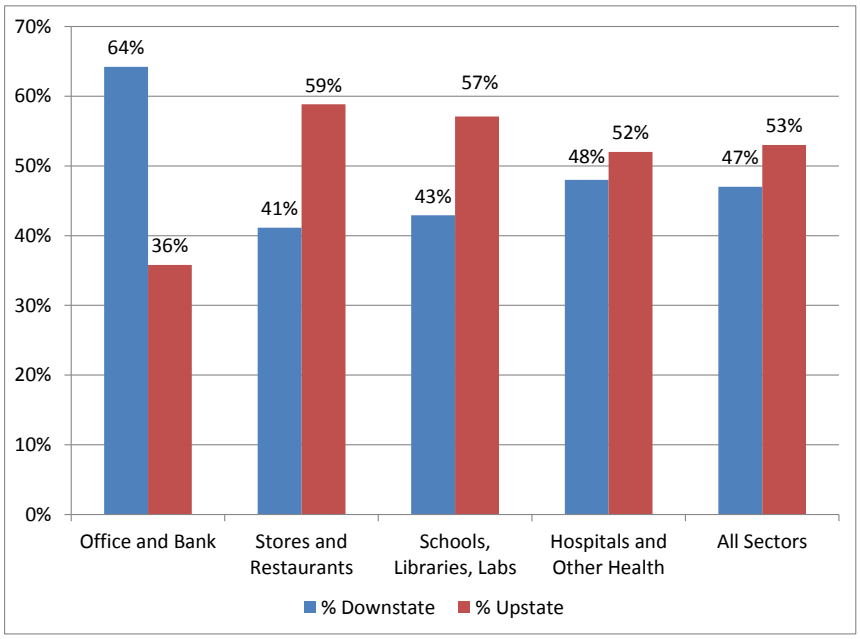
Figure 2-3. Breakout of C&I Building Area



Note: Excludes Nassau and Suffolk Counties
Source: McGraw-Hill Construction Building Stock Square Feet, 2008.

Figure 2-4 shows the regional distribution of establishments for each priority market sector, with the majority of most sectors' building space lying in upstate New York. However, according to the data, about 64 percent of the Office and Bank building area (430 million square feet) is located in the downstate region.

Figure 2-4. Regional Distribution of Building Space for Priority Market Sectors, 2009



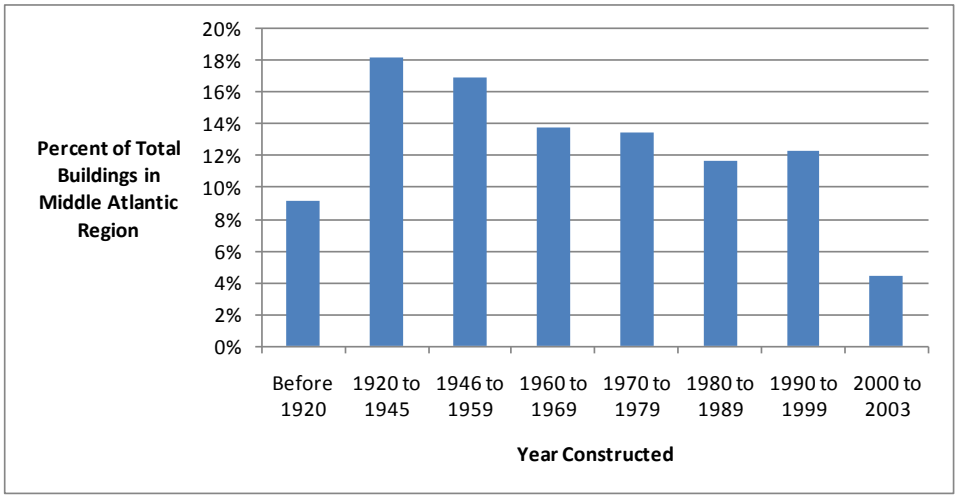
Note: Excludes Nassau and Suffolk Counties
Source: McGraw-Hill Construction Building Stock Square Feet, 2008.

In contrast to the McGraw-Hill data, a different source (from 2002) states that the New York City metro region contains more than 650 million square feet of office space, while a study by Lowenberger et al. from 2010 notes that more than 323 million square feet are in Manhattan Midtown and 91 million square feet are in Manhattan Downtown.[25] These differences in data sources show the lack of comprehensive data on building sizes in New York. The Lowenberger et al. study also found a large variation among sources in the reported square footage of buildings in New York City.

2.1.1.3 Age of Buildings

The age of buildings in New York can be estimated from the U.S. Energy Information Administration's (EIA's) CBECS data for the Middle Atlantic region, which includes NY, PA, CT, and NJ. Figure 2-5 shows that 58 percent of the buildings in the Middle Atlantic region were constructed prior to 1970, and thus are more than 40 years old. About 38 percent of the buildings were built between 1970 and 2000. Generally speaking, older buildings may be more likely candidates for most energy efficiency upgrades; however, the continuing improvement of technologies and building codes may create opportunities even in newer buildings.

Figure 2-5. Age of Buildings in the Middle Atlantic Region



Source: U.S. Energy Information Administration, 2003 Commercial Building Energy Consumption Survey, December 2006. Table A4.[26]

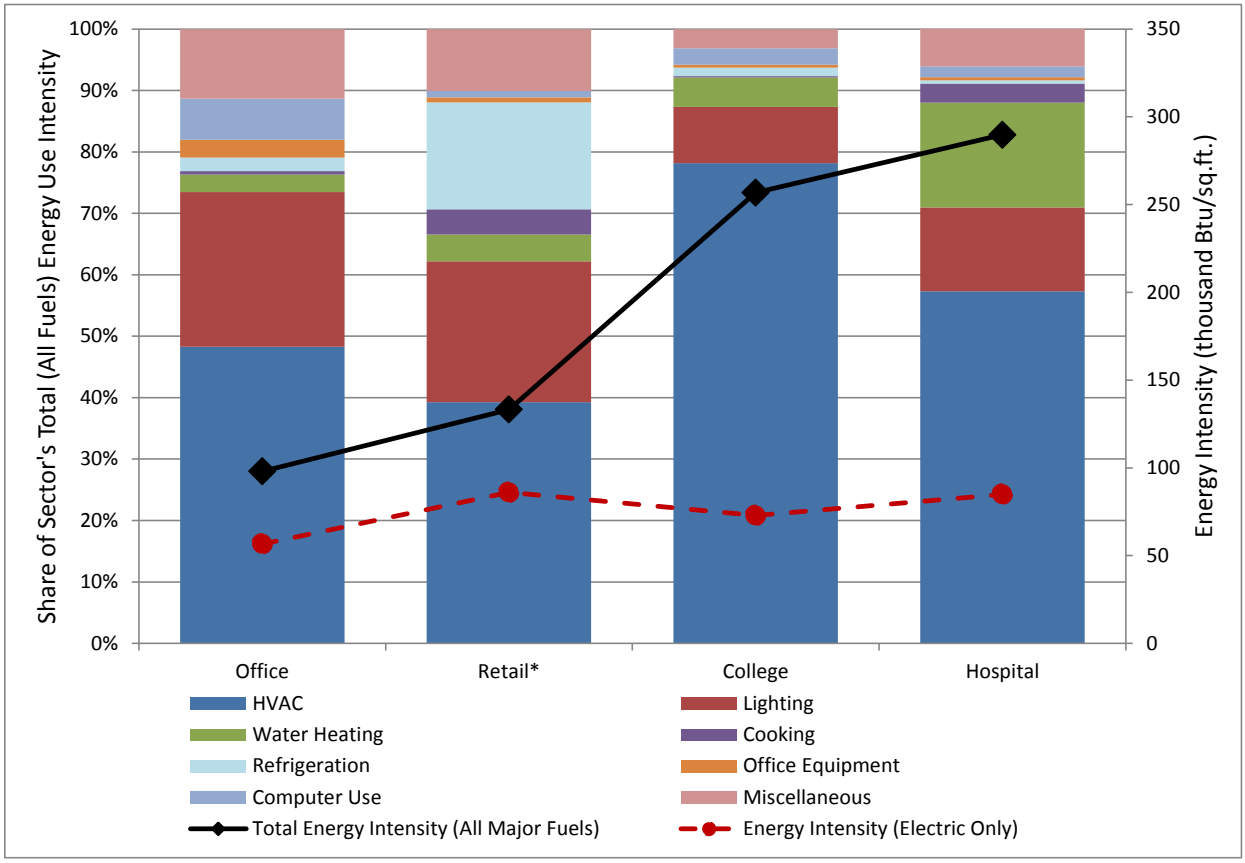
2.1.1.4 Energy Intensity

The relative number, floor area, and age of buildings provide only limited insight into the relative opportunities for energy efficiency improvements in each commercial and institutional sector. However, factoring in the relative energy intensity of buildings in each sector can better equip NYSERDA and energy service providers to target their energy conservation marketing efforts. Unfortunately, limited

[25] Lowenberger, A., J. Amann, A. Hinge, and K. Lenihan, "What Drives Energy Performance Scores: Benchmarking NYC High Rise Building Stock," 2010 ACEEE Summer Study on Energy Efficiency in Buildings, 2010.
[26] Data is for 2003. Note that a more recent version of CBECS was not released due to issues with the data.

state-level energy use intensity (EUI) data exists for New York. The most recent data available comes from the EIA's 2003 CBECS study, which provides relative energy use intensities for buildings in the U.S. Census Bureau's Middle Atlantic region. For priority market sectors, Figure 2-6 shows the total energy intensity, electric-only energy intensity, and the relative share of total energy intensity by equipment category.

Figure 2-6. Relative Floor Space and Energy Intensities, CBECS 2003



Note: Retail numbers include grocery stores, strip malls, and retail stores, but not enclosed shopping malls.
Source: U.S. DOE Buildings Energy Data Book, based on U.S. EIA 2003 CBECS Data.
http://buildingsdatabook.eren.doe.gov/CBECS.aspx. [27]

This data allows for some high-level comparisons. For example, colleges use a far greater share of energy for HVAC applications (primarily heating), while hospitals use relatively more total energy per square foot (all fuels) than any of the other three sectors. However, the age and regional scale of this data limits its reliability for drawing conclusions specific to the New York market. The commercial building benchmark data being collected through the City of New York's Greener, Greater Buildings Program and a planned commercial baseline study will likely provide a more meaningful and reliable source of insights for NYSERDA program planning staff going forward.

[27] Data is for 2003. Note that a more recent version of CBECS was not released due to issues with the data.

2.1.2 Recent Market Trends in Energy Retrofit Activity

This subsection provides a brief overview of general trends affecting the market for C&I efficiency retrofits in New York. From the perspective of the EFP business model, these external activities fall beyond the direct control of NYSERDA program staff. However, these trends do influence the overall environment for retrofit activity and provide a sense of the market's overall interest and awareness in energy efficiency.

2.1.2.1 LEED Certification

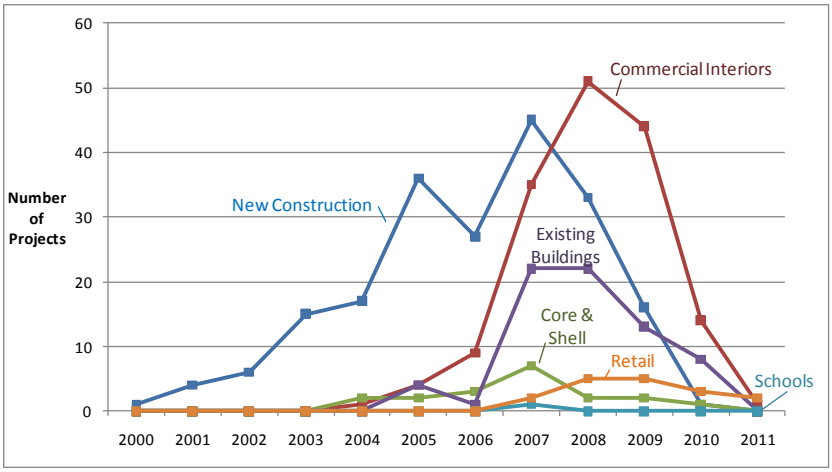
A review of LEED certified projects can provide some insight into the energy retrofit activity in New York. While several types of certification exist for qualifying or categorizing buildings' energy efficiency, LEED certification data is easily accessible to the public and can be compared across geographically diverse markets. Buildings can obtain LEED certification under a rating system that includes the following commercial building classifications: New Construction, Existing Buildings: Operations and Maintenance, Commercial Interiors, Core and Shell, Schools, Retail, and Health Care. The public LEED projects database shows 470 buildings LEED certified in New York between 2000 and September 23, 2011. Of these projects, almost half (43 percent) were certified under LEED New Construction.[28] Thirty-four percent of buildings were certified under LEED Commercial Interiors, while 15 percent were certified under LEED Existing Buildings.[29]

The certification of buildings in New York through the LEED program peaked between 2007 and 2008 for most rating classifications (see Figure 2-7). For example, 2008 was the year with the highest number of certifications for the LEED Commercial Interiors classification (51 projects). Comparatively, in 2010, the program certified 14 buildings with the Commercial Interiors classification. New York buildings certified under LEED Existing Buildings also peaked in 2007 and 2008 with 22 buildings certified in each year. Overall, the number of buildings being certified under the LEED rating system has declined in recent years. However, given that the number of commercial establishments in New York (particularly in the Office and Retail Trade sectors) also decreased in this time period (see Figure 2-1 and Figure 2-2), the decline in LEED certifications may partly reflect the effects of the economic recession.

[28] See Table E-3 in Appendix E.

[29] Appendix E contains the LEED rating system descriptions.

Figure 2-7. Number of LEED-Certified Projects by Year and Rating System in New York (2000–September 23, 2011)



Source: U.S. Green Building Council, Public LEED Project Directory, Latest as of September 23, 2011. Includes projects from 2000 to September 23, 2011.

2.1.2.2 Increased Support Through Local and State Policy Initiatives

Recent policy initiatives in New York City will likely increase awareness of and demand for energy efficiency, despite the decline in the number of buildings obtaining LEED certification in each of the past few years. The Greener, Greater Buildings Plan (GGBP)[30] passed in 2009 by the New York City Council includes four laws that will require increased energy efficiency in large existing buildings. The plan requires benchmarking of city buildings greater than 10,000 square feet and other buildings greater than 50,000 square feet beginning in 2011.[31] Implementation of the plan is a key focus of the City's PlaNYC 2030 initiative, which includes several other actions (e.g., building code improvements) that will likely contribute to increased demand for efficiency-related services in the downstate region.[32]

Such efficiency improvements at the Empire State Building have provided an example for existing building retrofit potential in both New York City and the state generally. The sustainability retrofit on the building will reduce the energy consumption by 38 percent and generate $4.4 million in annual energy bill savings.[33] One of the lessons learned from the project was the importance of aligning energy efficiency retrofits with building replacement cycles to lower upfront costs. Other lessons learned from this project could be used for existing building retrofits across New York.

[30] PlaNYC 2030. http://nytelecom.vo.llnwd.net/o15/agencies/planyc2030/pdf/planyc_2011_energy.pdf
[31] The specific requirements of buildings that are required to benchmark their water and energy usage can be found in Local Law No. 84 Article 309, accessed October 4, 2011, http://www.nyc.gov/html/planyc2030/downloads/pdf/ll84of2009_benchmarking.pdf.
[32] PlaNYC 2030. http://nytelecom.vo.llnwd.net/o15/agencies/planyc2030/pdf/planyc_2011_energy.pdf
[33] The Official Site of the Empire State Building, "Sustainability and Energy Efficiency," accessed October 4, 2011, http://www.esbnyc.com/sustainability_energy_efficiency.asp.

2.1.2.3 *Private-Industry Interest and Investment*

On a broader scale, energy retrofit activity appears to have received a push from private investment in 2011. On September 20, 2011, the Clinton Global Initiative announced a three-year project targeting the real estate market. Financial, real estate, and sustainability leaders have partnered to incorporate energy efficiency and other measures into initial tenant build-outs or tenant space retrofits. One of the project's goals is to "develop an aggressive marketing strategy to commercialize the business case for retrofits based on the project results."[34] The project will begin with 12-15 major tenants including Bloomberg LP, LinkedIn, and tenants of Vornado Realty Trust. Financial partners include Goldman Sachs and the Rockefeller Foundation.

Similarly, The Carbon War Room, set up by the Virgin Group's Richard Branson, announced in September a consortium to "jump-start a national market for energy upgrades."[35] The consortium includes the Ygrere Energy Fund, Lockheed Martin, and Barclays Bank, and the group plans to invest $650 million over the next few years. The initial focus will be on commercial property in the Miami and Sacramento areas. The group plans to utilize the Property Assessed Clean Energy (PACE) financing mechanism, which would add a surcharge on affected buildings' property-tax bills to pay for energy upgrades.

As discussed in later sections of this report, these policy and private-sector initiatives, many of which have goals complementary to those promoted by the EFP, represent important leveraging opportunities to be considered by program staff as they discuss program positioning going forward.[36]

2.2 *Defining Priority Market Segments*

As mentioned in Section 1.2.3, during the development of a detailed approach to this assessment, the MCA team and NYSERDA staff agreed to focus the study on three high-priority end-user target sectors. Prioritizing a subset of the market segments eligible for EFP participation enabled the project team to focus its resources on market segments that have been most critical to the program's success thus far. This approach also enabled the project team to provide NYSERDA with deeper analysis and more actionable information on the targeted sectors.

The MCA team initiated this prioritization through high-level analysis of EFP's program tracking database for projects initiated between July 2008 and April 2011. Based on an initial review, the broadly defined Commercial sector accounted for approximately 40 percent of estimated program savings in the

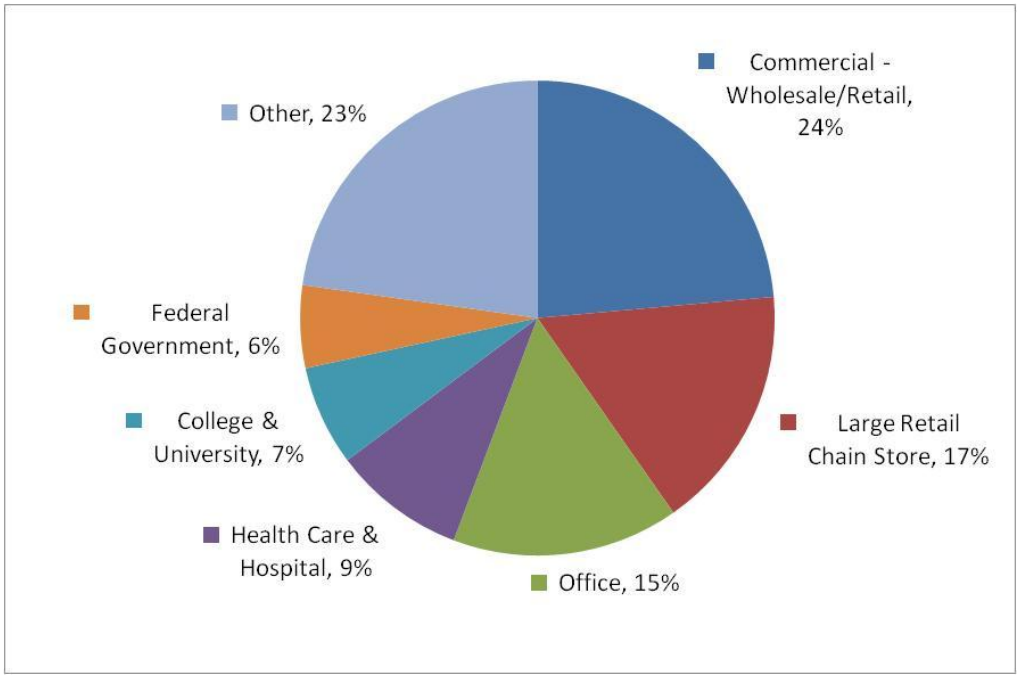
[34] Natural Resources Defense Council. "High-Performance Tenant Spaces," Clinton Global Initiative Commitment, 1 accessed October 4, 2011, http://www.nrdc.org/business/cgi/.

[35] Justin Gillis. "Tax Plan to Turn Old Buildings "Green" Finds Favor," *The New York Times*, September 19, 2011, accessed October 4, 2011, http://www.nytimes.com/2011/09/20/business/energy-environment/tax-plan-to-turn-old-buildings-green-finds-favor.html.

[36] These initiatives will likely contribute to increased demand for energy efficiency. NYSERDA staff should be aware of the potential implications for freeridership going forward. From the perspective of the upfront cost barrier, NYSERDA's EFP still has an important role to play in encouraging projects and energy savings that would not otherwise occur without such incentives.

database.[37] Unfortunately, the Commercial market sector category itself provides little detail regarding the types of businesses responsible for these savings.[38] In the interest of understanding the specific role of large retail chain stores (e.g., "big box stores"), the MCA team created a new sub-category to capture savings from stores that it identified as large chain retailers based on customer names in the database. These stores represented 41 percent of the Commercial sector savings, or 17 percent of total savings across all sectors. In addition to the Large Retail Chain and remaining Commercial sectors, the other top participating market sectors in terms of estimated energy savings include Offices (15 percent), Health Care and Hospitals (9 percent), Colleges and Universities (7 percent), and Federal Government (6 percent). Together, these six sectors represent 77 percent of energy savings from measures in the EFP database. Section 2.3 further explores the degree to which prequalified and performance-based savings in each sector contribute to overall program savings.

Figure 2-8. Estimated EFP Energy Savings by Market Sector



N = 7,402 measures.
Source: MCA team analysis.[39]

While the above analysis focuses on the program's to-date progress, the team has also anticipated the possible effects of changing equipment standards and emerging technologies on program participation

[37] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.
[38] The program database includes a field for "Structure Description;" however, the most common category ("Stores and Restaurants") provides limited insight on the specific type of business involved.
[39] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.

patterns.[40] One such shift in the market will likely arise from improved lighting standards. These changes will likely decrease the amount of energy savings the program can claim from lighting measures as baseline and measure lifetime assumptions change.[41] The MCA team conducted a separate analysis that excluded all lighting measures from the data set to identify where the program has achieved energy savings from non-lighting measures.

Table 2-1 shows the top five market sectors based on their share of estimated non-lighting energy savings for EFP measures in the NYSERDA database. (The figure shows the share of both performance-based and overall non-lighting savings.) As shown, the highlighted market sectors align with those previously listed as currently participating sectors with the highest share of program energy savings. This suggests that these market sectors will retain the potential for participation in the EFP even as energy savings from lighting measures become less available.

Table 2-1. Market Sectors with Greatest Estimated Energy Savings from Non-Lighting Measures

Market Sector	Percent of Estimated Non Lighting Energy Savings (Performance Based Measures)	Percent of Estimated Non Lighting Energy Savings (All Measures)
Office	19%	22%
Health Care & Hospital	15%	16%
Education - Colleges & Universities	12%	10%
Commercial - Wholesale/Retail (excluding Large Retail Chain Stores)	7%	15%
Large Retail Chain Stores	8%	9%

N = 7,402 measures
Source: MCA Team analysis[42]

Based on this initial research and analysis, the MCA team and NYSERDA agreed upon the following priority market segments:

1) Institutional Facilities (sub-segments for Health Care & Hospitals and Colleges & Universities)
2) Office Buildings (sub-segments for owner-occupied offices and property managers)
3) Large Retail Chain Stores

The remainder of this subsection describes the MCA team's rationale for the selection of each of these target segments.

[40] Database analysis covers projects initiated between July 2008 and April 27, 2011.
[41] S. Mufson. "New Lighting Standards Announced," *Washington Post*, June 30, 2009. Accessed March 9, 2010 at: http://www.washingtonpost.com/wp-dyn/content/article/2009/06/29/AR2009062904273.html.
[42] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.

2.2.1 Institutional Sector

NYSERDA includes both health care facilities and colleges and universities among its current focus areas. Based on the organizational similarities between these two sectors and sampling issues encountered during the survey process (see Appendix C), these sectors were grouped together and analyzed as indicators for the broader institutional market.

2.2.1.1 Hospitals and Health Care Facilities

NYSERDA's assigned outreach contractor has reported both recent successes and emerging opportunities that NYSERDA could leverage through focused MCA research. For example, a partnership with National Grid has reportedly provided additional EFP participation among health care sector customers.[43] In addition, hospital facility managers generally have high levels of interest in emerging technologies and ideas (e.g., light-emitting diode [LED] lighting and retro-commissioning).[44] Understanding decision makers' perceptions of emerging technologies and associated risks may provide useful information for designing appropriate incentives to foster adoption of new energy savings opportunities.

2.2.1.2 Colleges and Universities

Like other institutional organizations, colleges and universities often own their facilities. Among these schools, public institutions are also often subject to legislative or other organizational energy-saving goals. These characteristics make the sector an attractive market for energy efficiency retrofits and service providers.[45] For private colleges and universities in particular, ESCOs may provide options for financing projects for which budgets otherwise would not exist.[46]

NYSERDA's assigned outreach contractor reported that emerging energy savings opportunities exist in the higher education sector, but that reduced capital budgets may hinder the rate of project implementation. In particular, data centers and computing represent areas of rapidly increasing energy use that these institutions would like to better manage.[47] NYSERDA and the MCA team highlighted this sector, in part, to better understand these emerging opportunities and the degree to which budget restrictions may reduce program participation by this sector.

2.2.2 Office Buildings

The Office sector (also referred to as the Commercial Real Estate [CRE] sector) represents a key opportunity to reach a large amount of building space through a relatively concentrated set of building owners and property managers. According to HR&A Advisors, NYSERDA's CRE focus contractor, 86 percent of commercial office space in New York is located within the greater New York City (NYC) metropolitan area. Collectively, the 30 largest owners and third-party property managers in NYC control nearly 75 percent of the commercial real estate in the entire state.[48] In addition, the emerging

[43] Interview with Luthin Associates, February 2011.
[44] Interview with Luthin Associates. February 2011.
[45] Satchwell et al. "A Survey of the U.S. ESCO Industry: Market Growth and Development from 2008 to 2011."
[46] According to NYSERDA's outreach contractor, public universities in New York cannot use performance contracts.
[47] Interview with Einhorn Yaffee Prescott. February 2011.
[48] HR&A Associates. "NYSERDA Focus CRES Commercial Real Estate Market Report. Summer 2010 - DRAFT." 1

benchmarking and energy audit requirements associated with NYC's GGBP will likely create opportunities for customers to leverage NYSERDA's programs.[49]

This local regulation may have had some influence on the apparently higher levels of private-sector ESCO activity among EFP participants. As noted in a Lawrence Berkeley National Laboratory study, the private-sector market represented a decreasing level of ESCOs' revenues nationally between 2006 and 2008, both in relative and absolute terms.[50] However, initial review of NYSERDA's EFP project database indicates ESCO relationships with these private-sector host customers are persisting or possibly increasing (see Section 2.4.3).

2.2.3 Large Retail Chain Stores

Programs similar to the EFP in other jurisdictions have recently increased the granularity of their market segmentation efforts, some with great success.[51,52,53] On their own, the Commercial–Wholesale/Retail market sector designation and the Store and Restaurant structure category represent a large share of EFP measures and energy savings. Additional research and analysis into the various sub-segments (e.g., retail chain stores) comprising this sector could provide useful information to help NYSERDA identify future outreach focus areas. As will be discussed further in Section 2.3, the projects in the EFP database make limited use of the sub-segment identifiers available (e.g., Big Box Retailer, Fast Food Restaurant). This lack of data specificity for Commercial–Wholesale/Retail sector projects makes it more difficult to draw inferences about the participation and opportunities within each sub-segment. Regardless, program staff expressed an interest in beginning to better understand the various sub-components of the broader Commercial–Wholesale/Retail market sector.

Within the sector, NYSERDA program staff identified Retail Chain Stores as a particular sub-segment of interest. Conversations with staff and subsequent investigation of program tracking data have indicated that several corporate retail organizations have implemented similar energy efficiency measures at multiple store locations across the state. This pattern suggests an opportunity to realize increased economies of scale in a single end-use decision maker's application for and implementation of measures repeated at similar facilities. Allocating a portion of end-user surveys to this sub-segment helped the MCA team characterize this potential opportunity by better understanding drivers, barriers, technologies, and decision-making processes related to energy efficiency improvements among retail chain stores.

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[49] Lowenberger, et al.

[50] A. Satchwell, C. Goldman, P. Larsen, D. Gilligan, and T. Singer. "A Survey of the U.S. ESCO Industry: Market Growth and Development from 2008 to 2011," Lawrence Berkeley National Laboratory, 2010.

[51] J. Clark, A. Doeschot, D. Fisher, and U. Song. "Why Are Commercial Food Service Utility Incentives so Tasty? Best Practices and Technologies for Utilities to Create Energy- and Water-Efficient Restaurants," 2010 ACEEE Summer Study on Energy Efficiency in Buildings, 2010.

[52] Jane S. Peters, et al. "2008 BetterBricks Overall Market Progress Evaluation Report," Northwest Energy Efficiency Alliance, 2009.

[53] J. Kramer, G. Smith, and R. Hartwell. "Cutting the Refrigeration 'Juice' in Pacific Northwest Groceries," 2010 ACEEE Summer Study on Energy Efficiency in Buildings, 2010.

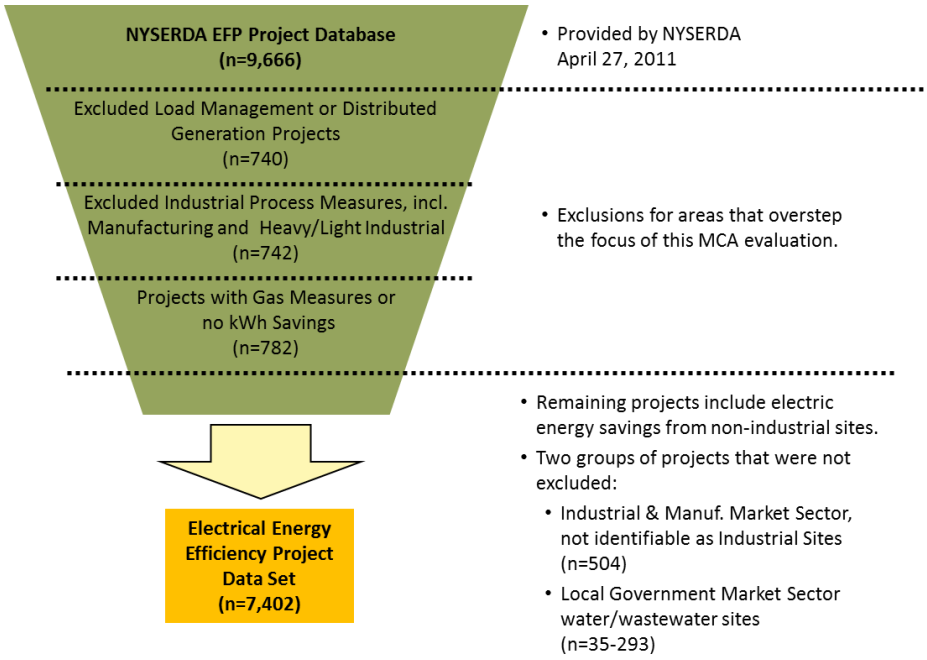
2.3 *Current Customer Behavior – Program Participation to Date*

This section focuses on end users that have already participated in the EFP. In the business model framework, these customers have revealed their most pressing needs and preferences to NYSERDA staff through the types of incentives and measures for which they have applied. While past behavior does not wholly determine future decisions, such information can provide valuable insights into emerging trends or missed opportunities to capture additional energy savings.

2.3.1 Program Participation Overview Statistics

The MCA team based the statistics and findings presented in this section on analysis of NYSERDA's EFP project-tracking database as of April 27, 2011. The team excluded records that are not relevant to the scope or purpose of this MCA effort (see Section 1.2.2 for details). Specifically, this analysis focused on electric energy efficiency measures within the priority target sectors by excluding all load management and DG projects, industrial and process efficiency measures, and gas measures. Figure 2-9 illustrates these exclusions.

Figure 2-9. Summary of Measures Excluded from Original EFP Data Set



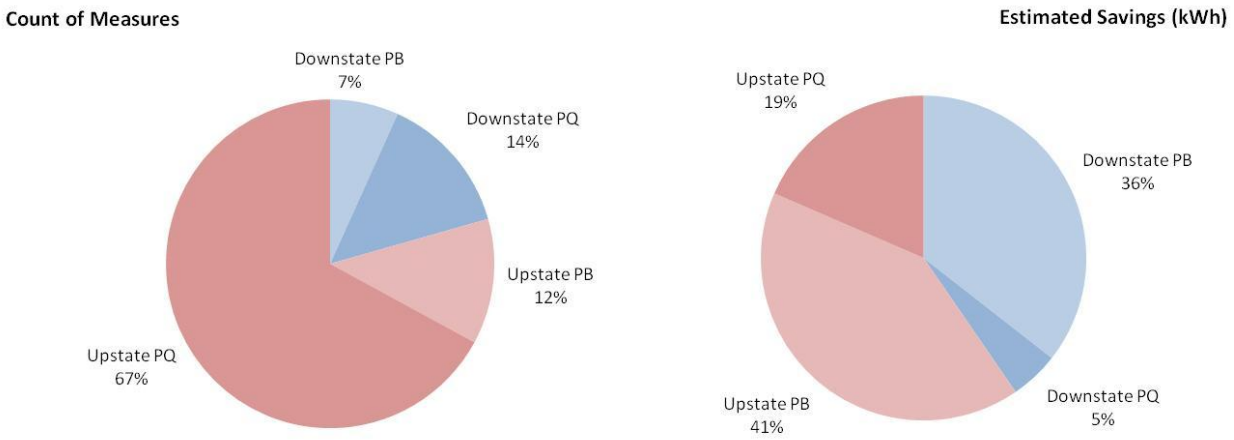
Source: MCA team analysis

From an original universe of 9,666 measures, the MCA team excluded 2,264 entries, leaving a total of 7,402 measures for the initial participant sample. Note that any estimates of measure savings are those that appear in the EFP database. While the MCA team imparted a reasonable level of quality control in managing and analyzing the data, it did not seek to verify or validate energy savings values or other data entered by program applicants or program staff.

2.3.1.1 *Participation by Geography*

As discussed in Section 2.1, more than half of NYSERDA's targeted New York's C&I building area (53 percent) lies in the upstate region of New York, while the remaining 47 percent is located downstate.[54] Data collected from the EFP database echoes this proportion; the majority of estimated savings (60 percent) occur in upstate New York. However, as seen in Figure 2-10, the proportion of energy savings between upstate and downstate shifts considerably compared to the number of measures. Downstate locations account for a total of 41 percent of estimated program savings from only 21 percent of listed measures. This implies that downstate projects, while less frequent, result in more savings per project.

Figure 2-10. Share of Measures and Estimated Savings by Region



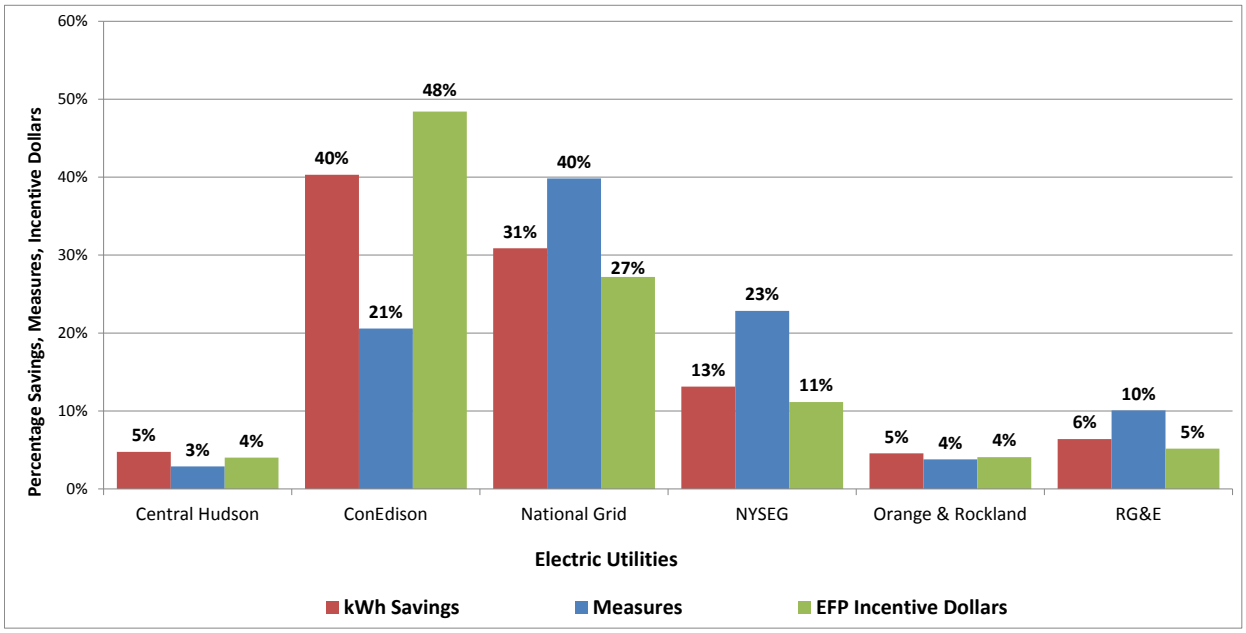
Note: Includes both performance-based and prequalified measures. N = 7,336 (A total of 66 records in the database were missing data in the "County" field; therefore, a "downstate" or "upstate" designation could not be made.)
Source: MCA team analysis[55]

2.3.1.2 *Participation by Electric Utility*

Figure 2-11 shows the distribution of several participation indicators (kWh savings, number of measures, and incentive dollars) attributed to each participating electric utility territory.

[54] Excludes Nassau and Suffolk Counties. The downstate region includes the following counties: Bronx, Kings, New York, Queens, Richmond, and Westchester.
[55] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.

Figure 2-11. EFP Participation by Electric Utility



Note: Includes both performance-based and prequalified measures. N = 7,298 measures (Some measures were missing utility data.)
Source: MCA team analysis[56]

A lower proportion of measures (21 percent) occur in ConEdison's territory compared to National Grid (40 percent) and New York State Electric & Gas (NYSEG) (23 percent); however, measures in ConEdison's territory represent the highest proportions of both savings (40 percent) and incentive dollars (48 percent). The difference may arise partly from the relatively higher concentration of performance-based measures in ConEdison's territory. Nearly half (46 percent) of all performance-based savings in the EFP database occur in ConEdison territory, whereas National Grid and NYSEG have lower shares of performance-based savings (28 and 10 percent, respectively) compared to their shares of overall savings. Another contributor to the higher proportion of savings for ConEdison may be the larger average size of buildings involved in EFP projects. As shown in Table 2-2, the average square footage of buildings (as reported on EFP applications) is significantly higher for buildings in ConEdison's territory than the other utilities. These larger facilities will likely deliver more energy savings per site.

[56] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.

Table 2-2. Average of Facility Square Footage Listed on EFP Applications by Utility

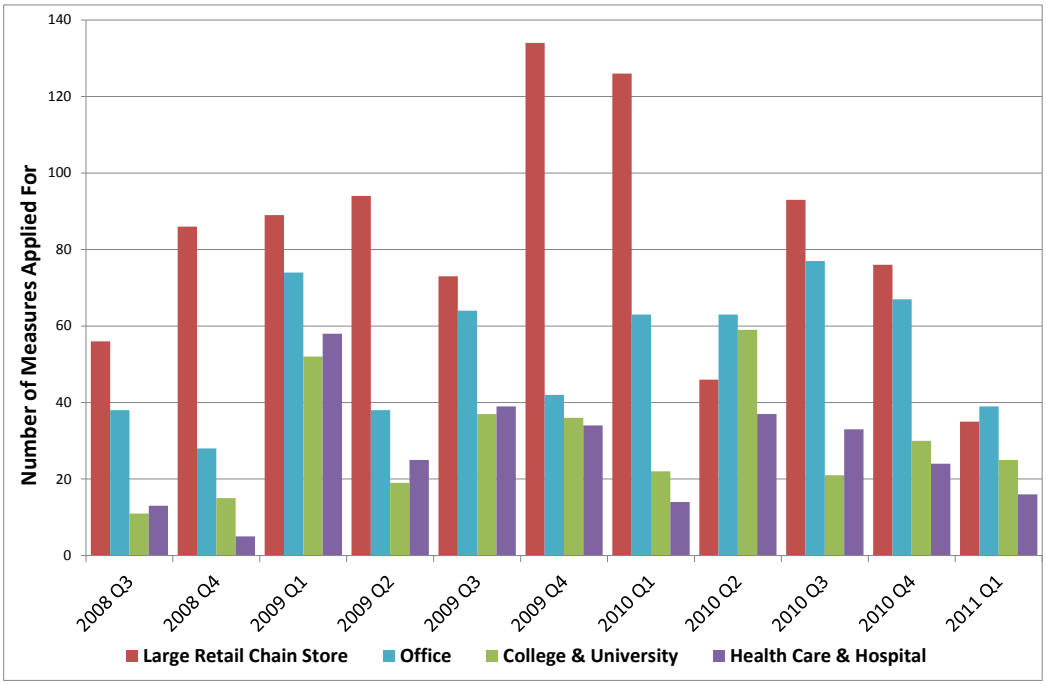
Electric Utility	Average Square Footage per Application		
	Performance Based	Prequalified	All Measures
Central Hudson	155,533	173,024	166,611
ConEdison	454,039	217,545	290,283
National Grid	142,058	101,905	107,778
NYSEG	107,633	160,126	152,683
Orange & Rockland	194,567	90,403	126,778
RG&E	103,111	171,510	160,261
All Utilities	**246,373**	**146,230**	**165,992**

Note: Includes all measures for which square footage was included on applications. (N = 5,493)
Source: MCA team analysis

2.3.1.3 Program Participation Over Time

The MCA team sought to identify program trends over time by reviewing the application dates for measures across each of the priority market sectors. Figure 2-12 shows the number of measures applied for by participants in each priority sector across each quarter, starting with the third quarter of 2008.

Figure 2-12. Number of Measures Applied for by Quarter by Priority Sector[57]



Source: MCA team analysis of NYSERDA EFP database; includes both performance-based and prequalified measures.

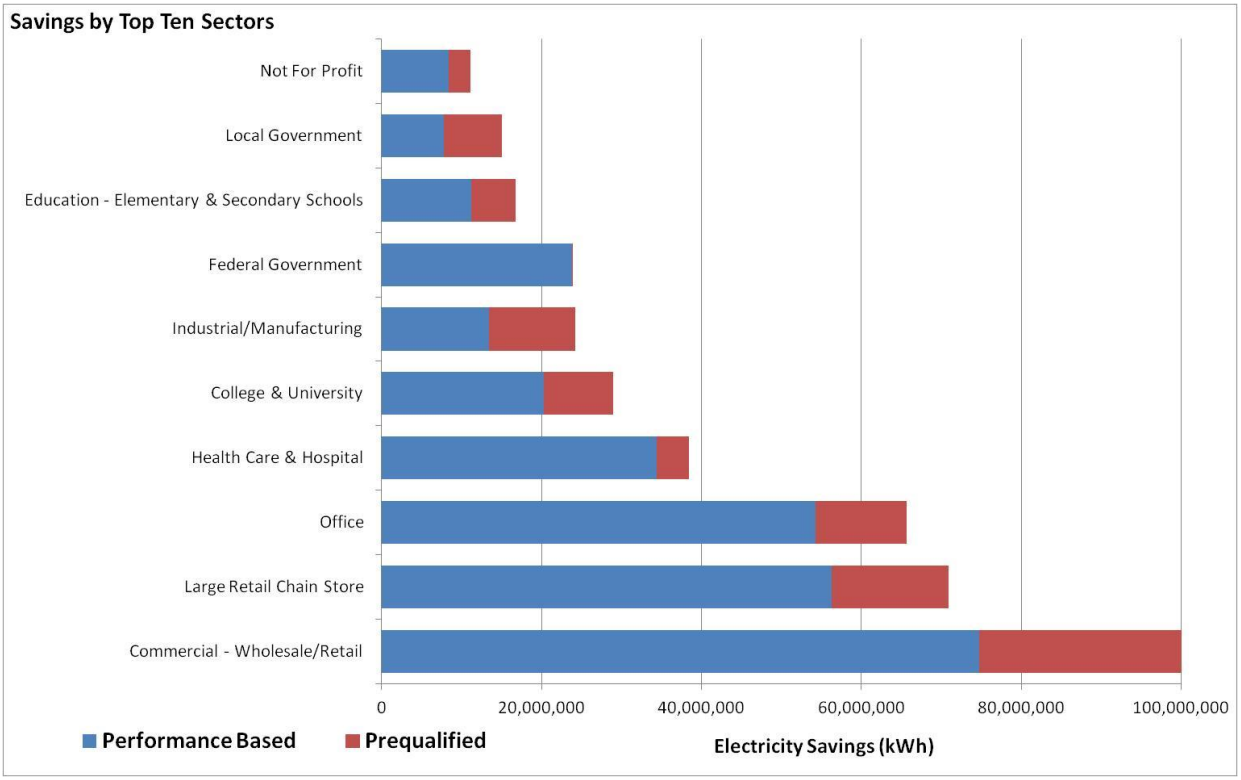
[57] Based on the availability of data in the EFP database, institutional sector totals appear separately for the College & University and Health Care & Hospital sectors.

Several notable variations appear in the above figure. For example, the Large Retail Chain Store sector showed steady increases in EFP program activity through the first quarter of 2010; however, applications appear to have declined since then. On the other hand, applications from the other three priority market sectors (Office, Education – Colleges and Universities, and Health Care) experienced a significant jump during the first quarter of 2009. Like the Large Retail Chain Store sector, the Office building sector also revealed a slight decrease in the first quarter of 2011.

2.3.1.4 Program Participation by Sector and Incentive Type

The MCA team analyzed the EFP database to determine which sectors are most active in terms of program participation and energy savings. Figure 2-13 illustrates the distribution of EFP energy savings from all measure categories across the top ten market sectors (in terms of program energy savings).

Figure 2-13. Estimated EFP Program Savings across Top Ten Sectors



Note: N = 7,402 measures; graphic shows top ten sectors only.
Source: MCA team analysis[58]

The Commercial (excluding Large Retail Chains), Large Retail Chain Store, and Office sectors stand out in the above figure. As discussed in Section 2.2, these three sectors represent the majority (56 percent) of program savings. The Federal Government sector also stands out as having a higher proportion of

[58] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.

performance-based savings than other sectors.[59] Across all sectors, the share of total energy savings falls heavily toward performance-based measures. As noted in Section 1.2, this report focuses on better understanding the drivers and barriers among participating end users who specifically pursue performance-based projects. Table 2-3 illustrates the distribution of all savings (from both performance-based and prequalified measures) across all sectors in the EFP project database.

Table 2-3. Distribution of Total Savings by Sector and Incentive Type

Sector	Performance Based Measures	Prequalified Measures	Total
Commercial - Wholesale/Retail			
Large Retail Chain Store	13%	3%	17%
Office	13%	3%	15%
Health Care & Hospital	8%	1%	9%
College & University	5%	2%	7%
Industrial/Manufacturing (non-industrial facilities only [e.g., offices])	3%	3%	6%
Federal Government	6%	0%	6%
Education - Elementary & Secondary Schools	3%	1%	4%
Local Government	2%	2%	4%
Not For Profit	2%	1%	3%
Hospitality	2%	0%	2%
State Government	2%	0%	2%
Multifamily (over 4 units)	1%	0%	1%
Undefined/Other	0%	2%	1%
Grand Total	**76%**	**24%**	**100%**

Note: N = 7,402 measures. Listed industrial and manufacturing savings are for non-industrial facilities (e.g., warehouses or offices) owned or occupied by industrial sector applicants.
Source: MCA team analysis[60]

The MCA team confirmed program staff's assertion that performance-based projects result in a greater share of energy savings across all sectors in the EFP. While a majority (81 percent) of the volume of EFP applications are for prequalified measures, the bulk of program energy savings come from performance-based measures. This underscores the relative value of performance-based measures and highlights the potential benefits of encouraging more widespread interest and participation in such projects. The remainder of this section focuses on these performance-based projects and measures only.

[59] Federal buildings receive support from the Federal Energy Management Program (FEMP) and are required under Executive Order 13514 to implement cost-effective energy efficiency measures. (http://www1.eere.energy.gov/femp/regulations/eo13514.html)

[60] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.

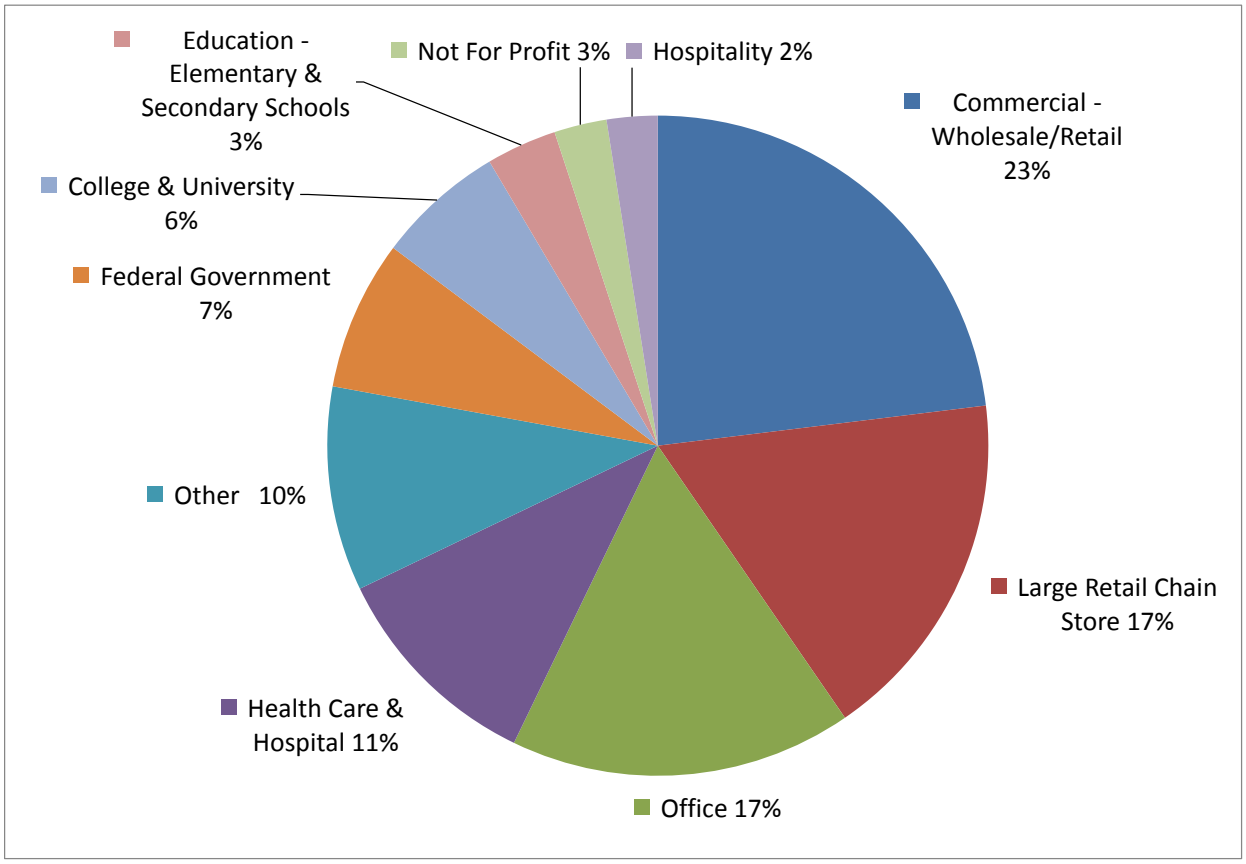
2.3.2 Performance-Based Savings

This subsection includes specific analysis of the breakdown and allocation of performance-based savings in the EFP, again drawing from project and measure information in the EFP project database.

2.3.2.1 Performance-based Savings by Sector

Figure 2-14 illustrates the distribution of energy savings from performance-based measures across each market sector. Again, the Commercial–Wholesale/Retail sector (excluding Large Retail Chains) provides the most savings (23 percent), with projects in the Large Retail Chain Store sector providing 17 percent. Other sectors providing at least five percent of program energy savings include Office, Health Care & Hospital, Federal Government, and College and University. Section 2.4 presents a more detailed look at the particular types of measures and equipment implemented by participants within each priority sector.

Figure 2-14. Percentage of Performance-Based Savings by Sector



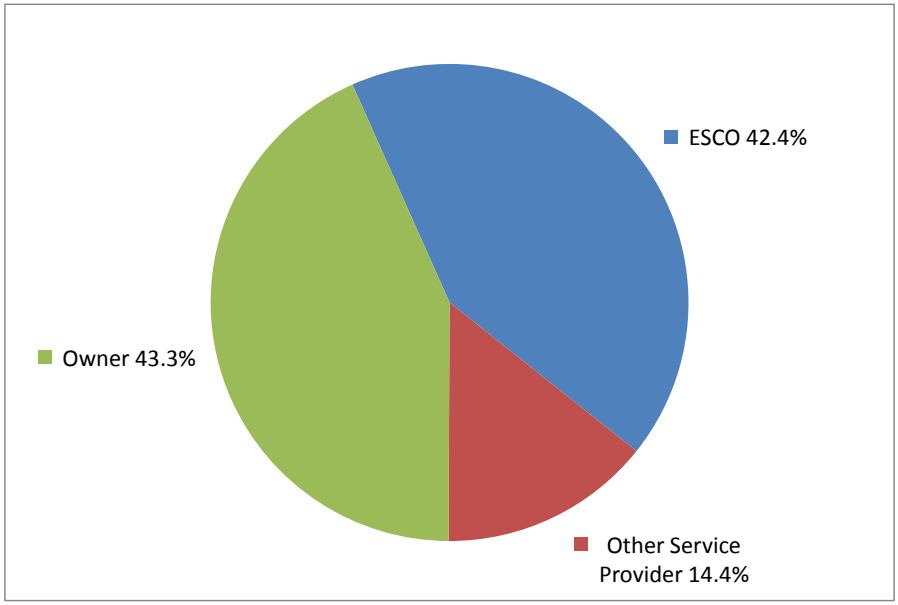
Note: Includes all performance-based measures in database. N = 1,404 measures.
Source: MCA team analysis[61]

[61] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.

2.3.2.2 *Program Applicants – Who Applies for Performance-Based Projects?*

The EFP database also provided some insight on the degree to which end users rely on external service providers to coordinate their program participation. Based on the MCA team's assessment of the applicant type for each performance-based measure in the database, owners and ESCOs shared nearly equal responsibility for performance-based program applications.[62] Figure 2-15 shows the distribution of applicant types within the EFP database. ESCOs submitted 42 percent of the applications, compared to Owners, who submitted 43 percent. This suggests that any efforts to specifically market performance-based measures should consider targeting both Owners and ESCOs. Other Service Providers were responsible for the remainder of measure applications (14 percent). The Other Service Provider category includes engineering firms, property management companies, and equipment contractors.

Figure 2-15. Share of Performance-based Electricity Savings based on Application Responsibility



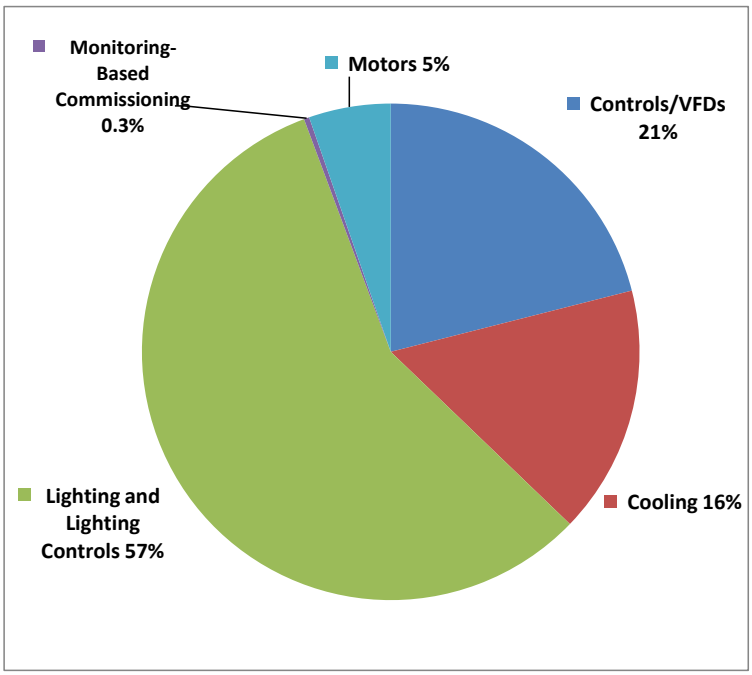
Note: Includes all performance-based measures in database. N = 1,404.
Source: MCA team analysis[63]

2.3.2.3 *Sources of Performance-based Savings*

The MCA team further characterized the program's performance-based savings based on the types of equipment and systems responsible for those savings. Figure 2-16 shows the distribution of performance-based savings across each measure category in the EFP database.

[62] Categorization of each project's applicant organization type was based on a combination of online research and comparison of the Customer Name and Applicant Name listed for each measure. If entries for these fields were identical, the MCA team assigned the measure to the "End User" category. The "ESCO" category applies to Applicants whose websites specifically referenced performance contracting as a primary service offering. "Other Service Provider" was assigned to third-party firms whose websites did not mention performance contracting.
[63] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.

Figure 2-16. Savings by Performance-Based Measure[64]



Note: Includes all performance-based measures in database. N = 1,404.
Source: MCA team analysis[65]

As shown, lighting and lighting controls produce the majority of savings (57 percent) among performance-based measures, with controls and VFDs and cooling measures also representing large shares. While the majority of performance-based savings come from lighting and lighting control measures, the MCA team also sought to understand the average savings provided by each performance-based measure in the various equipment categories. Table 2-4 shows the average savings for each category of performance-based measure offered by the EFP.

[64] Monitoring-based commissioning incentives were not offered by EFP until November 16, 2010.
[65] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.

Table 2-4. Performance-Based Measures and Savings

Measure Category	Count of Project Measures	Total kWh	Average kWh per Project Measure
Controls/VFDs	234	68,293,976	291,855
Cooling	94	52,496,438	558,473
Lighting and Lighting Controls	1014	185,494,502	182,933
Monitoring-Based Commissioning	1	1,126,348	1,126,348
Motors	61	17,276,818	283,227
Grand Total	1404	324,688,082	231,259

Note: For this table, each "project measure" includes all units (e.g., light fixtures) installed within a measure category under a particular project. For example, one "measure" may include 4 light fixtures or 400 for a project. Includes all performance-based measures in database. N = 1,404 measures.
Source: MCA team analysis[66]

As shown, performance-based lighting and lighting controls measures represent a lower amount of per-measure savings (not per-unit, see Note in above table) compared to each of the other categories. (Note that monitoring-based commissioning incentives were not offered by EFP until November 16, 2010.) Again, as lighting standards continue to improve in the coming years, better characterizing the opportunity for and acceptance of non-lighting measures in different market sectors could help program staff increase customer uptake of high-savings measures.

2.3.2.4 Project-Level Performance-based Savings

The MCA team reviewed performance-based project data for the priority market sectors in an attempt to identify any patterns in how organizations implement these projects. In the majority of cases, individual projects involve only a single facility site and energy system (e.g., lighting). In a handful of cases, applicants undertook simultaneous performance-based upgrades of multiple sites or systems (e.g., lighting and cooling).

[66] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.

Table 2-5. Performance-Based Measure Activity among Priority Sectors

Sector	Unique Applicants	Unique Sites	Sites with Multiple Measure Categories	Number of Measures per Category			
				Controls/ VFDS	Cooling	Lighting and Lighting Controls	Motors
Office	69	72	3	12	12	62	2
Large Retail Chain Stores	18	190	0	26	NA	171	NA
Colleges & Universities	12	12	0	4	1	8	NA
Health Care & Hospitals	NA	34	1	9	7	22	2

Note: Some applicant organizations applied for projects and measures that involved multiple sites. Some multi-site projects also included multiple measure categories. Applicant information for the Health Care & Hospitals sector was too incomplete to assess the number of unique applicants.
Source: MCA team analysis

Notably, large retail chain stores show high potential for a facility portfolio approach to performance-based savings projects. As noted above, 18 individual companies implemented performance-based EFP projects at 190 individual store locations. The following section presents a more detailed look at such characteristics and trends within each of the above priority sectors.

2.4 Priority Market Segment Analysis

Building upon the general market characterization and program participation findings in the preceding sections, this section focuses more narrowly on each of the high-priority target sectors identified in Section 2.2. It examines the drivers, barriers, and decision-making processes that influence organizations' implementation of energy efficiency improvements by drawing on sector-specific findings from the database analysis and Market Assessment surveys. Recent industry literature related to each sector supplements the database and survey findings. In addition, the findings also provide insights into future opportunities identified by non-participant survey respondents from each priority market sector.

Section 2.4.1 presents a brief overview of the common drivers and barriers that influence most priority market segment decision makers when considering energy efficiency projects. Each of the remaining subsections (beginning with Section 2.4.2) then addresses specific findings related to each priority market segment and its unique characteristics.

This analysis includes participant survey data from the institutional, owner-occupied office, and property manager office segments, and non-participant data from the institutional and owner-occupied office segments. With the exception of key opportunities for the property manager office section, large retail chain store and property manager office non-participant survey results were not included in this report due to small sample size. For more information about sample sizes, please see Appendix C.

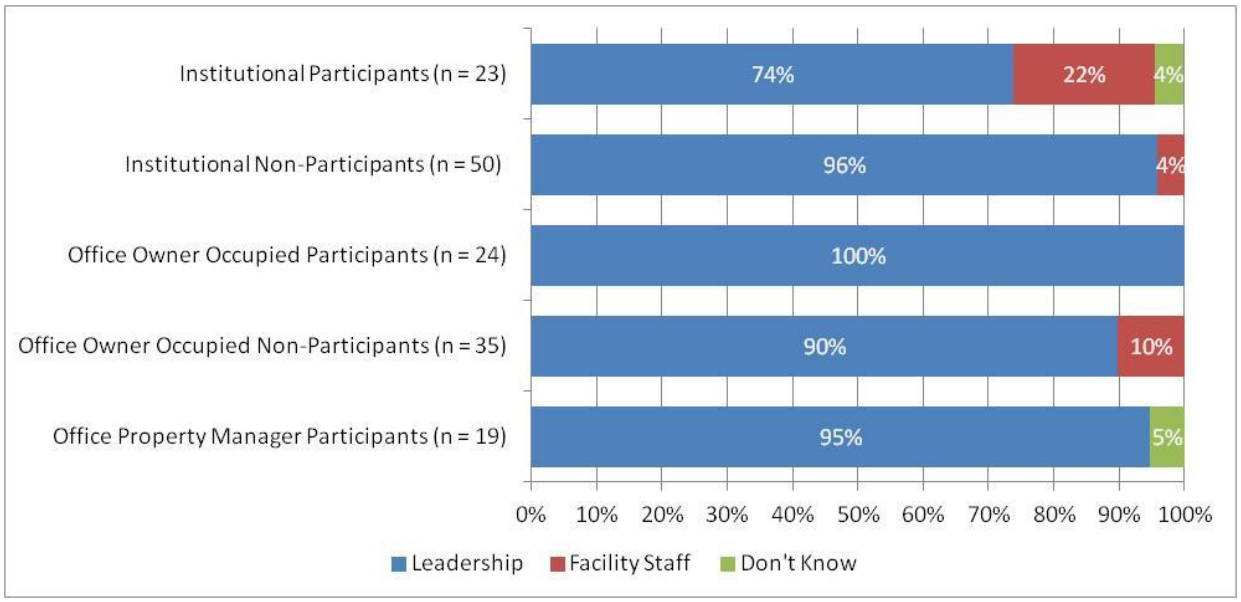
2.4.1 Common Drivers and Barriers Facing Priority Market Segment End Users

The MCA team explored the various drivers and barriers that affect end users as they consider implementing an energy efficiency project. This section describes commonalities across the priority sectors.

2.4.1.1 Decision Making and Reliance on Outside Consultants

Survey responses indicate two main target audiences within end-user organizations for the EFP: senior leadership and facility staff. Each of these two audiences plays a distinct role in efficiency retrofit project decisions. When asked who makes the final decision on whether or not to implement an energy efficiency or other capital improvement project, a large majority of respondents listed a member of organization leadership. Figure 2-17 shows the responses to this question for all of the survey segments (participants and non-participants and priority sector segments).

Figure 2-17. Final Decision Makers when Considering Energy Efficiency or Capital Improvements Projects

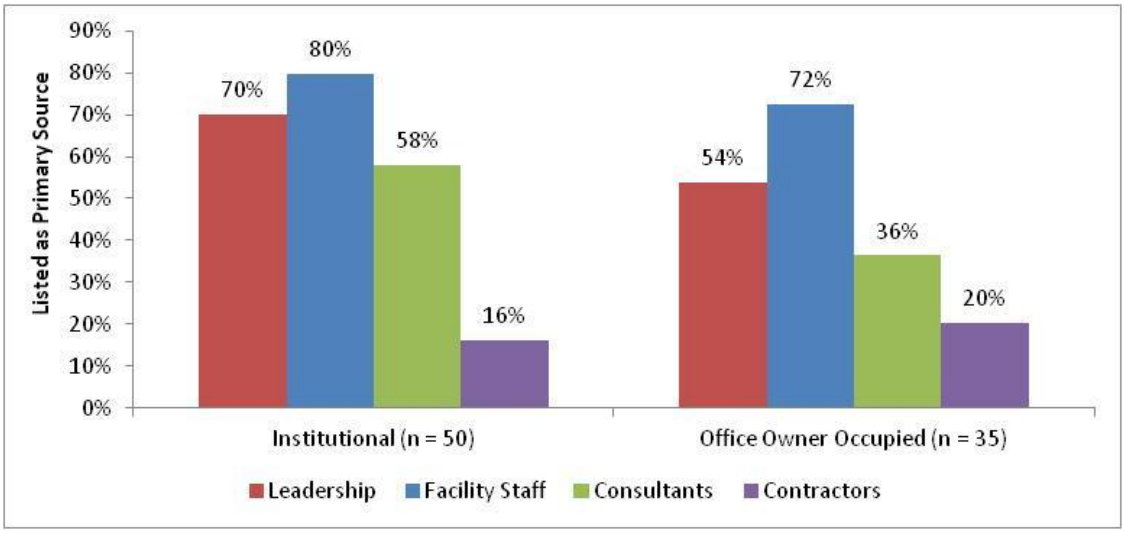


Note: "Leadership" includes Company Owner, Senior Management, President/CEO/CFO, and Property Manager/Building Owner; "Facility Staff" includes Facility/Energy Manager. Surveys asked participants about energy efficiency projects specifically; non-participants were asked about capital improvement projects generally.
Source: MCA team analysis.

Overall, respondents from each survey segment listed a member of executive leadership as the final decision maker more than 74 percent of the time. Notably, institutional sector participants had a more diverse set of answers to the question; 22 percent stated that facility staff (a facility or energy manager) makes the final decision. This may indicate that facility managers in the institutional sector are either better equipped or more empowered to undertake efficiency improvements than those in other priority sectors. On the other end of the spectrum, 100 percent of respondents from the owner-occupied office segment stated that leadership makes the final call on project approval.

While the final decision maker is most often a member of organization leadership, ideas for projects more frequently come from facility staff, and to a lesser extent, consultants and contractors. When asked which from a series of sources[67] was the primary source of ideas for capital improvement projects, non-participants[68] in the institutional and owner-occupied office sectors listed "facilities manager" most frequently. Figure 2-18 shows a breakdown of the responses to this question.

Figure 2-18. Primary Sources of Ideas for Capital Improvements among Non-participant Respondents



Note: "Leadership" includes Company Owner, Senior Management, President/CEO/CFO, and Property Manager/Building Owner; "Facility Staff" includes Facility/Energy Manager.
Source: MCA team analysis.

External parties, such as consultants and contractors, play a less significant role in initiating improvements ideas for end users, but remain an important resource. These findings suggest that some end users are comfortable with identifying energy efficiency and other improvement projects on their own, rather than relying on outside contractors. This level of engagement with such opportunities indicates that these priority market sectors may be receptive to EFP outreach targeted directly at end users.

Beyond project ideation and decision making, all the priority market sectors revealed a heavy reliance on consultants and energy service providers for the completion of performance-based projects. The majority of participant survey respondents in each segment stated that they hired an outside firm to assist with their EFP project. Notably, this trend was slightly less prominent among institutional sector respondents; 65 percent stated they hired an outside firm compared to more than 90 percent in all other priority sectors, suggesting that a significant share of institutional sector participants conduct some energy

[67] Options included senior management of the organization, facilities manager, outside consultants, audits or reports, and suppliers or contractors.
[68] This question was asked only of non-participants; large retail chain and property manager office non-participant results were not included in this report due to small sample size.

efficiency improvements on their own. Regardless, outside firms continue to represent a key target audience for the EFP. As noted in Figure 2-15, EFP applications submitted by ESCOs or other third parties on behalf of end users account for 57 percent of EFP performance-based electricity savings.

2.4.1.2 Focus on Energy Efficiency Improvements

Overall, energy efficiency opportunities have become increasingly important to the priority market sector organizations over time. For example, the majority of respondents within each non-participant segment (institutional = 82 percent, owner-occupied office = 67 percent) categorized energy efficiency as "very important" to their organization when considering capital improvement projects. This has held true even under the burden of a down economy. Similarly, the majority of non-participant respondents in these sectors (institutional = 98 percent, owner-occupied office = 96 percent) reported that the importance of energy efficiency for their organizations has either increased or stayed the same since 2008.

In addition, the majority of non-participants in the institutional and office sectors stated that they have completed some sort of energy efficiency project or installed high-efficiency equipment since 2008. While this finding indicates a continued focus on efficiency improvements, even without incentives, it is unclear whether those non-participant projects would have qualified or been large enough to warrant performance-based projects. However, some of these end users may present opportunities for the EFP to convert those with high awareness of and willingness to pursue efficiency improvements to larger-scale, performance-based projects. NYSERDA could consider focusing a portion of its outreach marketing on those that have completed upgrades or equipment replacements with prequalified incentives in an effort to convince members of this population to pursue larger, performance-based projects for greater savings.

2.4.2 Institutional Sector Analysis

This section discusses findings from the institutional sector analysis. For the purposes of this study, the MCA team defines "institutional" as comprising hospitals and health care facilities as well as colleges and universities.[69] For this analysis, the MCA team reviewed the EFP database, participant and non-participant survey results, and secondary literature when available. The section presents institutional sector characteristics, drivers and barriers, and key program opportunities. A summary of key insights appears at the end of the section.

2.4.2.1 Institutional Sector Characteristics

The institutional sector includes entities that provide higher education and health-related services. Because end users in this sector provide a range of services to their clients (e.g., students, patients), facility types can vary widely. For example, a sports medicine clinic or university recreation facility may house a swimming pool and hot tubs, whereas a nursing home or dormitory may comprise living space and dining facilities.

As will be further discussed later in this section, interest in energy efficiency among end users in this sector continues to increase. In fact, some colleges and universities in New York have established aggressive energy reduction targets. For example, the City University of New York's (CUNY's) recent

[69] See Appendix C.

five-year budget request reflects the organization's "commitment to green technology and energy efficiency."[70] CUNY, which oversees 23 different institutions throughout the state, has committed to reducing its greenhouse gas emissions by 30 percent by 2017. Institutional commitments to sustainability may present an important opportunity for NYSERDA and the EFP.

In 2008, NYSERDA published a report titled "Sector-Based Approach to Energy Efficiency within Hospitals and Health Care Facilities in New York State."[71] The report, and its related pilot program within the health care sector, provided important context for the MCA team. Specifically, the study identified numerous sector-specific barriers, including "financial limitations, competing priorities, and a lack of targeted information and resources." In addition, the study cited the importance of leadership buy-in and support when deciding to implement an energy efficiency project. Overall, the results from the MCA team's study aligned with findings from the 2008 NYSERDA report. The analysis in this report aims to complement the findings from the 2008 study where possible.

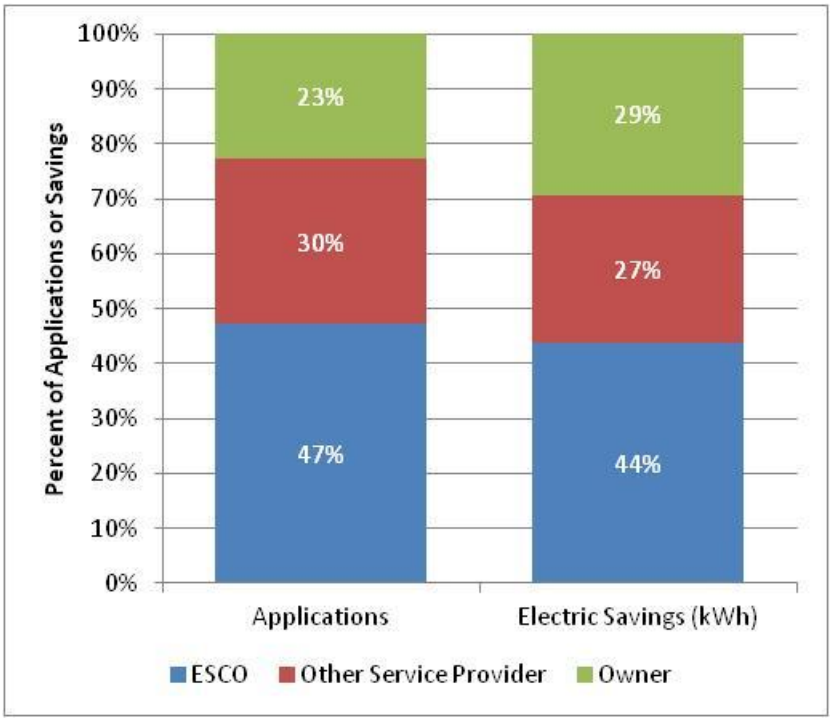
EFP Engagement

The MCA team reviewed application data for all institutional sector projects to understand who submitted applications for the program and the share of sector savings for which each applicant type was responsible. As shown in Figure 2-19, ESCOs and other service providers submit the majority of performance-based applications (77 percent) and savings (71 percent); however, applications submitted by owners appear to account for higher per-project savings (i.e., 23 percent of applications account for 29 percent of savings).

[70] The City University of New York Five-Year Capital Plan Request FY 2011-12 through FY 2015-16 and New York City Reso-A Request FY 2012. Accessed June 12, 2012. http://www.cuny.edu/about/administration/offices/fpcm/departments/cb/00IntroductionFY11-12Request.pdf.

[71] Ecology and Environment, Inc., et al. Sector-Based Approach to Energy Efficiency within Hospitals and Health Care Facilities in New York State, Prepared for the New York State Energy Research and Development Authority, June 2008.

Figure 2-19. Breakdown of Application Count and Savings by Applicant Type (Institutional Sector Participants)

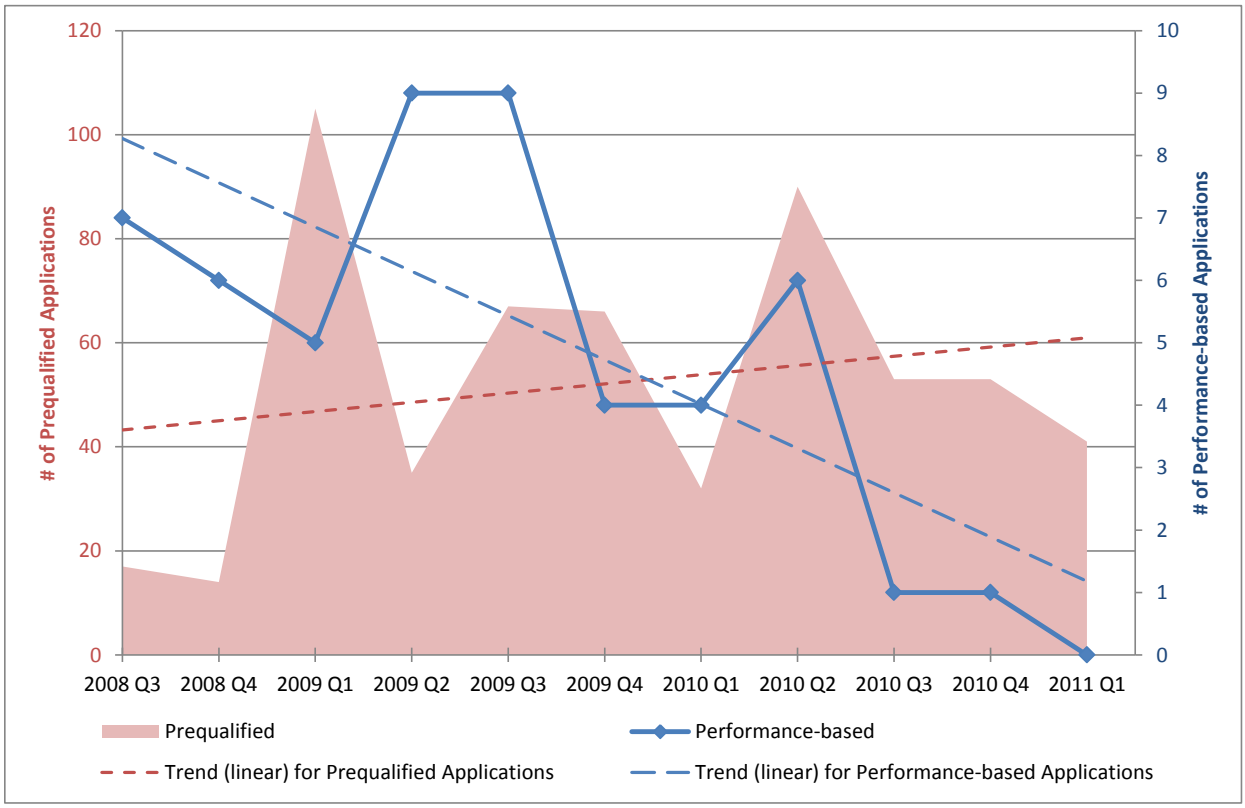


Note: Includes all projects; N = 53. For definition of ESCO and Other Service Provider, see footnote #62.
Source: MCA team analysis.[72]

The MCA team also sought to identify institutional sector trends over time by reviewing the volume of applications received each quarter. Figure 2-20 shows the historical number of measures in the EFP database applied for by institutional sector participants, starting with the third quarter of 2008.[73] The blue line represents performance-based applications (and uses the right vertical axis), while the solid field shows prequalified incentive applications (left vertical axis) as an indicator of overall sector activity.

[72] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.
[73] Through the first quarter of 2011.

Figure 2-20. Applications Received by Quarter (Institutional Sector Participants)



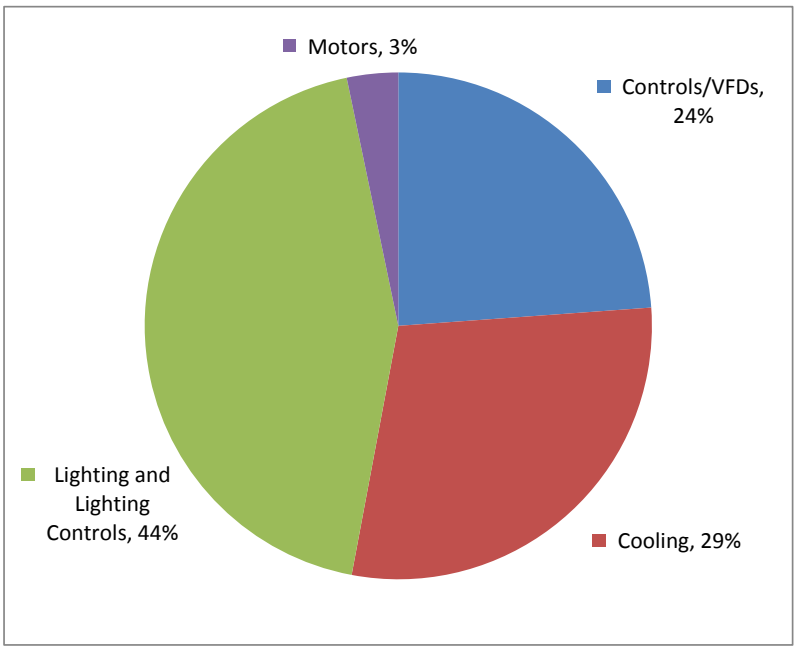
Note: Note: Includes all health care and college & university projects in the EFP database, but excludes those missing date information. N = 573.
Source: MCA team analysis.

As shown, per-quarter applications for performance-based projects have fallen since an initial peak in the second and third quarters of 2009. However, similar variation in the number of applications for prequalified measures suggests this volatility is not specific to performance-based projects. As indicated by the dashed trend lines, overall prequalified program activity has generally increased over time while performance-based activity has decreased.

The MCA team extracted project savings data for institutional sector performance-based measures to understand how the sector achieves such savings through the EFP. Figure 2-21 illustrates the breakdown of institutional performance-based savings. As with the broader participant set, lighting and lighting controls represent the greatest percentage (44 percent) of savings in the institutional sector. The database did not include any monitoring-based commissioning measure savings for this sector.[74] Notably, institutional sector projects reveal a more diverse distribution of performance-based energy savings across measure categories than the other priority market segments.

[74] Monitoring-based commissioning incentives were not offered by EFP until November 16, 2010.

Figure 2-21. Breakdown of Performance-Based Savings by Measure Category (Institutional Sector Participants)



Note: Includes performance-based projects only (N = 53); energy savings as reported in the NYSERDA EFP project database.
Source: MCA team analysis.[75]

Organizational Structure and Decision Making

The MCA team also reviewed data gathered via the participant and non-participant surveys to characterize the institutional sector respondents (for sample sizes, confidence levels and precision, see Appendix C). As previously shown in Figure 2-17, senior leadership approves capital improvements and energy efficiency decisions for a majority of institutional sector end users. Among EFP participants, however, facility staff acts as the final decision maker for 22 percent of surveyed participating institutions. Again, this may indicate greater ability or empowerment to make efficiency improvement decisions among institutional facility managers. Table 2-6 summarizes additional insights gained from the surveys on institutional sector characteristics, including the following:

- Roughly 65 percent of participant respondents stated that they hired outside companies to assist with their EFP projects, a lower rate than respondents in other response segments. This implies that institutional sector organizations manage energy efficiency improvement projects in-house more often than organizations in the Office and Retail sectors. However, a majority still hire an outside firm to assist in either the design or installation of their projects.
- Fewer institutional end users mentioned energy efficiency consulting firms or other non-installation service providers when discussing the types of firms they hired for projects. This

[75] All savings estimates and comparisons are based on program-reported savings in the EFP project database. The MCA team did not verify these savings.

finding aligns with the suggestion that institutional organizations may rely more heavily on internal facility staff to manage efficiency improvement projects.

Table 2-6. Institutional Sector Characteristics

Population	Question	Responses
Participants (n = 50)	What is the approximate size of the building affected by EFP?	44% = 50K - 100K sq. ft. 44% = > 100K sq. ft.
Participants (n = 50)	Did you hire any outside companies during any phase of the project?	65% = yes
Participants (n = 50)	If yes, what kind of company did you hire?*	60% = equipment installation contractors 46% = energy efficiency consultant firm
Non-participants (n = 23)	How many individual buildings or facilities do you oversee?	30% = 2–4 buildings 35% = 5–10 buildings 33% = > 10 buildings

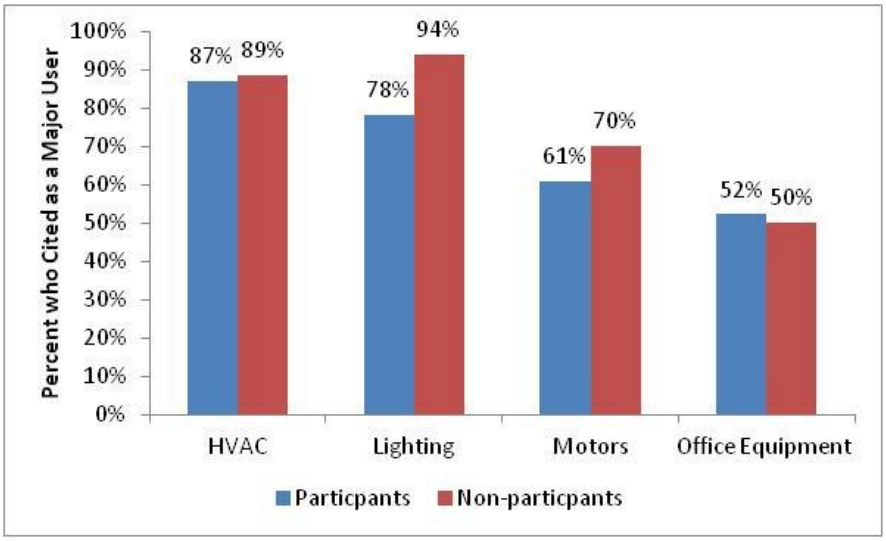
Note: *Responses were not mutually exclusive and may add up to greater than 100%.
Source: MCA team analysis.

2.4.2.2 *Institutional Sector Drivers and Barriers*

The MCA team asked survey respondents to identify which types of equipment in their facilities[76] use the most electricity.[77] Figure 2-22 shows the top four perceived electricity users among participants and non-participants. While respondent *perceptions* may not accurately reflect actual energy use, NYSERDA can use this information to help inform its marketing and outreach efforts.

[76] Participants were asked to focus on the facilities that were affected by EFP, whereas non-participants were asked about their organization's facilities overall.
[77] Respondents were asked to categorize each equipment type as a major user, minor user, or not a user of electricity in their facilities.

Figure 2-22. Top Perceived Major Users of Electricity (Institutional Sector)



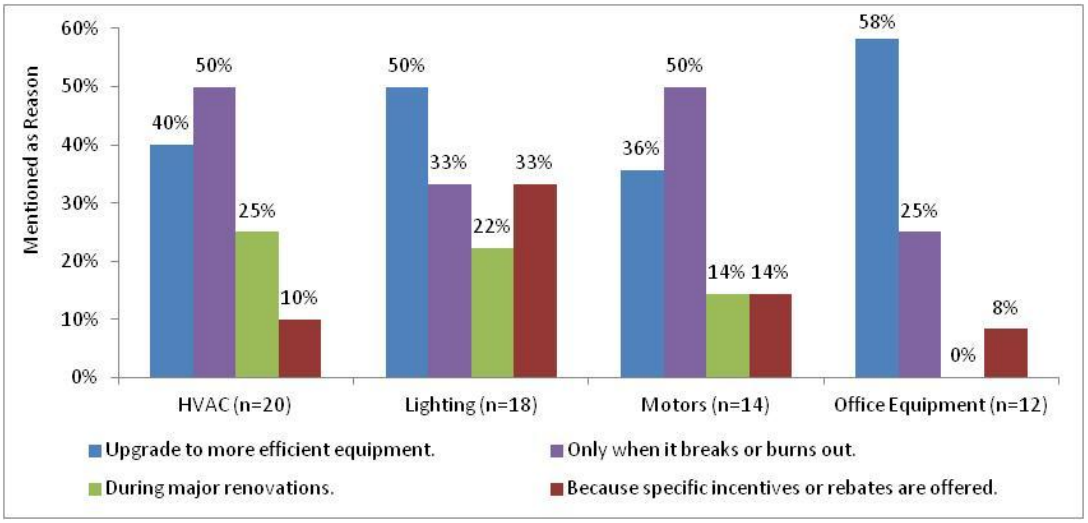
Note: Responses are not mutually exclusive. Participants n = 23;
Non-participants n = 50.
Source: MCA team analysis.

As shown above, the majority of institutional end users perceive HVAC and lighting as their major sources of electricity usage. Other potential sources of electricity usage not pictured (e.g., refrigeration, compressed air systems) were cited by fewer than 50 percent of respondents.

Driving Factors for Efficiency Improvements

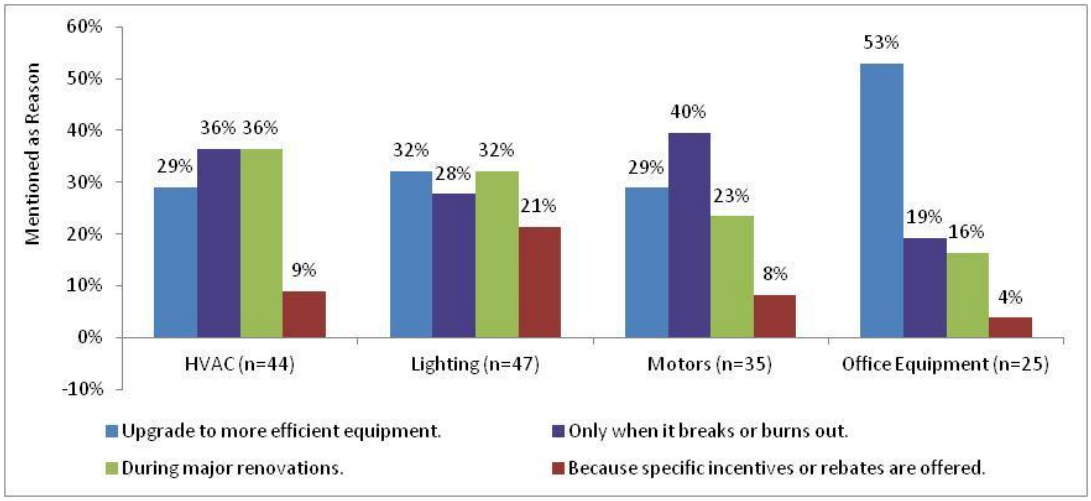
Respondents then indicated when, from among a list of choices, they tend to replace each type of equipment they cited as a major user of electricity. Figure 2-23 and Figure 2-24 show the responses given for the top four electricity users by institutional sector participants and non-participants, respectively.

Figure 2-23. When End Users Replace Highest Perceived Electricity Users (Institutional Sector Participants)



Note: Responses are not mutually exclusive.
Source: MCA team analysis.

Figure 2-24. When End Users Replace Highest Perceived Electricity Users (Institutional Sector Non-Participants)



Note: Responses are not mutually exclusive.
Source: MCA team analysis.

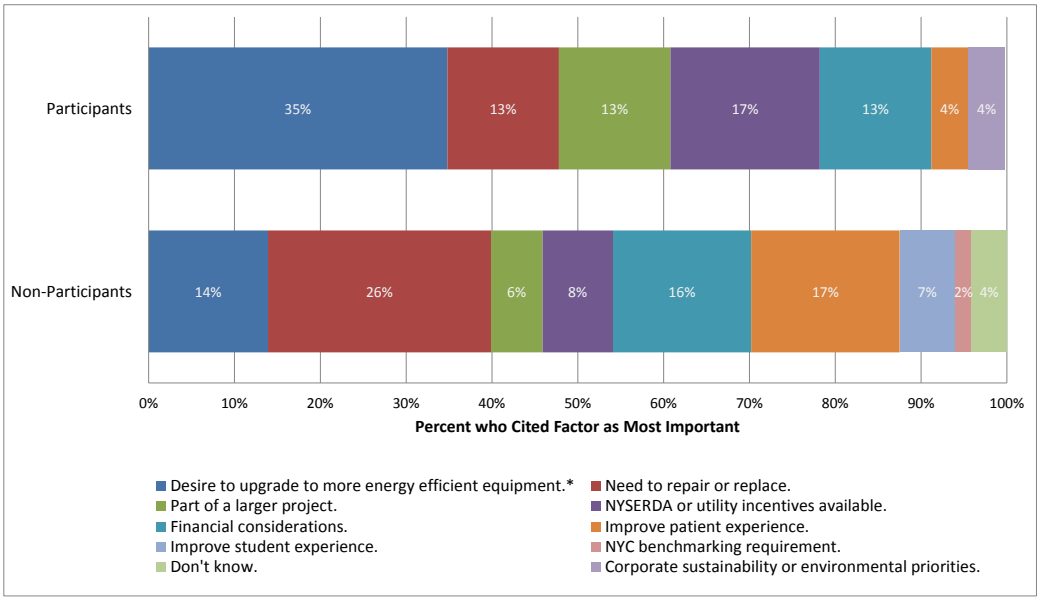
Among participant respondents, institutional end users most often replace all equipment types either when they "upgrade to more efficient equipment" or "only when it breaks or burns out." Non-participant responses varied across equipment types with few obvious patterns.

Other notable insights from Figure 2-23 and Figure 2-24 include the following:

- For the HVAC and motors, pumps and variable speed drive (VSD) categories, a large share of institutions wait to replace equipment until it breaks, with half of participants citing this as a major reason for replacement.
- For lighting improvements, both participant and non-participant respondents mentioned incentives or rebates as a major driver more frequently than for other systems. This could indicate that institutions have greater awareness of incentives for lighting or that such incentives play a bigger role in lighting system upgrades than those provided for other systems.
- Among participant respondents, only health care organizations cited energy efficiency upgrades when asked when they replace HVAC equipment. No college respondents listed efficiency upgrades when asked about replacing HVAC equipment.[78]
- For office equipment, more than half of non-participant respondents cited a need to upgrade to more efficient equipment as a major driver.

Survey respondents then categorized factors considered by their organization when deciding whether to move forward with an energy efficiency project as either a "major factor", "minor factor", or "not a factor." They then indicated which major factor they considered as the most important. Figure 2-25 shows how participant and non-participant respondents ranked the most important of the "major factors" for their organization.

Figure 2-25. Most Important Factors for Project Consideration (Institutional Sector)



Note: Responses are mutually exclusive within each sample group. Includes respondents that described a factor as "major"; Participant respondents (n = 23); Non-participant respondents n = 50.
* Indicates statistically significant difference between the participant and non-participant samples.
Source: MCA team analysis

[78] Based on a cross tabulation of college and health care respondents.

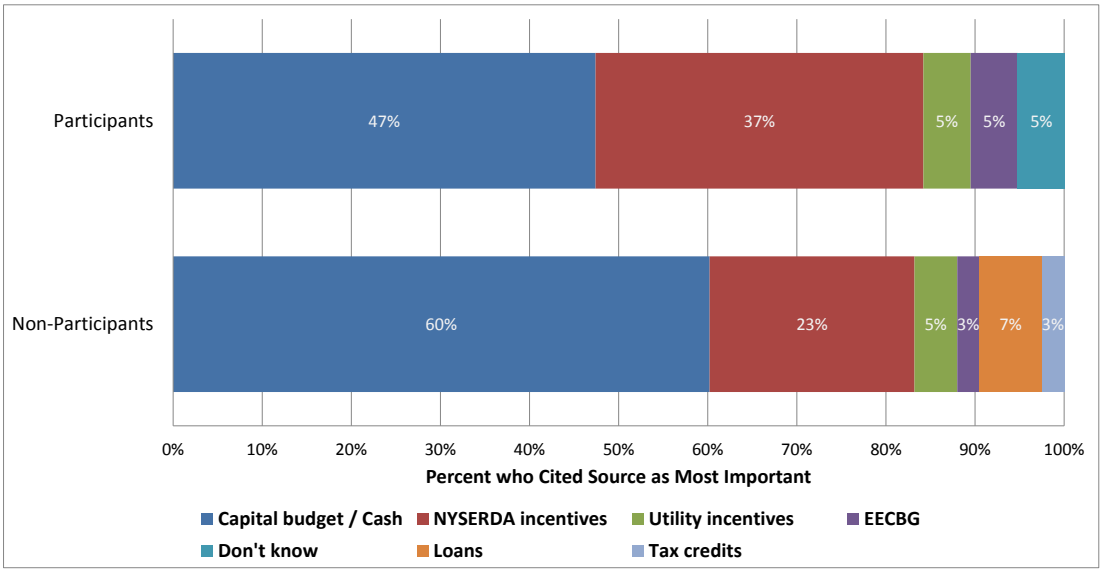
Responses varied slightly between participant and non-participant segments.[79] For example, 35 percent of participant respondents indicated a desire to upgrade to more energy-efficient equipment as the most important factor for project consideration compared to only 14 percent of non-participant respondents. Non-participant respondents, on the other hand, cited the need to repair or replace equipment as the most important factor for consideration, with patient experience and financial considerations being the next most important.[80] Other notable insights from the survey include the following:

- Health care facilities cited financial considerations as a major factor more frequently than colleges (71 percent versus 17 percent, respectively).
- Ninety-seven percent of non-participant respondents representing health care facilities cited "improving patient experience" as a major factor.
- Thirty-three percent of participant and 57 percent of non-participant respondents cited the NYC building benchmarking requirement as either a major or a minor consideration.

Financing Efficiency Improvements

While only 13 to 16 percent of respondents mentioned financial considerations as their most important consideration, the MCA team sought to understand the relative importance of different funding sources for efficiency improvement projects. As shown in Figure 2-26, both participants and non-participant respondents listed capital budgets and NYSERDA incentives as the top two sources of funding.

Figure 2-26. Most Important Funding Sources for Project Approval (Institutional Sector)



Note: Responses are mutually exclusive within each sample group. Includes only those respondents that described a funding source as "major"; Participants n = 19; Non-participants n = 43.
Source: MCA team analysis

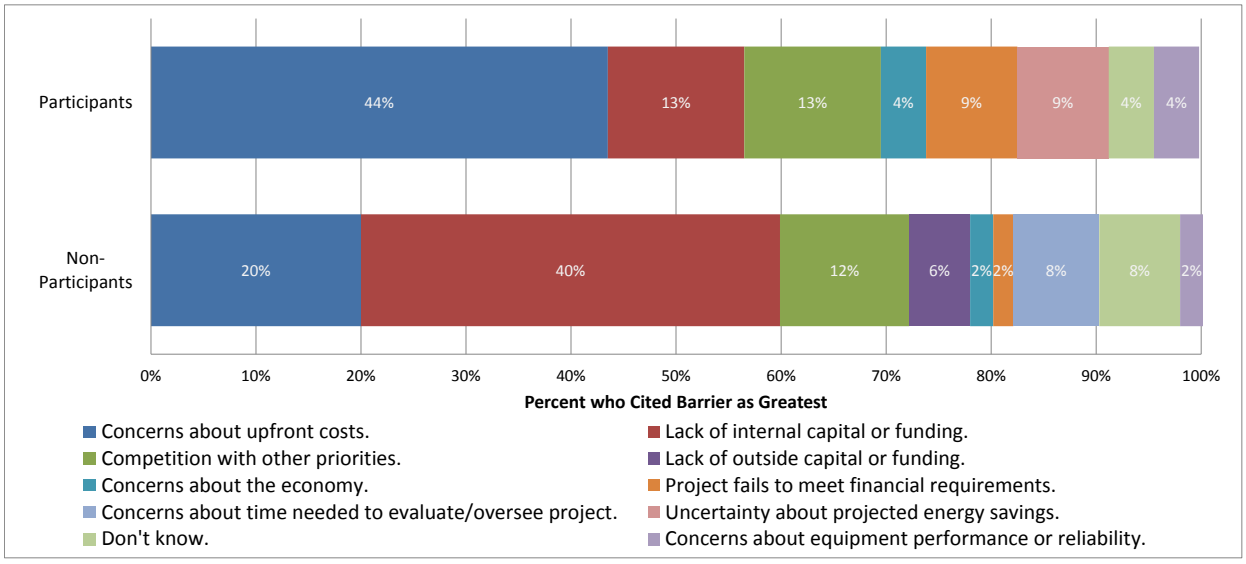
[79] While every variation between participant and non-participant respondents in Figure 2-25 is not statistically significant, they do reveal potential differences between the two groups.
[80] "Improving patient experience" was only asked of the Health Care sector.

While Figure 2-26 does not reveal statistically significant differences between participant and non-participant respondents, it does show potential variances and similarities between the two groups. For example, a small share of non-participants consider loans to be a most important source of funding, whereas participants did not mention loans. This may indicate that NYSERDA incentives have helped offset both internal budget constraints and external funds for some institutional end users. In addition, non-participants still placed a notable emphasis on NYSERDA incentives even though they had not directly participated in the EFP.[81] Regardless of program participation, institutional end users perceive NYSERDA incentives as a possible solution to financial barriers.

Barriers to Efficiency Improvements

In addition to drivers, the MCA team explored the key barriers surrounding end users' decisions to move forward with an energy efficiency project. As shown in Figure 2-27, respondents cited concerns about upfront costs, lack of internal capital, and competition with other priorities as the top three barriers to energy efficiency investments. These barriers generally align with those previously mentioned in NYSERDA's focused study on the hospital and health care sector.[82]

Figure 2-27. Greatest Barriers to Energy Efficiency Investments (Institutional Sector)



Note: Responses are mutually exclusive within each sample group. Includes only those respondents that described a barrier as "major"; Participants n = 23; Non-participants n = 50.
Source: MCA team analysis.

[81] 56.5 percent of non-participant respondents had participated in other NYSERDA programs (e.g., Flex Tech and the New Construction Program).

[82] Ecology and Environment, Inc., et al. Sector-Based Approach to Energy Efficiency within Hospitals and Health Care Facilities in New York State, Prepared for the New York State Energy Research and Development Authority, June 2008.

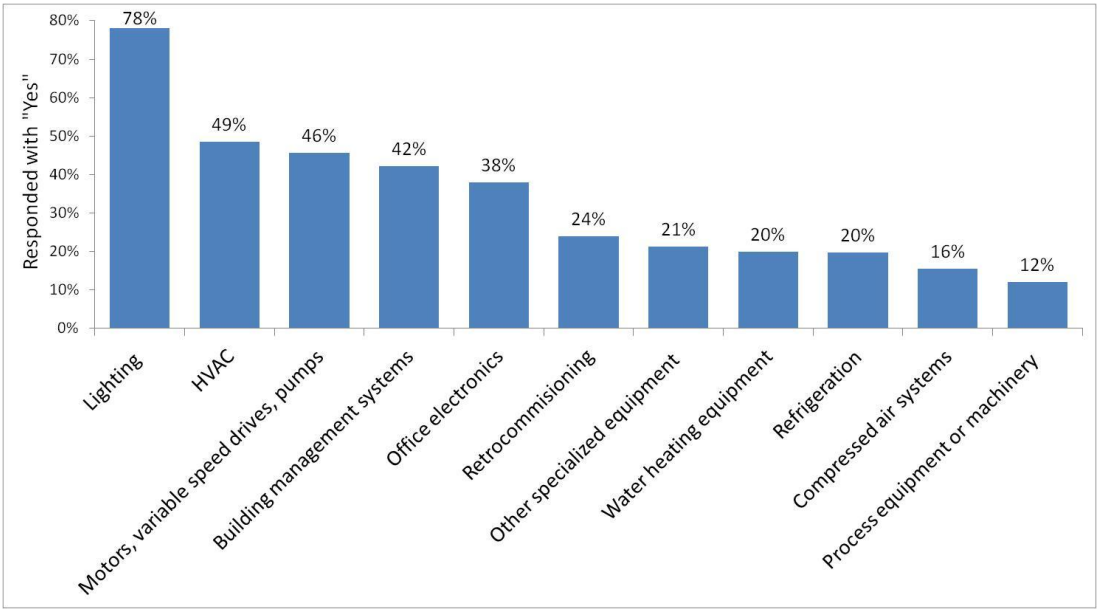
Beyond these top three barriers, responses varied between participants and non-participants. Most notably, more participant than non-participant respondents cited uncertainty about projected energy savings or a project's failure to meet financial requirements as the greatest barrier. For these performance-based project respondents, this may indicate that once project funding is committed, concerns shift somewhat to those factors more likely to harm the overall payback on the efficiency project investment (i.e., savings are less than anticipated). To the degree that NYSERDA retains a portion of these projects' incentives until after subsequent (1-2 year) M&V, this could represent an additional risk to program participants.

2.4.2.3 Key Opportunities for Institutions based on Non-participant Responses

The MCA team asked non-participant survey respondents a series of questions to assess potential opportunities for the EFP within the institutional sector. Overall, organizations in this sector consider energy efficiency an important investment. The vast majority (94 percent) of respondents stated that energy efficiency is either "very" or "somewhat" important to their organization. This implies that institutional sector end users generally have a high awareness and understanding of the underlying value energy efficiency can bring to an organization.

Overall, nearly two-thirds of non-participants stated that, since 2008, they have installed some sort of efficiency equipment, without EFP incentives. This supports the finding that institutions are implementing energy efficiency projects without direct support from NYSERDA. However, this insight does not indicate the scale or scope of these projects; many projects may involve simple equipment replacements or upgrades. Nonetheless, these non-participants may present opportunities for the EFP to convert those with high awareness of and willingness to pursue efficiency improvements to larger-scale, performance-based projects. Figure 2-28 shows how these respondents answered when asked what projects they have completed within the past three years.

Figure 2-28. Energy Efficiency Equipment Installed in the Past Three Years (Institutional Sector Non-Participants)



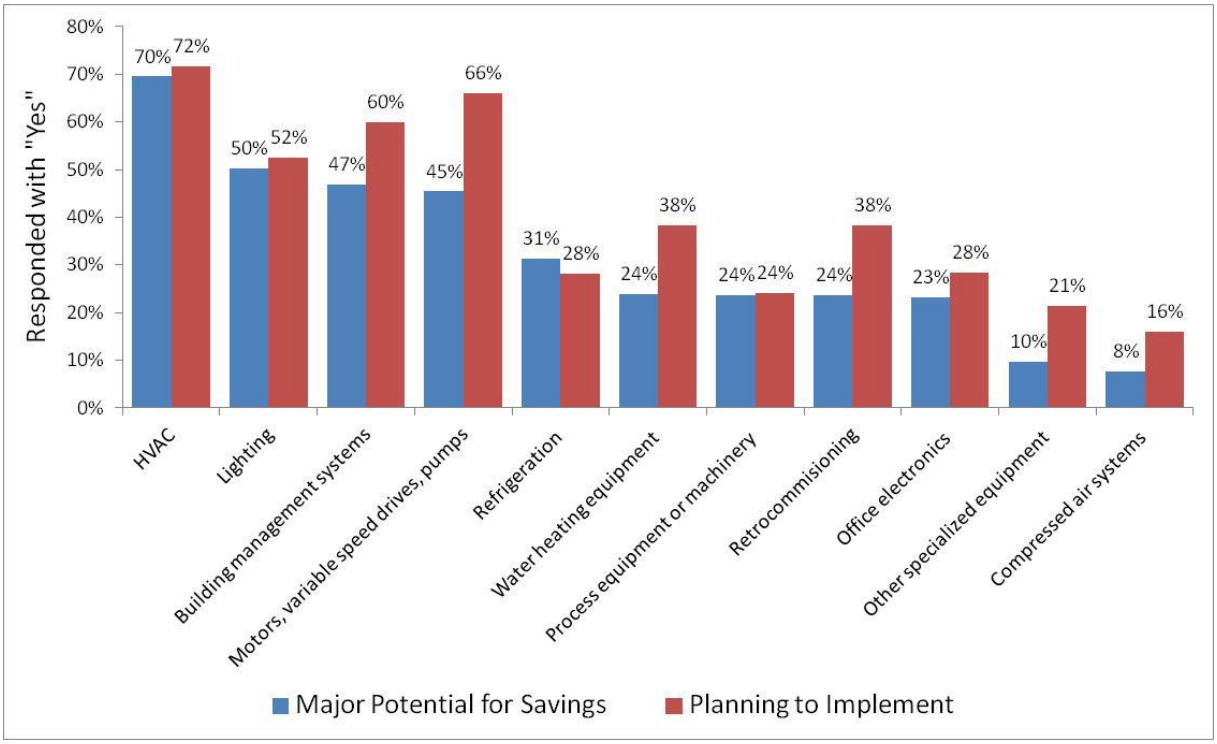
Note: Responses are not mutually exclusive. Non-participants (n = 50).
Source: MCA team analysis

As shown, the majority (78 percent) of those who have implemented recent efficiency improvements have upgraded lighting systems. Notably, the figure also highlights that building management systems (BMS) fall among the top types of improvements recently pursued by institutional sector organizations. In fact, more respondents claimed to have installed BMS than office electronics in the past three years.

The MCA team also asked non-participants to share what they perceived to hold the greatest potential for energy savings in their facilities and whether their organization is currently considering installing any high-efficiency equipment. Figure 2-29 shows which equipment and systems respondents perceived as major sources of potential energy savings and how many respondents plan to implement projects within each category within the next two to three years.[83]

[83] 86 percent of respondents said they intend to implement efficiency improvements in the next 2-3 years.

Figure 2-29. Perceived Potential for Savings and Plans to Implement in Next 2-3 Years (Institutional Sector Non-Participants)



Note: Responses are not mutually exclusive. "Major potential" includes all non-participant respondents (n = 50); "Planning to implement" responses reflect 86 percent (n = 43) of the total sample.
Source: MCA team analysis.

Three of the four top categories of both perceived and intended upgrade opportunities align with the EFP's major categories of performance-based electric efficiency incentives (i.e., lighting, HVAC, and motors). Figure 2-29 reveals, however, that fewer organizations plan to implement lighting projects than other energy efficiency opportunities. This could indicate a shift away from lighting retrofits, either because many organizations have already upgraded lighting systems or that institutional sector organizations perceive greater savings potential within other equipment categories.

Notably, BMS also fall among respondents' top priorities; of those that plan to implement energy efficiency projects in the near future, 60 percent plan to pursue building management systems. Non-participant respondents also showed notable interest in retro-commissioning (38 percent intend to implement it in the next three years). Each of these two findings may have some relation to the new PlaNYC requirements that require both benchmarking and retro-commissioning for buildings in New York City. [84] In addition to the EFP monitoring-based commissioning (MBCx) and FlexTech retro-

[84] NYC passed the benchmarking rules in 2009 with initial compliance reports due by 12/31/2011; beginning in 2012 buildings must file reports by May 1st each year.
http://www.nyc.gov/html/planyc2030/html/about/ggbp.shtml#know

commissioning (RCx) offerings, these requirements may present new opportunities to market EFP's other performance-based incentives to buildings owners seeking to comply with the requirements.

2.4.2.4 Key Findings for Institutions

Table 2-7 summarizes key findings for the institutional sector that will be revisited in Section 4.

Table 2-7. Key Findings for Institutional Sector

Category	Key Findings
EFP Program Participation and Support	» ESCOs and service providers applied for 71 percent of performance-based savings. » Sixty-five percent of end users hire outside firms to help implement performance-based projects. » Some organizations empower facility staff to make project decisions. » Institutions reveal a more diverse distribution of performance-based energy savings across measure categories than other priority market segments.
Reasons and Drivers for Efficiency Improvements	» Half of participating organizations report replacing HVAC and motor-based systems or equipment only when they break. » Incentives have been more likely to drive lighting upgrades than improvements with other systems. » Participants are twice as likely as non-participants to cite a desire to upgrade to more efficient equipment as the main factor they consider in efficiency projects.
Project Funding	» Nearly half of participants cited capital budgets as their most important source of funding; more than one-third cited NYSERDA incentives. » Incentives primarily offset internal budgets.
Barriers to Efficiency Improvements	» Concerns about upfront costs, lack of internal capital, and competition with other priorities are the top three barriers to energy efficiency investments. » Lack of internal or capital funding is a greater barrier for non-participants.
Key Opportunities	» About half of non-participants have upgraded lighting systems in the past three years. About 30 percent have upgraded HVAC, motors or BMS. » Fewer organizations plan to implement lighting projects in the next 2-3 years than projects involving HVAC, motors or BMS. » BMS and RCx gained considerable mention as intended near-term projects.

Source: MCA team analysis

2.4.3 Offices

This section discusses findings from the MCA team's office sector analysis. As with the institutional sector, the MCA team reviewed office- and CRE-specific data from the EFP database, participant and non-participant survey results, and secondary literature. The section first presents general office sector characteristics and then examines drivers, barriers, and key opportunities for each of two office sector

sub-segments: owner-occupied offices and property managers for tenant-occupied spaces.[85] A summary of key insights appears at the end of the section.

2.4.3.1 General Office Sector Characteristics

As mentioned above, the New York office sector comprises two main sub-segments of key decision makers: owner occupants and CRE property managers. A recent CRE Market Report completed for NYSERDA by HR&A Advisors[86] established that 86 percent of the state's commercial office space lies within the greater NYC metropolitan area, and that Manhattan contains the greatest concentration of NYSERDA program-eligible office space in the state. The report also established that most buildings in Manhattan are Class B and C; however, there is more floor space in Class A buildings (i.e., while fewer in number, Class A buildings have more floor space than B and C buildings).[87]

Each building class involves slightly different decision-making structures, drivers, and barriers. Split-incentives (i.e., between property owners and tenants) can act as an additional barrier that potentially masks or offsets occupant motivations and drivers. As a result, the process that tenants and property owners follow to lease and build out office spaces has been described as "sprawling with a wide variety of possible players and moving parts."[88] An in-depth analysis of these numerous relationships and arrangements falls beyond the scope of this report. Rather, the MCA team focused its efforts on macro-level drivers and barriers, how those factors may differ from other priority sectors, and emerging trends and opportunities for efficiency improvements in the office sector.

EFP Engagement

The MCA team reviewed EFP application data for all performance-based office sector projects to understand which types of parties submitted applications for these projects and the share of performance-based savings for which each applicant type was responsible. As shown in Figure 2-30, ESCOs and other service providers represent the majority of performance-based applications (71 percent) and energy savings (67 percent); however, applications submitted by owners appear to account for higher per-project savings (i.e., 29 percent of applications account for 33 percent of savings). The same trend appeared in institutional sector projects.

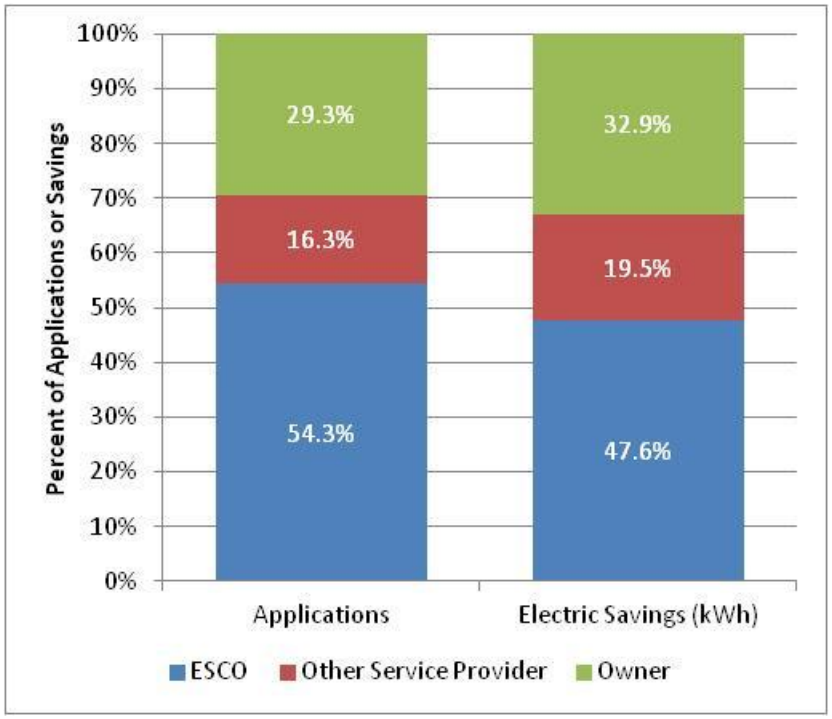
[85] Based on discussions with NYSERDA's survey contractor and initial screening of survey respondents, the MCA team included those tenants with the ability to make efficiency improvement-related decisions in the owner-occupied office group. The property manager segment includes both property management firms and the real estate development firms that own the buildings. For more, see Appendix C.

[86] HR&A Advisors. NYSERDA Focus CRE Commercial Real Estate Market Report, Summer 2010.

[87] The difference between classifications varies by market. The HR&A report characterizes "Class A" buildings as top quality buildings with the best location, construction, amenities, and management.

[88] Amy Cortese and Dan Harris, New Buildings Institute. "Harnessing Market Forces to Address the Landlord Tenant Split Incentive in the Commercial Building Market," ACEEE Summer Study on Energy Efficiency in Buildings, 2010.

Figure 2-30. Breakdown of Application Count and Savings by Applicant Type (Office Sector Participants)

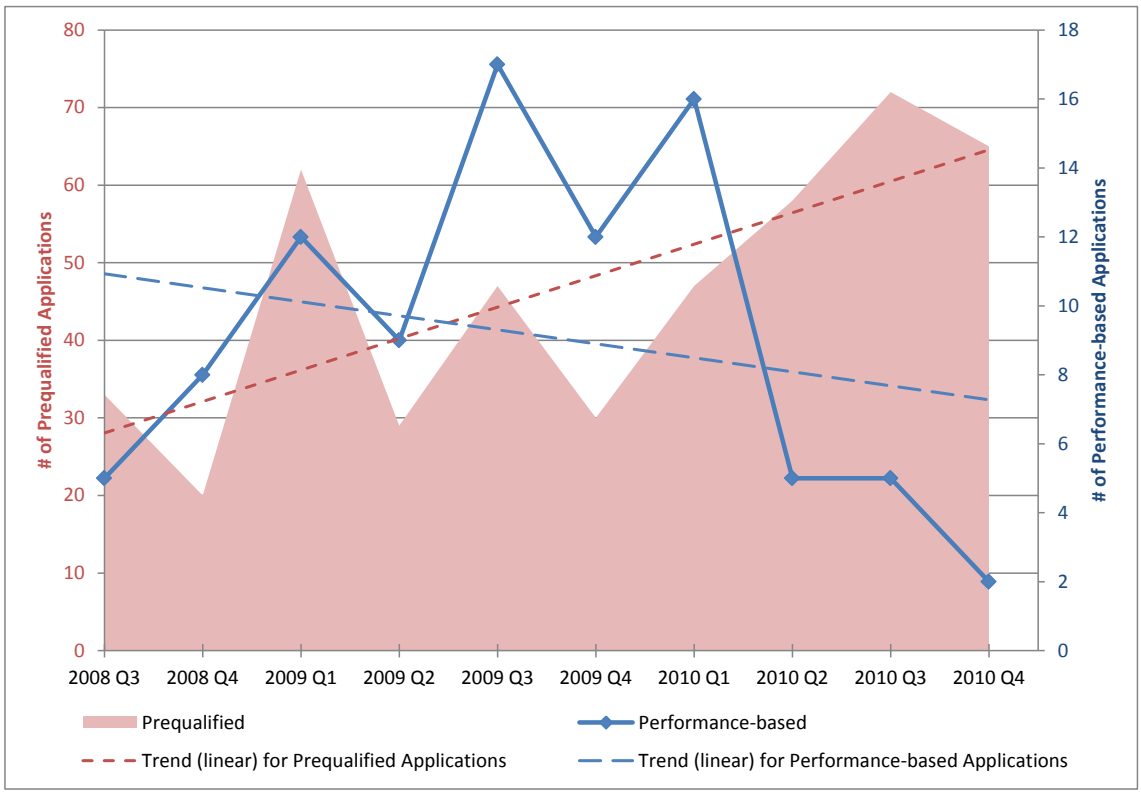


Note: Includes all projects listed as Office sector in the NSYERDA EFP project database. Energy savings as reported in the NYSERDA EFP project database.
N = 596.
Source: MCA team analysis.

The MCA team also sought to identify office sector trends over time by reviewing application dates in the EFP project database. Figure 2-31 shows the number of measures applied for by office sector participants across each quarter, starting with the third quarter of 2008.[89]

[89] Through the first quarter of 2011.

Figure 2-31. Applications Received by Quarter (Office Sector Participants)

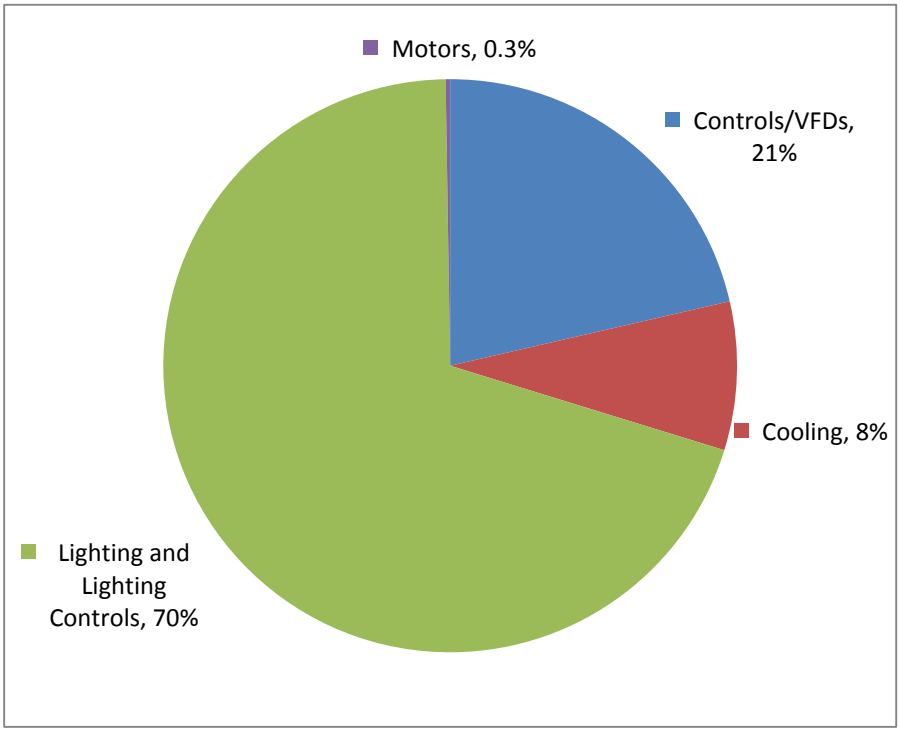


Note: Includes all office projects in the EFP database, but excludes those missing date information. N = 554.
Source: MCA team analysis.

Similar to the institutional sector, applications for office sector performance-based projects showed a rising trend (through the first quarter of 2010) before a steady decline. The overall trend for prequalified measure activity, however, has continued to rise.

The MCA team also extracted project savings data for office sector performance-based measures to understand how the sector achieves such savings through the EFP. Figure 2-32 illustrates the breakdown of office sector performance-based savings.

Figure 2-32. Breakdown of Performance-Based Savings by Measure (Office Sector Participants)



Note: Energy savings as reported in the NYSERDA EFP project database. The database did not include any monitoring-based commissioning or motors measure savings for this sector. Performance-based projects only (N = 92).
Source: MCA team analysis.

As with the broader participant set, lighting and lighting controls are responsible for the majority (70 percent) of savings in the office sector. Notably, a greater share of this sector's performance-based savings arises from lighting systems than those of the institutional sector. The database did not include any monitoring-based commissioning savings for this sector.[90]

As stated earlier, the office sector comprises various types of property class, ownership structures, and decision-making processes. The MCA team therefore completed office sector surveys for each of the two decision-maker segments to help capture and assess the differences in drivers and barriers among owner occupants and office property managers.[91] The remainder of this section will discuss key survey findings from each sub-segment. The section presents owner-occupied findings first, followed by findings from the property manager surveys.

[90] Monitoring-based commissioning incentives were not offered by EFP until November 16, 2010.
[91] Based on discussions with NYSERDA's survey contractor and initial screening of survey respondents, the MCA team included those tenants with the ability to make efficiency improvement-related decisions in the owner-occupied office group. For more, see Appendix C.

2.4.3.2 *Owner-Occupied Office Segment Characteristics*

This section focuses on the owner-occupied portion of the office sector. As previously noted, based on discussions with NYSERDA's survey contractor and initial screening of survey respondents, the MCA team included those tenants with the ability to make efficiency improvement-related decisions in this group.[92]

Organizational Structure and Decision Making

The MCA team reviewed data gathered via the participant and non-participant surveys to characterize respondents from the owner-occupied office segment.[93] As previously shown in Figure 2-17, senior leadership approves capital improvements and energy efficiency decisions for a majority of office sector end users. Table 2-8 summarizes additional insights from the surveys on owner-occupied office respondent characteristics, which include the following:

- More than 90 percent of participant respondents stated that they hired outside companies to assist with their EFP projects.
- Owner-occupied office end users were more likely to hire energy efficiency consulting firms than those in the institutional sector.
- Decision makers have responsibility for fewer facilities than those in other priority market sectors; the majority (68 percent) of owner-occupant respondents oversee fewer than four buildings.

Table 2-8. Owner-Occupied Office Sector Survey Respondent Characteristics

Population	Question	Responses
Participants (n = 24)	What is the approximate size of the building that was affected by EFP?	13% = 20K - < 50K sq. ft. 17% = 50K - 100K sq. ft. 71% = > 100K sq. ft.
Participants (n = 24)	Did you hire any outside companies during any phase of the project?	92% = yes
Participants (n = 24)	If yes, what kind of company did you hire?*	73% = equipment installation 64% = consultants
Non-participants (n = 35)	How many individual buildings or facilities do you oversee?	38% = 1 building 30% = 2–4 buildings 16% = 5–10 buildings 16% = > 10 buildings

Note: *Should not add up to 100%; respondents were able to choose more than one option from a list of options.
Source: MCA team analysis

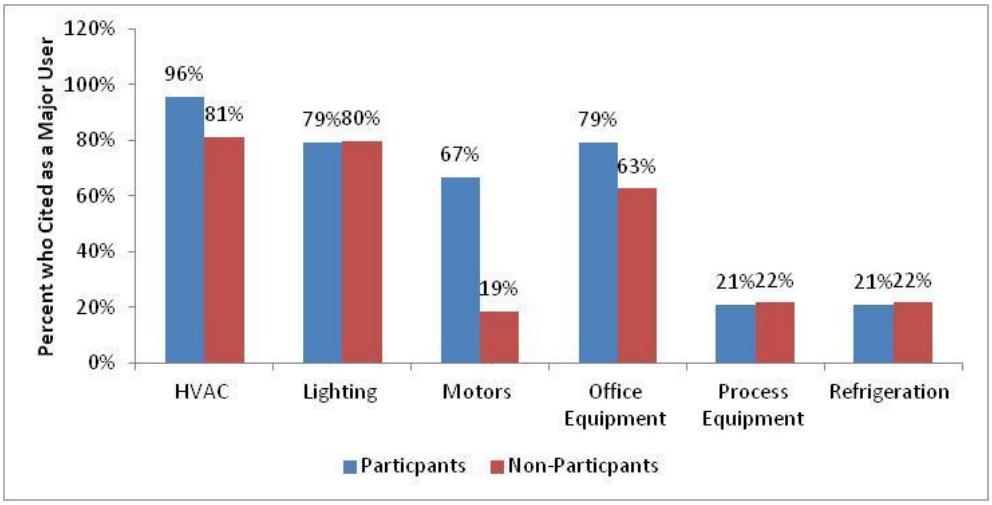
[92] For more on this approach, see Appendix C.

[93] For sample sizes, confidence levels, and precision please see Appendix C.

2.4.3.3 *Owner-Occupied Office Segment Drivers and Barriers*

The MCA team asked survey respondents to identify what types of equipment in their facilities[94] use the most electricity.[95] Figure 2-33 shows the top four categories of perceived electricity uses among both participants and non-participants. While respondent *perception* may not accurately reflect actual energy use, NYSERDA can use this information to inform marketing and outreach efforts.

Figure 2-33. Top Perceived Major Users of Electricity (Owner-Occupied Office Segment)



Note: Responses are not mutually exclusive. Participants n = 24; Non-participants n = 35. Process equipment and refrigeration tied for the fourth highest perceived energy user among non-participants.
Source: MCA team analysis.

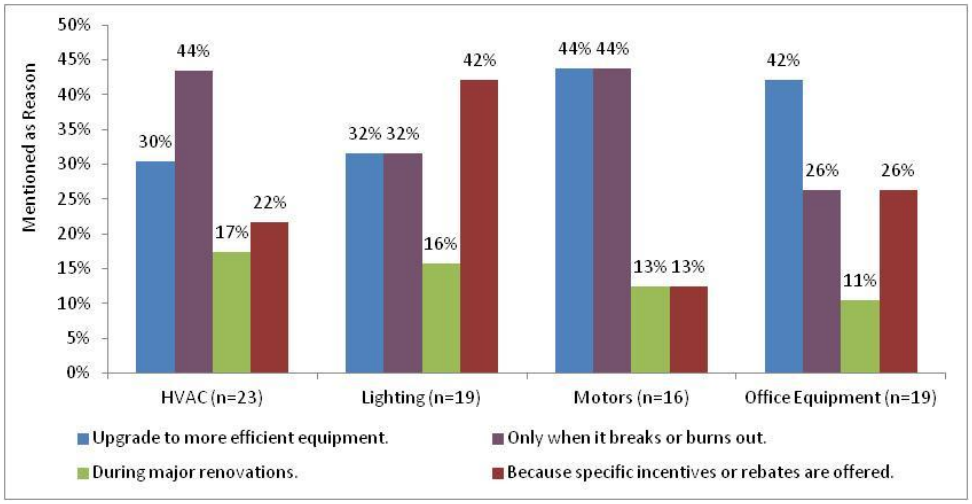
Notably, Figure 2-33 shows a large difference between participants and non-participants in the perception of electricity use from motors. As with other sectors, lighting and HVAC systems represent the highest perceived uses of electricity.

Driving Factors for Efficiency Improvements

Respondents then indicated when, from among a list of choices, they tend to replace any equipment they cited as a major user of electricity. Figure 2-34 and Figure 2-35 show the responses given for the top four electricity uses by owner-occupied office segment participants and non-participants, respectively.

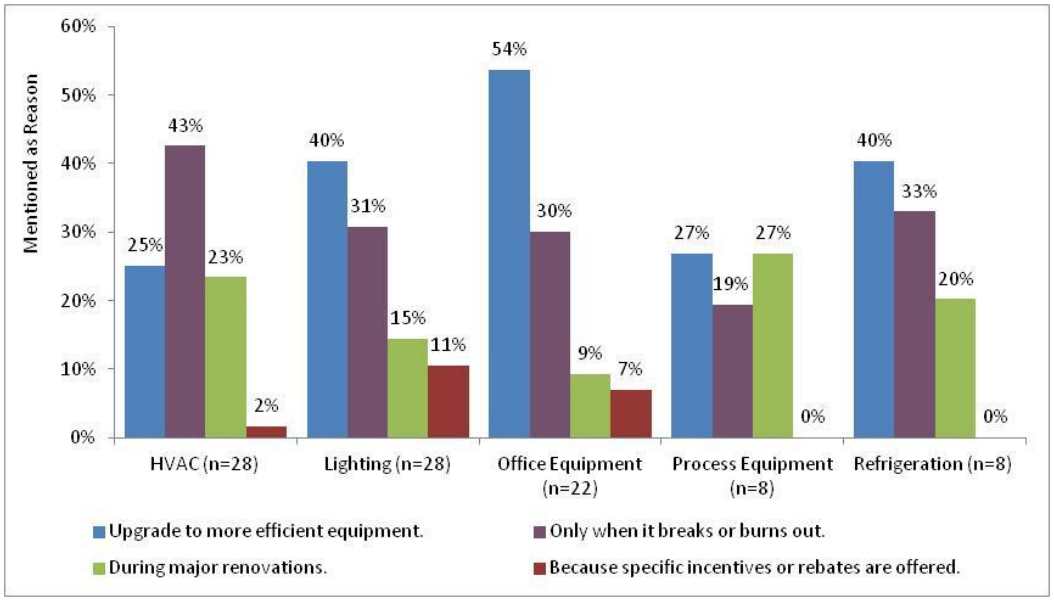
[94] Participants were asked to focus on the facilities that were affected by EFP, whereas non-participants were asked about their organization's facilities overall.
[95] Respondents were asked to categorize each equipment type as a major user, minor user, or not a user of electricity in their facilities.

Figure 2-34. When to Replace Highest Perceived Electricity Users (Owner-Occupied Office Participants)



Note: Responses are not mutually exclusive.
Source: MCA team analysis.

Figure 2-35. When to Replace Highest Perceived Electricity Users (Owner-Occupied Office Sector Non-Participants)



Note: Responses are not mutually exclusive. Process equipment and refrigeration tied for the fourth highest perceived energy user among non-participants.
Source: MCA team analysis.

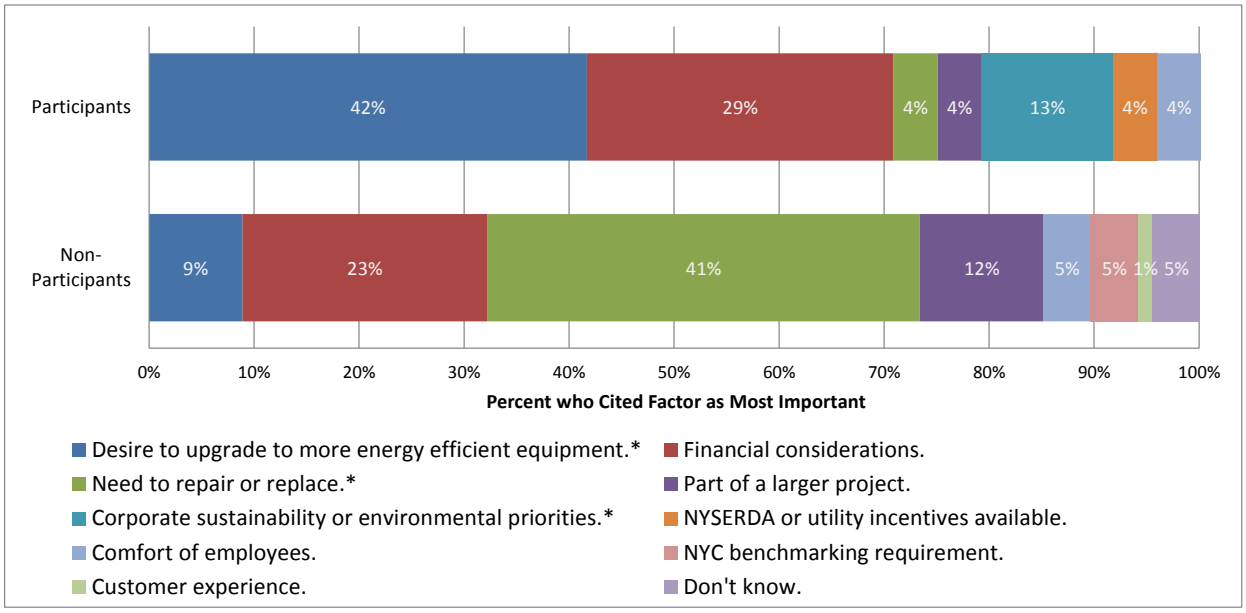
Overall, owner-occupied office end users most often replace equipment "only when it breaks or burns out" or to "upgrade to more efficient equipment;" however, responses varied slightly by equipment type and by participation status.

Notable insights from Figure 2-34 and Figure 2-35 include the following:

- For HVAC, both participants and non-participants most frequently mentioned replacing HVAC equipment only when it breaks or burns out.
- Participant respondents cited incentives and rebates more frequently when asked about lighting systems. Notably, these owner-occupied office respondents also mentioned such incentives more frequently than the institutional sector.
- The majority (54 percent) of non-participant respondents indicated that they replace office equipment to upgrade to more energy-efficient equipment. Though not a likely source of performance-based savings, office equipment may be a potential starting point for some customers who may be motivated to look for other savings within their facility.

Survey respondents then categorized each potential factor considered by their organization when deciding whether to move forward with an energy efficiency project as a "major factor", "minor factor", or "not a factor." They then indicated which major factor they considered as the most important. Figure 2-36 shows how participant and non-participant respondents ranked the most important of the "major factors" for their organization.

Figure 2-36. Most Important Factors for Project Consideration (Owner-Occupied Office Sector)



Note: Responses are mutually exclusive within each sample group. Includes respondents that described a factor as "major"; Participants n = 24; Non-participants n = 35.
*Indicates a statistically significant difference between participant and non-participant responses.
Source: MCA team analysis.

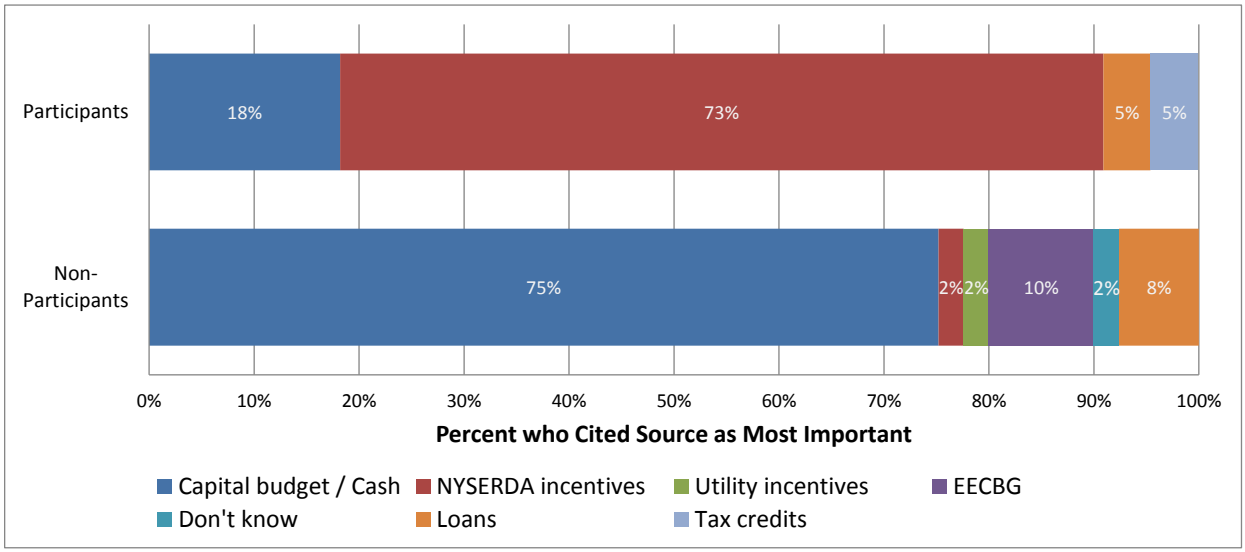
Responses showed several statistically significant differences between participant and non-participant respondents. For example, 42 percent of participant respondents indicated a desire to upgrade to more energy-efficient equipment as the most important factor for project consideration compared to only 9

percent of non-participant respondents. Non-participant respondents, on the other hand, cited the need to repair or replace equipment as the most important factor for consideration (41 percent), compared to only four percent of participants. These findings highlight a key difference in the motivations facing those who have undertaken performance-based projects, with participants showing a greater likelihood to upgrade systems before the end of the existing equipment's useful life. Finally, significantly more participants (13 percent) cited corporate sustainability than non-participants (0 percent). It is also important to note that 39 percent of participant and 77 percent of non-participant respondents cited the NYC Benchmarking requirement as either a major or a minor factor in their efficiency project considerations.[96] This finding may serve as a future benchmark regarding awareness of those requirements.

Financing Efficiency Improvements

As shown above, financial considerations represented the second most important factor for both participant and non-participant end users in the owner-occupied office segment. The MCA team sought to understand the relative importance of different funding sources in these considerations. As shown in Figure 2-37, distinct differences occur between the two populations.

Figure 2-37. Most Important Funding Sources for Project Approval (Owner-Occupied Office Sector)



Note: Responses are mutually exclusive within each sample group. Includes respondents that described a funding source as "major"; Participants n = 22; Non-participants n = 20.
Source: MCA team analysis.

Nearly three out of four (73 percent) participant respondents cited NYSERDA incentives as the most important source of funding while a similar share (75 percent) of non-participant respondents cited capital budgets as the most important. While the MCA team did not expect non-participants to emphasize NYSERDA incentives over participants, this difference suggests that NYSERDA incentives

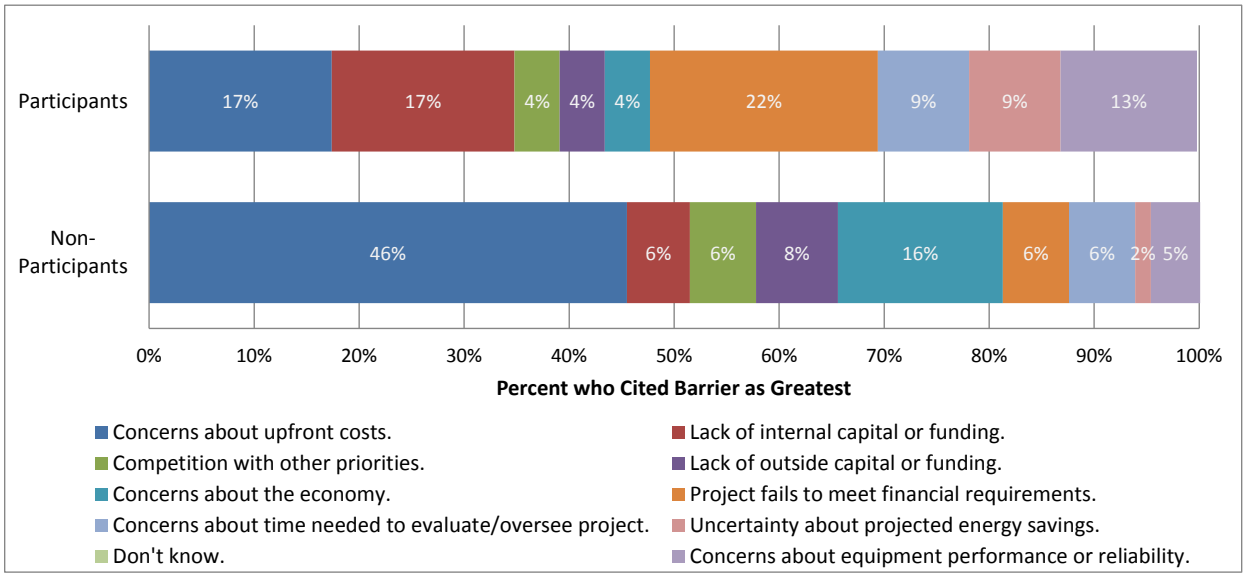
[96] Question asked of downstate respondents only. Participant n = 13; Non-participant n = 26.

are offsetting internal capital budgets rather than other outside sources of funding. In addition, a share of non-participant respondents (10 percent) cited the American Recovery and Reinvestment Act (ARRA) funded Energy Efficiency and Conservation Block Grant (EECBG) as their projects' most important source of funding. Notably, owner-occupied office participants appear more reliant on NYSERDA incentives to move performance-based projects forward than those in the institutional sector (see Figure 2-26).

Barriers to Efficiency Improvements

The MCA team also explored the barriers owner-occupied offices face when considering whether to move forward with an energy efficiency improvement project. As shown in Figure 2-38, the plurality of non-participants (46 percent) cited concerns about upfront costs as the greatest barrier, whereas participant responses were more varied.

Figure 2-38. Greatest Barriers to Energy Efficiency Investments (Owner-Occupied Office Sector)



Note: Responses are mutually exclusive within each sample group. Includes respondents that described a barrier as "major"; Participants n = 23; Non-participants n = 32.
Source: MCA team analysis.

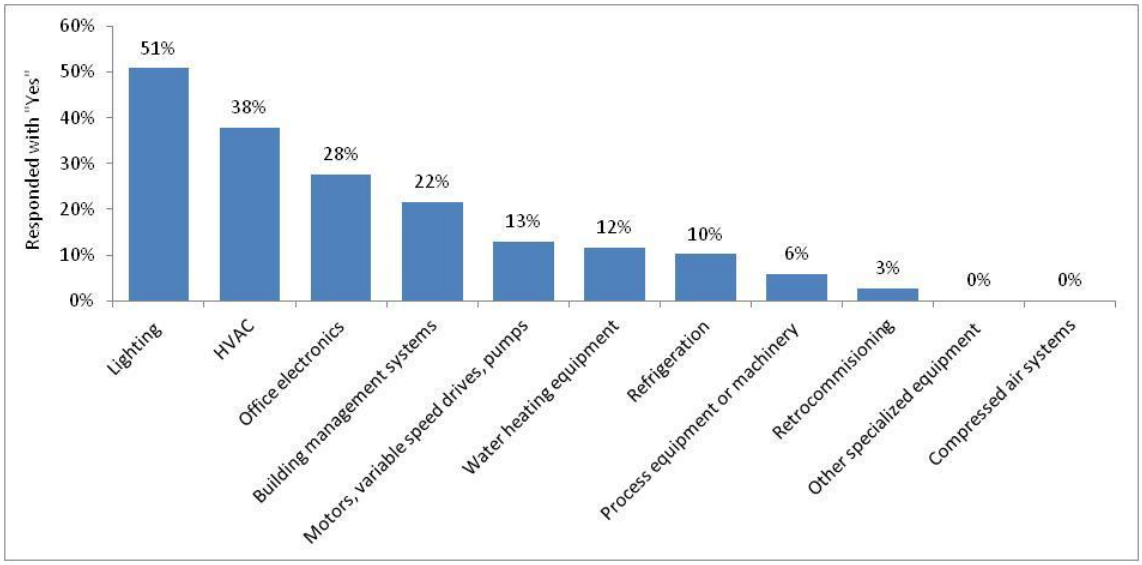
Participant respondents (22 percent) cited "failure to meet financial requirements" as the greatest barrier, followed closely by upfront costs and lack of internal capital, each cited by 17 percent of respondents. This difference may indicate a subtle but meaningful shift among those that have pursued performance-based projects. Specifically, more participants appear to have moved past initial concerns about the upfront costs of energy-efficient equipment and systems. Rather, they appear more likely to encounter barriers concerning a lack of capital or the actual financial requirements (e.g., payback period) associated with a project.

2.4.3.4 *Key Opportunities for Owner-Occupied Office Sector Based on Non-participant Responses*

The MCA team asked non-participant survey respondents a series of questions to assess potential opportunities for the EFP within the owner-occupied office sector. Overall, organizations in this sector consider energy efficiency an important investment. The vast majority (92 percent) of respondents stated that energy efficiency is either "very" or "somewhat" important to their organization. As with the institutional sector, this implies that owner-occupied office sector end users generally have a high awareness and understanding of the underlying value energy efficiency can bring to an organization.

Overall, more than half (58 percent) of non-participants stated that they have completed some sort of efficiency improvement since 2008, without EFP incentives. This supports the finding that owner-occupied office end users are implementing energy efficiency projects without direct support from NYSERDA. However, this insight does not indicate the scale or scope of these projects or whether they would qualify for incentives under the EFP. Of those respondents, Figure 2-39 shows what types of projects they had completed.

Figure 2-39. Energy Efficiency Equipment Installed in Past Three Years (Owner-Occupied Office Sector)

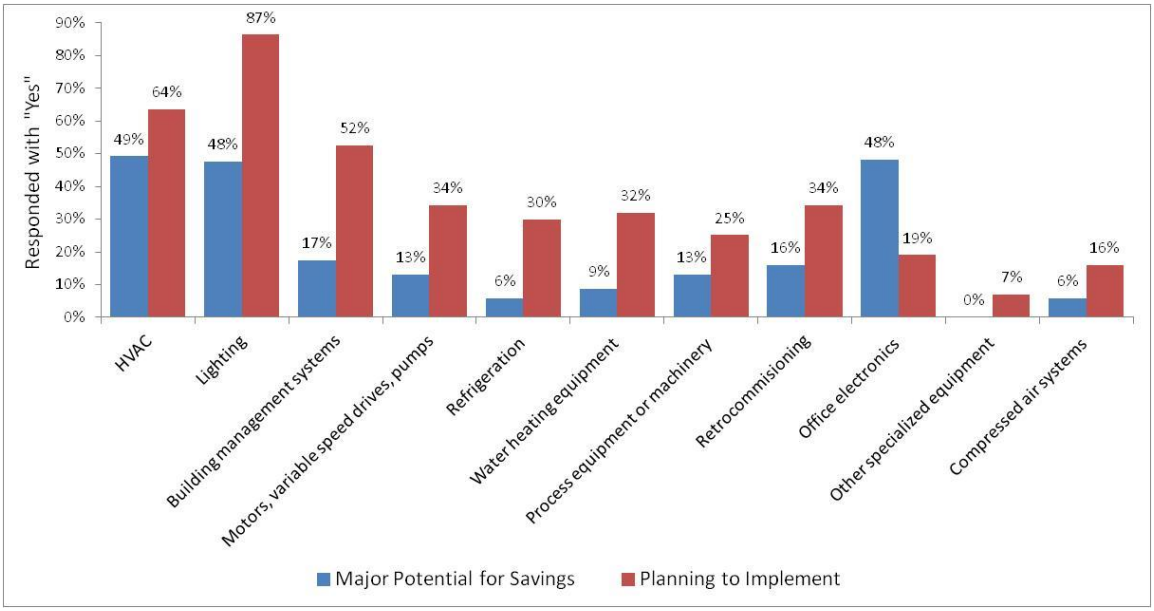


Note: Responses are not mutually exclusive. Non-participants (n = 35).
Source: MCA team analysis

As shown, half (51 percent) of those who have implemented recent efficiency improvements have upgraded lighting systems, while 38 percent have upgraded HVAC systems.

Non-participant survey respondents also shared what systems they perceive to hold the greatest potential for energy savings, and whether their organization is currently considering updating systems or installing any high-efficiency equipment in those same categories in the next two to three years. Figure 2-40 illustrates responses to both of these questions.

Figure 2-40. Perceived Potential for Savings and Plans to Implement in Next 2-3 Years (Owner-Occupied Office Sector)



Note: Responses are not mutually exclusive. "Major potential for savings" includes all respondents (n = 35). "Planning to implement" responses include the 64 percent that said they plan to implement a project in the next 2-3 years (n = 22).
Source: MCA team analysis

Of non-participants that plan to implement energy efficiency projects in the near future, 87 percent plan to pursue lighting projects (57 percent of all respondents). Notably, more respondents in this sector intend to implement lighting improvements than those in the institutional sector.

In addition, while only 17 percent cited BMS as a major potential source of savings, more than half (52 percent) of those planning to implement a project in the near future intend to install BMS. This is in addition to the 11 percent of non-participant respondents who indicated that they have already installed BMS in the past three years (see Figure 2-39). Similarly, one-third plan to undertake retro-commissioning even though only 16 percent perceive it as a major source of energy-saving potential. This implies that a moderate share of end users in the owner-occupied office segment sees BMS and, to a lesser degree, retro-commissioning as likely upcoming investments. As with the institutional sector, this may be the result of the NYC Greener, Greater Buildings requirements.

2.4.3.5 *Key Findings for Owner-Occupied Office Sector*

Table 2-9 summarizes key findings for the institutional sector that will be revisited in Section 4.

Table 2-9. Key Findings for Owner-Occupied Office Segment

Category	Key Findings
EFP Program Participation and Support	» ESCOs and service providers applied for 67 percent of performance-based savings. » Ninety-two percent of end users hired an outside firm to help implement performance-based projects, mostly equipment installers and energy efficiency consultants. » Office sector projects reveal a less diverse distribution of performance-based energy savings across measure categories than the institutional sector. Seventy percent of these savings have come from lighting and lighting controls projects.
Reasons and Drivers for Efficiency Improvements	» Nearly half of participating organizations report replacing HVAC and motor-based systems or equipment only when they break. » Incentives have been more likely to drive lighting and HVAC upgrades for owner-occupied offices than for institutional end users. » A clear dichotomy exists between the major motivations for performance-based project participants (i.e., upgrades to more efficient equipment) and non-participants (i.e., need to repair or replace equipment).
Project Funding	» A majority (73 percent) of participants cited NYSERDA incentives as their most important source of funding for performance-based projects; this is substantially higher than among institutional sector organizations. » Incentives appear to offset primarily internal budgets.
Barriers to Efficiency Improvements	» Projects meeting financial requirements represented the greatest single barrier among performance-based project participants. A shift from concerns about upfront costs (among non-participants) suggests that issues such as payback period are the most significant concern once sufficient project funding is available. » A concern about upfront costs remains the greatest barrier for non-participants.
Key Opportunities	» About 30 percent of all non-participants have upgraded lighting systems in the past three years. About 22 percent have upgraded HVAC; 13 percent have installed BMS. Significant potential for improvements appears to remain. » More organizations plan to implement lighting projects (56 percent) in the next 2-3 years than projects involving HVAC (40 percent) or BMS (33 percent). » BMS and RCx gained considerable mention as intended near-term projects.

Source: MCA team analysis

2.4.3.6 *Property Manager Office Segment Characteristics*

This section explores findings for the other segment of the overall office sector – property managers and CRE owners. As with the other sectors, the MCA team reviewed data gathered via the participant and non-participant surveys to characterize the respondents from the property manager office segment. Based on low response rates from non-participant property managers and subsequently low precision of

responses, this section focuses primarily on participant respondents, citing non-participant responses only where trends are more distinct.[97] To provide additional context, this section makes some comparison to findings from the participant owner-occupied segment surveys. The MCA team also supplemented the below discussion with additional insights from secondary resources and interviews with NYSERDA's commercial real estate outreach contractor.

Organizational Structure and Decision Making

As stated in the owner-occupied office findings, senior leadership approves capital improvements and energy efficiency decisions for a majority of office sector end users. Table 2-10 summarizes additional insights gained from the surveys on property manager office segment respondent characteristics and includes a few noteworthy points:

- Ninety-five percent of participant respondents stated that they hired outside companies to assist with their EFP projects.
- Respondents are responsible for a larger number of buildings than those in the owner-occupied office segment, with the majority (72 percent) stating that they oversee five or more buildings.

Table 2-10. Office Sector (Property Manager) Survey Respondent Characteristics

Question	Responses
What is the approximate size of the building that was affected by EFP?	5% = 50K - 100K sq. ft. 90% = > 100K sq. ft.
Did you hire any outside companies during any phase of the project?	95% = yes
If yes, what kind of company did you hire?*	** 67% = equipment installation 78% = consultants

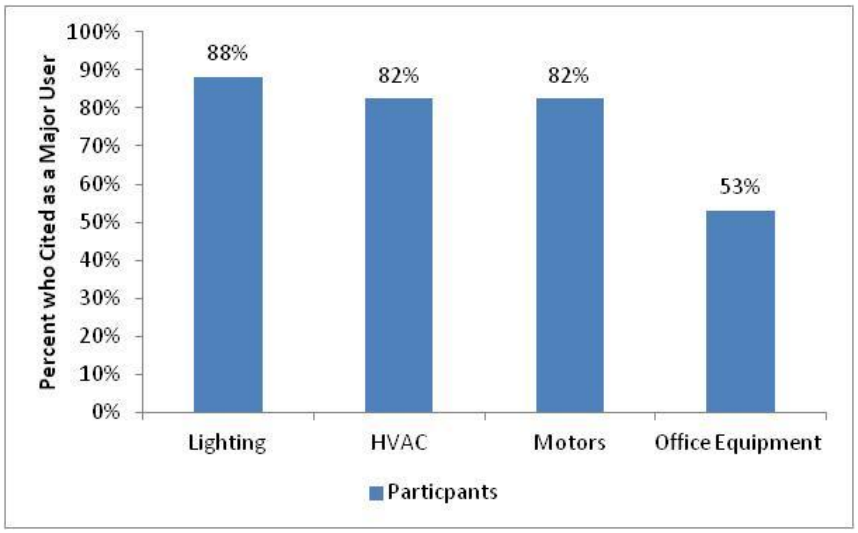
Note: Questions asked of participants in the Office sector (property manager segment. (n = 17).
*Should not add up to 100%; responses were not mutually exclusive.
Source: MCA team analysis

2.4.3.7 Property Manager Office Segment Drivers and Barriers

The MCA team asked survey respondents to identify what types of equipment in their facilities use the most electricity.[98] Figure 2-41 shows the top four perceived electricity users among participants. While respondent *perception* may not accurately reflect actual energy use, NYSERDA can use this information as it plans marketing and outreach efforts.

[97] For sample sizes, confidence levels, and precision please see Appendix C.
[98] Participants were asked to focus on the facilities that were affected by EFP.

Figure 2-41. Top Perceived Major Users of Electricity (Property Manager Office Segment)

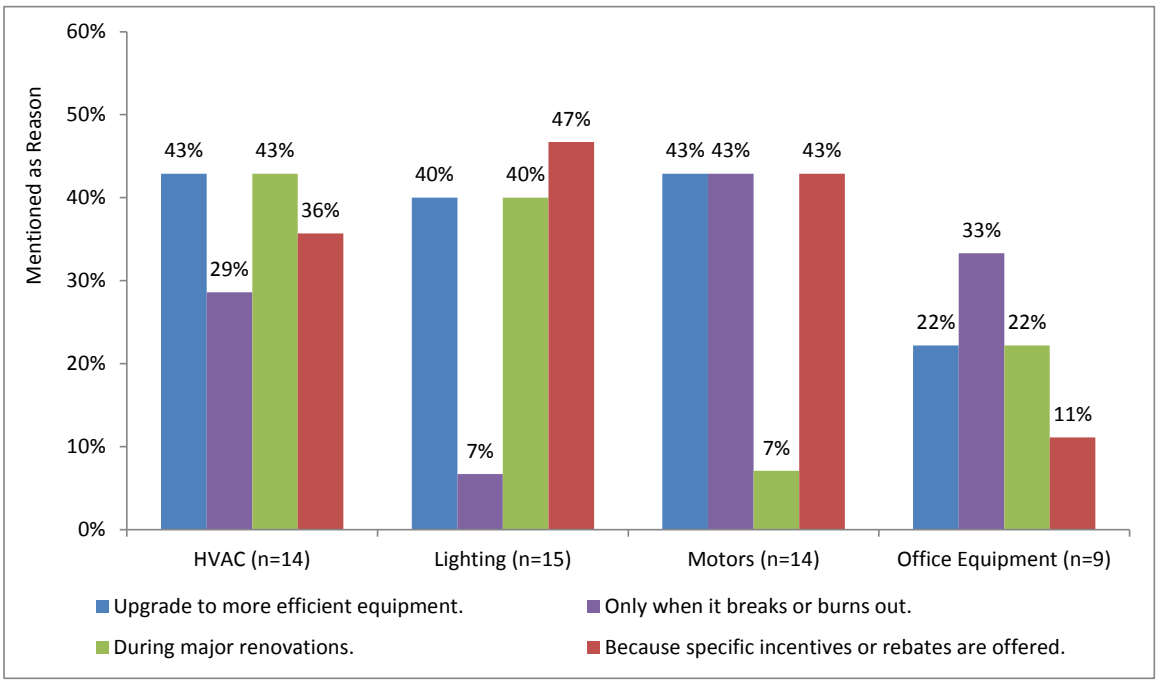


Note: Responses are not mutually exclusive. Participants n = 17.
Source: MCA team analysis.

Property manager participants varied slightly in their perception when compared to owner-occupied participant survey respondents (see Figure 2-33). For example, 82 percent of property manager respondents cited motors as a major user, compared to only 67 percent of owner-occupied respondents. Furthermore, while HVAC (96 percent) and lighting (79 percent) took the top two spots among owner-occupied respondents, motors tied with HVAC for the number two spot among property managers (82 percent).

Respondents then indicated when, from among a list of choices, they tend to replace equipment listed as a major user of electricity. Figure 2-42 shows the responses given for the top four electricity users by property manager office segment participants.

Figure 2-42. When to Replace Highest Perceived Electricity Users (Property Manager Office Segment Participants)



Note: Responses are not mutually exclusive.
Source: MCA team analysis.

Overall, property manager office participant responses varied by equipment type. In addition, a few differences exist between property managers and owner-occupied participant respondents. Notable insights include the following:

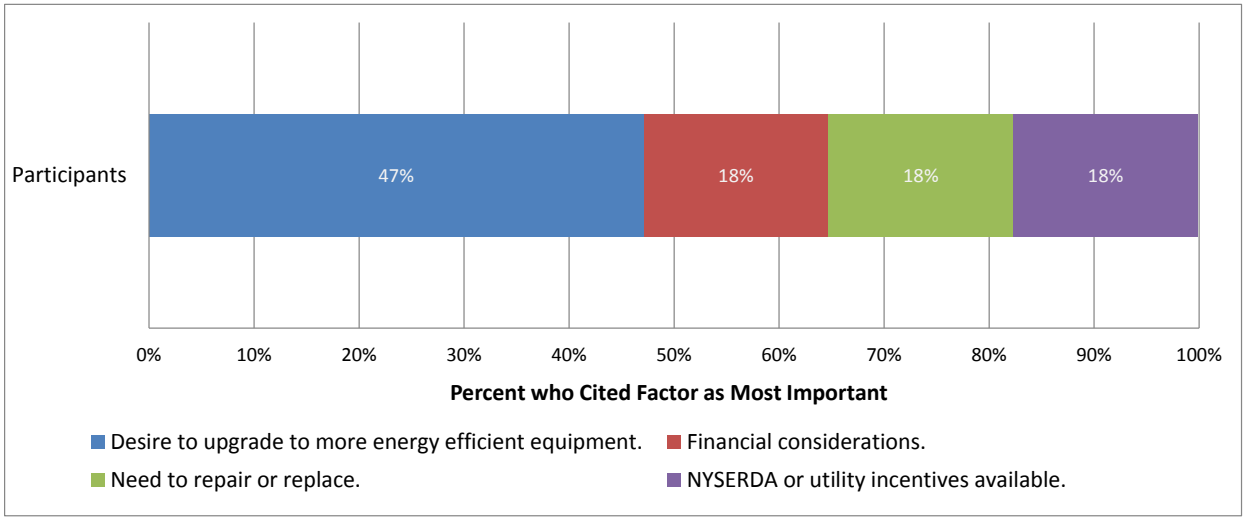
- Respondents cited major renovations among the top times to replace lighting and HVAC equipment more prominently than those in other priority market sectors. As noted by NYSERDA's CRE focus contractor, property owners are more likely to make upgrades to office spaces during the build-out process in preparation for new tenants.
- While other sectors cited incentives or rebates most frequently when asked about lighting, the property manager office segment cited incentives more prominently when asked about replacing HVAC and motor-based equipment and systems.
- Property manager participants cited replace on burnout for HVAC less frequently than owner-occupied participants. While owner-occupied respondents cited break or burn out as the leading time to replace HVAC equipment (44 percent), only 29 percent of property managers mentioned it as a reason to replace equipment.

Driving Factors for Efficiency Improvements

Survey respondents categorized potential factors considered by their organization when deciding whether to move forward with an energy efficiency project as a "major factor", "minor factor", or "not a factor." They then indicated which major factor they considered as the most important. Figure 2-43

shows how participant respondents ranked the most important of the "major factors" for their organization.

Figure 2-43. Most Important Factors for Project Consideration (Property Manager Office Segment Participants)



Note: Responses are mutually exclusive. Includes respondents that described a factor as "major"; n = 17.
Source: MCA team analysis.

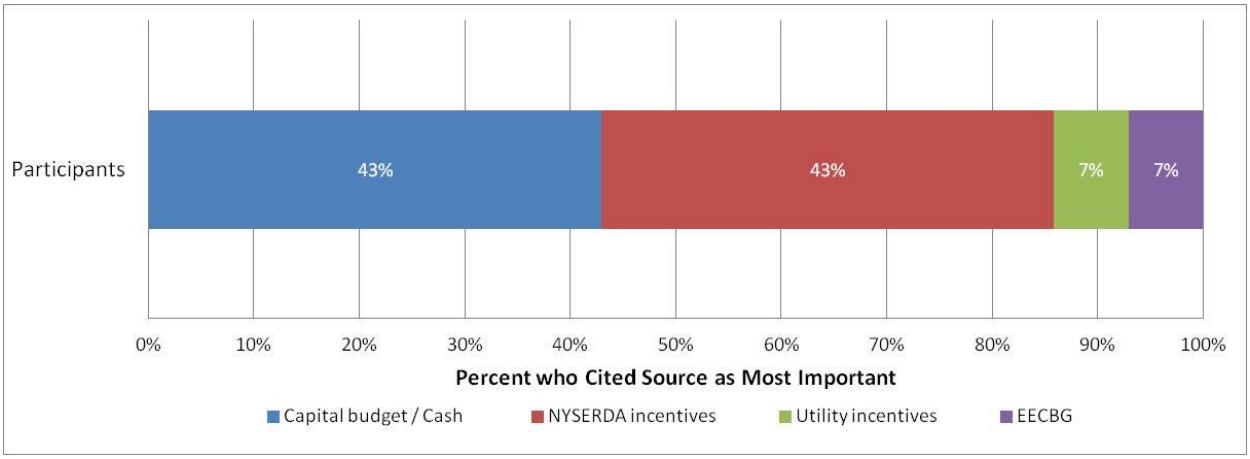
The most important factor for the plurality (47 percent) of property manager participant respondents was a need to upgrade to more energy-efficient equipment. Participants in the owner-occupied participant segment responded similarly with 42 percent, citing the same factor as most important (see Figure 2-36). Beyond this top factor, however, responses between property managers and owner-occupants varied. For example, an equal proportion (18 percent) of property managers cited three different factors as the second most important factor with no other factors cited. By comparison, owner-occupant responses varied with six different factors included in their responses. This implies that owner-occupants weigh a larger number of factors when considering whether to move forward with a project. Eligible property manager respondents did not list NYC Benchmarking as a "most important" factor; however, 21 percent cited it as a major factor for consideration, with 57 percent calling it a minor factor.[99]

Financing Efficiency Improvements

The property manager office segment differed in its perception of the most important funding sources when compared to those in the owner-occupied office segment. As shown in Figure 2-44, property managers place greater emphasis on the importance of capital budgets (43 percent cited as most important) and less on NYSERDA incentives (also 43 percent) when compared to owner-occupied office respondents (18 percent and 73 percent, respectively). Fourteen percent of respondents, in total, mentioned utility incentives or EECBG funding as important funding sources in this segment.

[99] Downstate respondents only; n = 14.

Figure 2-44. Most Important Funding Sources for Project Approval (Property Manager Office Segment Participants)

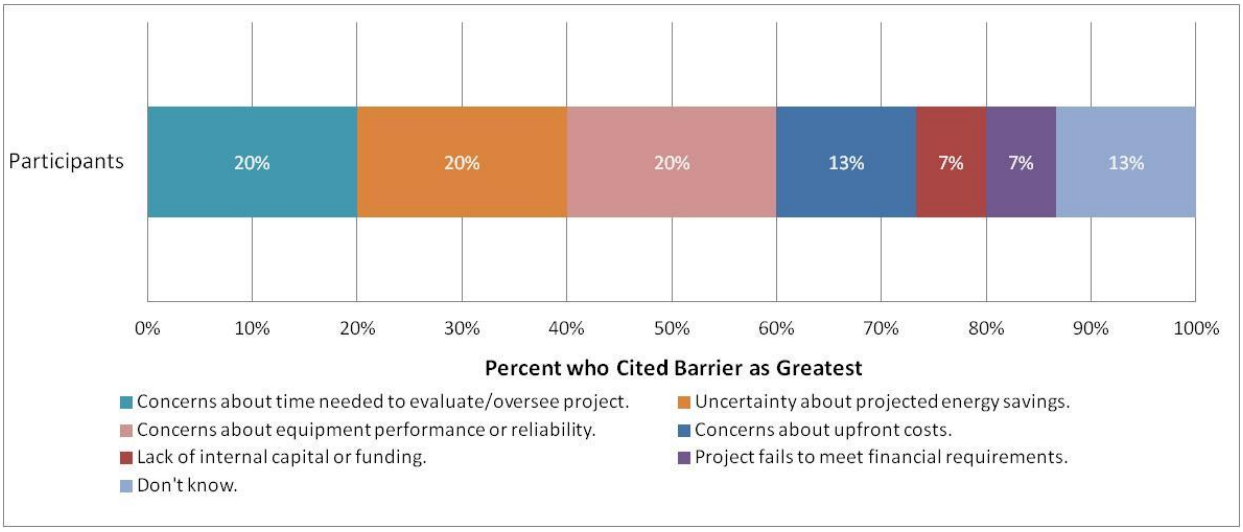


Note: Responses are mutually exclusive. Includes respondents that described a funding source as "major"; n = 14.
Source: MCA team analysis.

Barriers to Efficiency Improvements

The property manager office segment faces a variety of barriers when considering whether to move forward with an energy efficiency project. As with the owner-occupied office segment, participants cited a wide variety of factors as their greatest barrier. Figure 2-45 presents these responses.

Figure 2-45. Greatest Barriers to Energy Efficiency Investments (Property Manager Office Segment Participants)



Note: Responses are mutually exclusive. Includes respondents that described a barrier as "major"; n = 15.
Source: MCA team analysis.

Twenty percent of participants cited each of the following as their greatest barrier: concerns about the time required to manage projects, uncertainty about projected energy savings, and concerns about

equipment performance. Notably, property manager respondents cited these particular factors more frequently than did owner-occupied office respondents. Conversely, property managers cited issues such as lack of internal capital and failure to meet financial requirements less frequently than owner occupants, suggesting financial barriers represent less of a barrier for these organizations. Arguably, uncertainty over energy savings or equipment performance could also indicate concerns about a performance-based project's eventual payback period (based on less-than-anticipated energy savings); however, respondents cited these issues instead of concerns about meeting financial requirements (such as payback period).

The emphasis on these particular barriers (rather than financial barriers) could also be a result of property manager perspectives and relative responsibility for energy use within their facilities. Specifically, the split incentive issue (i.e., the allocation of project investment and energy/cost savings between owner and tenant) may play a role in the above differences. For example, if a tenant is covering a portion of the cost for an efficiency upgrade (i.e., during build-out), the property manager would likely have fewer concerns about upfront costs or availability of capital. Similarly, while the property manager may not receive the full benefits of lower energy usage from a lighting or HVAC upgrade, they are likely responsible for repairing the equipment should it fail. When asked about the degree to which they consider various considerations to be major factors to efficiency projects, two-thirds (67 percent) of property managers cited split incentives as a major barrier (the remaining third called it a minor barrier). However, as noted above, none cited it as the most important barrier.

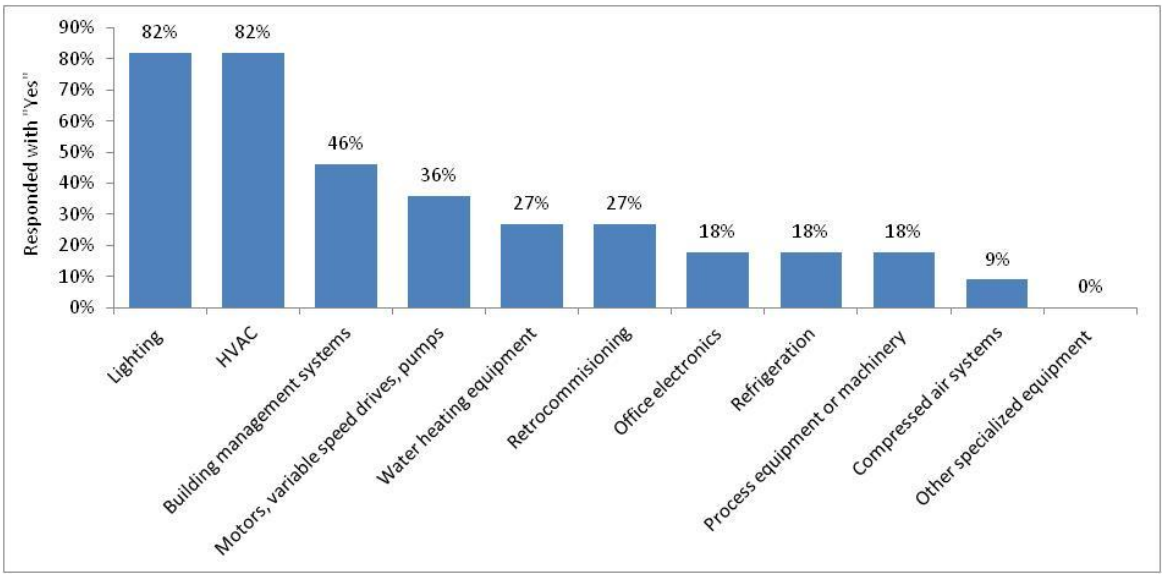
2.4.3.8 Key Opportunities for Property Manager Office Segment Based on Non-participant Responses

While the relatively low number of survey responses for the non-participant sector resulted in a lower than targeted precision, the MCA team has presented this particular set of findings based on EFP staff's desire for some insights on emerging opportunities in the office sector. Despite the low sample size, some apparent trends emerge concerning non-participants' plans for future efficiency improvements. Readers should consider these findings in the context of the relatively low sample size and compare them to the owner-occupied office segment responses in the previous section.

The MCA team asked non-participant respondents a series of questions to assess potential opportunities for the EFP within the property manager office sector. Overall, organizations in this sector consider energy efficiency an important investment. The majority (82 percent) of respondents stated that energy efficiency is very important to their organization. This implies that property manager office sector end users generally have a high awareness and understanding of the underlying value energy efficiency can bring to an organization.

When prompted, 100 percent of non-participant property managers replied that they had completed some type of energy efficiency improvement in the past three years (without EFP incentives). This supports the finding that property manager respondents are implementing energy efficiency projects without direct support from NYSERDA. However, this insight does not indicate the scale or scope of these projects, nor if the measures would qualify for incentives under the EFP. These projects may present opportunities for the EFP to convert those with high awareness of and willingness to pursue efficiency improvements to larger-scale, performance-based projects. Figure 2-46 illustrates in which equipment and building system categories these projects occurred.

Figure 2-46. Energy Efficiency Equipment Installed in Past Three Years (Non-participant Property Manager Office Segment)

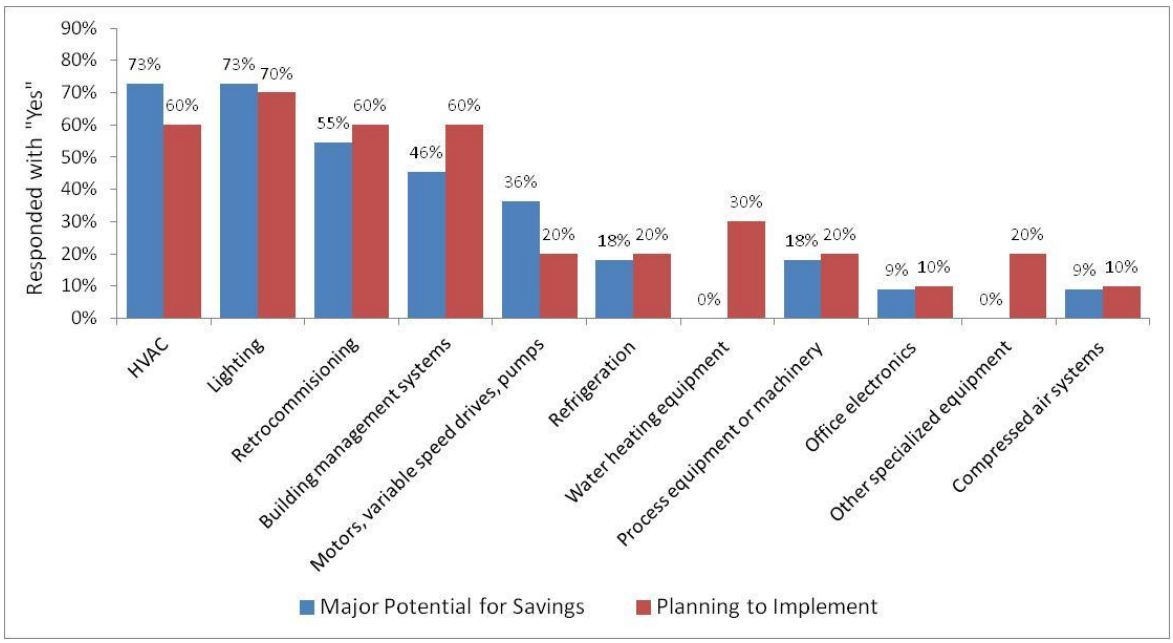


Note: Responses are not mutually exclusive. Non-participants (n = 11).
Source: MCA team analysis

As shown, the majority (82 percent) of non-participant property manager respondents stated that they have installed energy-efficient lighting and HVAC equipment within the past three years. This is a notably higher proportion than owner-occupied non-participants, only 51 percent of which have installed lighting and 38 percent of which have installed HVAC. In addition, almost half of non-participant property managers have installed BMS in some properties in the past three years. While overall property manager and owner-occupied respondents ranked recent equipment installations similarly, more property manager respondents stated that they have performed retro-commissioning recently than owner-occupied respondents.

As with the other sectors, the team asked non-participant property managers to share where they perceived the greatest potential for energy savings and whether their organization is currently considering system upgrades or installing any high-efficiency equipment in those categories. Ninety-one percent of respondents (10 of 11) said that they intended to undertake such projects in the next two to three years. Figure 2-47 illustrates their responses.

Figure 2-47. Perceived Potential for Savings and Plans to Implement in Next 2-3 Years (Non-participant Property Manager Office Segment)



Note: Responses are not mutually exclusive. Major potential for savings (n = 11). Planning to implement responses from the 91% that said they plan to implement a project in the next 2-3 years (n = 10).
Source: MCA team analysis.

Of non-participants that plan to implement energy efficiency projects in the near future, 70 percent plan to pursue lighting projects (63 percent of all respondents). In addition, 60 percent (54 percent of all respondents) intend to implement each of HVAC, RCx, and BMS projects. Again, this focus on RCx and BMS may arise in part from the implementation of NYC's Greener, Greater Buildings requirements.

2.4.3.9 *Key Findings for Property Manager Office Segment*

Table 2-11 summarizes key findings for the institutional sector that will be revisited in Section 4.

Table 2-11. Key Findings for Office Property Manager Segment

Category	Key Findings
EFP Program Participation and Support	» ESCOs and service providers applied for 67 percent of performance-based savings.* » Ninety-five percent of end users hired an outside firm to help implement performance-based projects, mostly energy efficiency consultants and equipment installers. » Office sector projects reveal a less diverse distribution of performance-based energy savings across measure categories than the institutional sector. Seventy percent of these savings have come from lighting and lighting controls projects.*
Reasons and Drivers for Efficiency Improvements	» Major renovations are a more prominent motivator for replacing lighting and HVAC equipment than for owner-occupants and institutions. » Incentives have been more likely to drive lighting, HVAC, and motor upgrades for property managers than for owner-occupants or institutional end users. » Equipment breaking was a less prominent driver for HVAC and lighting upgrades among property managers than either owner-occupants or institutions.
Project Funding	» Property managers place equal emphasis on the importance of capital budgets and NYSERDA incentives. This represents a considerably lower emphasis on NYSERDA incentives than owner-occupants.
Barriers to Efficiency Improvements	» Property managers' greatest barriers to efficiency projects included concerns about the time required to manage projects, uncertainty about projected energy savings, and concerns about equipment performance. » They cited issues such as lack of internal capital and failure to meet financial requirements less frequently than owner-occupants. » Two-thirds (67 percent) of property managers cited split incentives as a major barrier to implementing efficiency improvements.
Key Opportunities	» More than 80 percent of non-participants have upgraded each of lighting and HVAC systems (in some facilities) in the past three years. Just less than half (46 percent) have installed BMS. » A majority (63 percent) of non-participant property managers plan to implement lighting projects in the next 2-3 years. Just over half (54 percent) intend to implement each of HVAC, RCx, and BMS projects.

Note: *Finding also appeared in owner-occupied office findings.
Source: MCA team analysis

2.4.4 Large Retail Chain Store Sector Analysis

This section discusses findings from the large retail chain store sector analysis. For this analysis, the MCA team reviewed the EFP database and secondary literature when available. The number of survey

completions for this sector was too small to allow for the results to be included in the analysis. A summary of key insights appears at the end of the section.

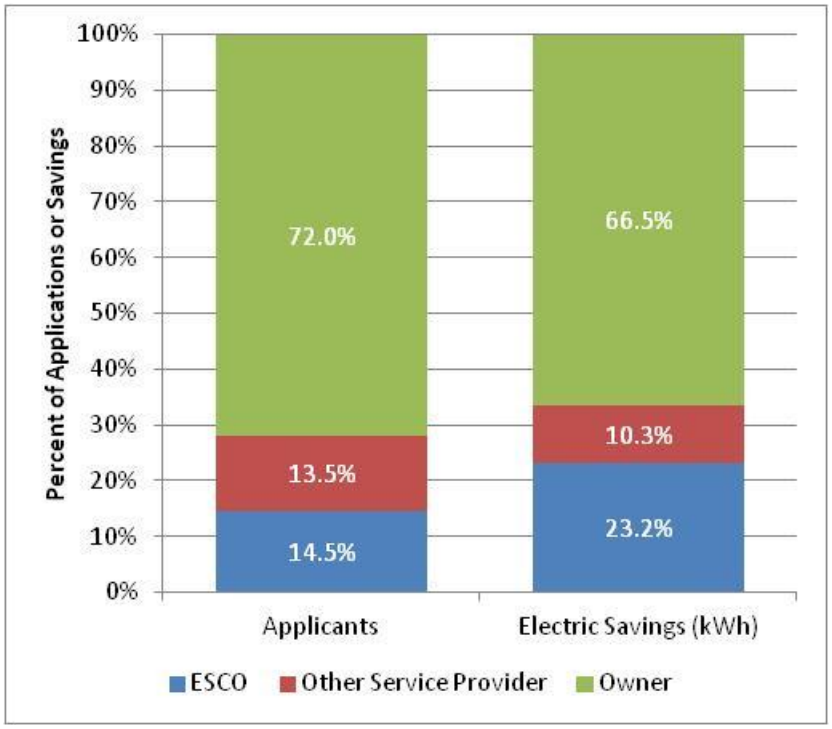
2.4.4.1 Large Retail Chain Store Sector Characteristics

This section presents key retail chain store findings from the MCA team's analysis of the EFP project database.

EFP Engagement

The MCA team reviewed EFP application data for all performance-based large retail chain store projects to understand which types of parties submitted applications for these projects and the share of performance-based savings for which each applicant type was responsible. As shown in Figure 2-48, projects where the facility owner or host customer applied represent the majority of performance-based applications (72 percent) and energy savings (67 percent). This finding stands in contrast to that for the other priority sectors, wherein ESCOs and other service providers represented the majority.

Figure 2-48. Breakdown of Application Count and Savings by Applicant Type (Large Retail Chain Store Participants)



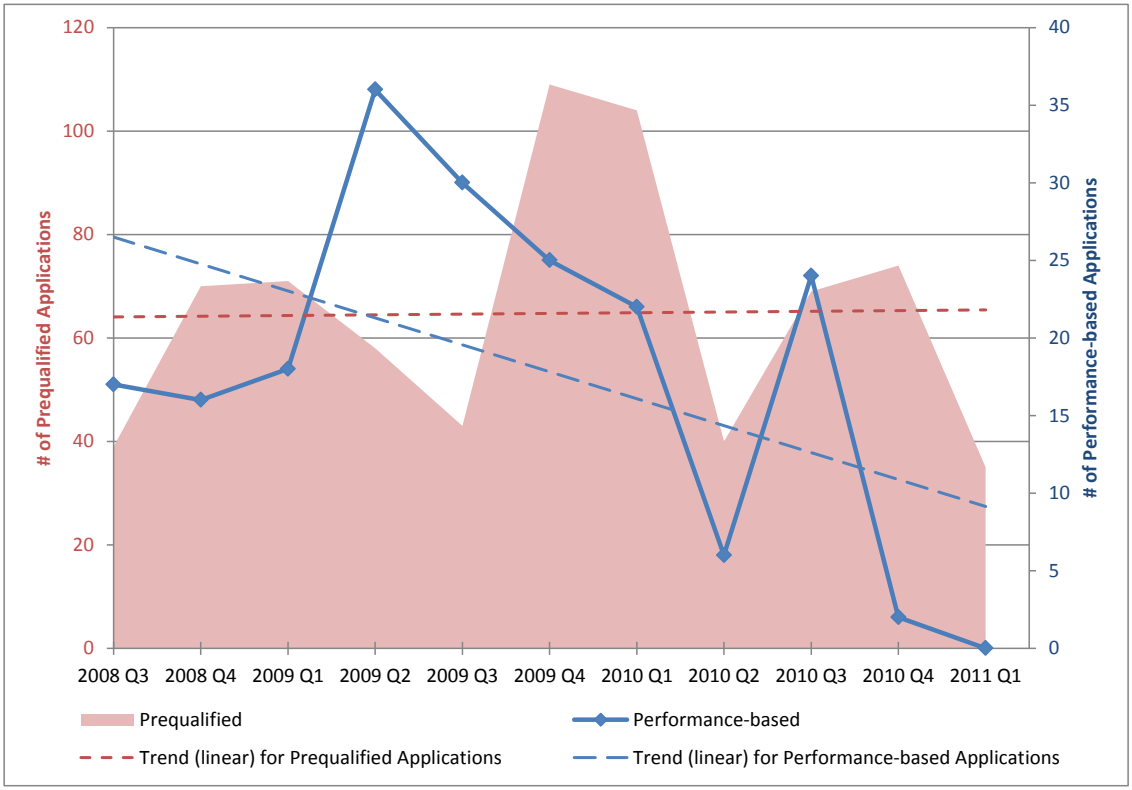
Note: Includes all projects listed as large retail chain sector in the NSYERDA EFP project database. Energy savings as reported in the NYSERDA EFP project database. N = 918.
Source: MCA team analysis.

As previously noted (see Table 2-5), large retail chain stores' participation in performance-based projects has been characterized by a relatively small number of organizations (N=18) that have implemented projects at multiple sites (an average of 10.5 sites per organization). Such repetition of improvements

(particularly lighting upgrades) across relatively uniform facilities may require less involvement and consultation with service providers than the (more diverse) projects in other priority sectors.

As with the other priority sectors, the MCA team also sought to identify large retail chain store sector trends over time by reviewing application dates across each measure type. Figure 2-49 shows the number of measures applied for by retail chain store participants across each quarter, starting with the third quarter of 2008.

Figure 2-49. Applications Received by Quarter
(Large Retail Chain Store Participants)

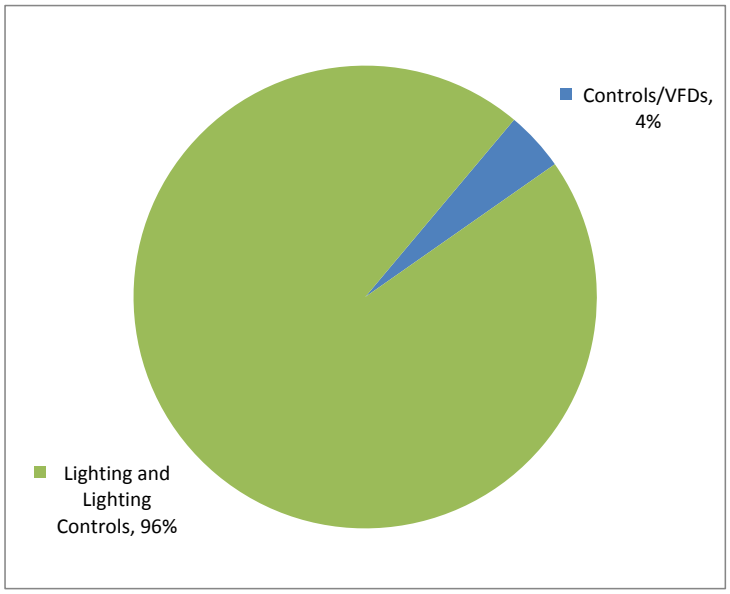


Note: Includes all measures listed as large retail chain sector in the NSYERDA EFP project database. N = 918 measures.
Source: MCA team analysis.

As shown, per-quarter applications for performance-based projects reached an early peak in the second quarter of 2009, followed by a steady decline until a second uptick in the third quarter of 2010. Overall, EFP prequalified program activity has remained relatively flat despite similar fluctuations from one quarter to the next.

The MCA team also extracted project savings data for retail chain store performance-based measures to understand how the sector achieves such savings through the EFP. Figure 2-50 illustrates the breakdown of large retail chain store performance-based savings.

Figure 2-50. Breakdown of Performance-Based Savings by Measure (Large Retail Chain Store Participants)

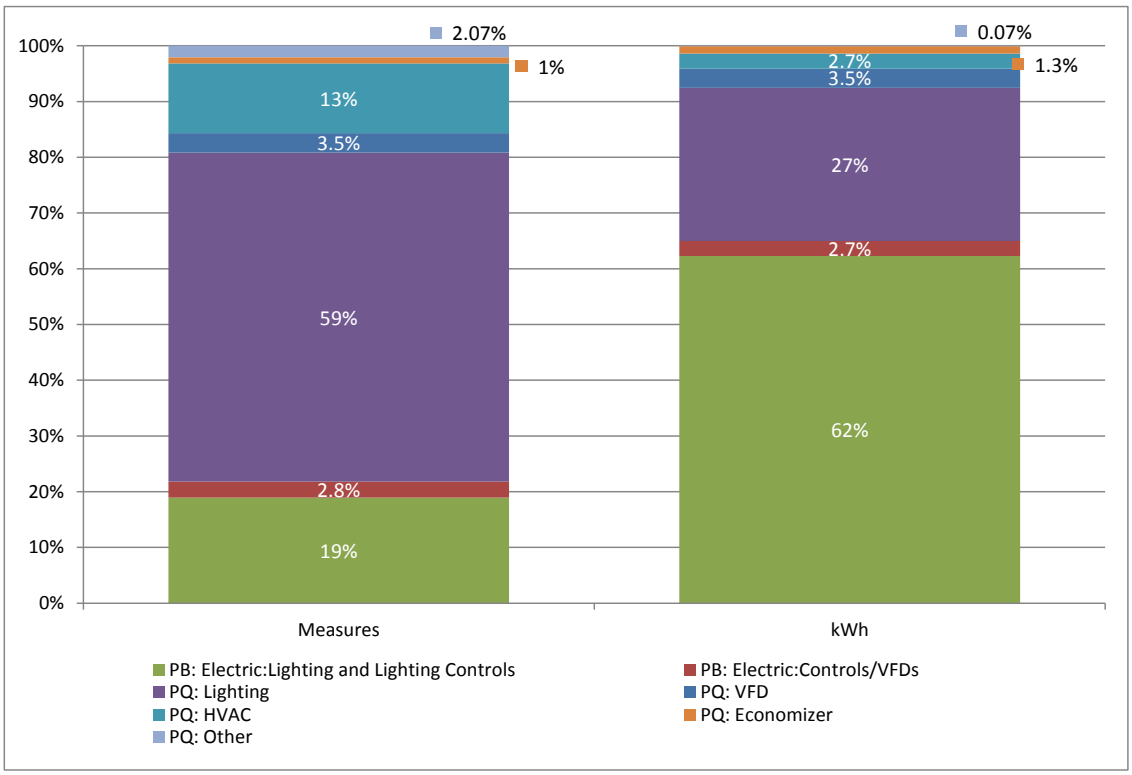


Note: Energy savings as reported in the NYSERDA EFP project database. The database did not include any monitoring-based commissioning, cooling, or motors measure savings for this sector.[100] N = 200 measures.
Source: MCA team analysis.

Unlike the other priority sectors, almost all (96 percent) of this sector's performance-based savings arise from lighting and lighting controls projects. Controls and VFD measures represent the remaining four percent of savings. For the large retail chain store sector, the MCA team also examined the contribution of prequalified EFP measures to evaluate if the sector's focus on lighting measures expanded beyond the performance-based incentives. Figure 2-51 shows the breakdown (by share of applications and share of sector energy savings) of all large retail chain store applications in the EFP database.

[100] Monitoring-based commissioning incentives were not offered by EFP until November 16, 2010.

Figure 2-51. Breakdown of All Program Electric Savings by Measure (Large Retail Chain Store Participants)



Note: Energy savings as reported in the NYSERDA EFP project database. (N = 918).
Source: MCA team analysis.

As shown, lighting and lighting controls account for 90 percent of all large retail chain store energy savings (62 percent and 27 percent from performance-based and prequalified measures, respectively). The remaining energy savings comprise relatively small contributions from HVAC, VFD, and control-related measures. Collectively, these findings reveal that the large retail chain sector's interest in and uptake of non-lighting energy savings measures has been fairly limited.

Organizational Structure and Decision Making

Just as usage and systems within retail space vary, decision-making structures also vary due to the broad scope of corporate structure types and sizes. Overall, as with the other priority sectors, retail end users make their decisions at the leadership level. However, members of corporate leadership within large retail chain organizations often oversee multiple departments, regions, facilities or projects. Because of this, capital projects at these facilities often have to compete with other company projects for funding.

The U.S. Environmental Protection Agency (EPA) ENERGY STAR Building Manual notes that decision-making in the retail sector "often focuses on both payback and life-cycle cost and can be project-specific for building upgrade projects." According to the manual, large retail chain end users "look for rapid payback periods of two years or less on projects in existing buildings," largely because the funds needed

for these projects compete with the capital required for opening new stores.[101] This focus on near-term paybacks may contribute to this sector's somewhat narrow focus on faster payback lighting upgrades.

2.4.4.2 Large Retail Chain Store Sector Drivers and Barriers

According to the EPA's ENERGY STAR program, most (70 percent) of the energy use in the retail sector comes from HVAC, lighting, and plug load resulting from equipment such as cash registers and computers.[102] Energy intensity within retail space can vary widely as a result of factors such as operating hours and type of business. Because of this, it is difficult to apply a blanket approach to marketing efficiency programs in this sector. With that in mind, the remainder of this section outlines common motivations among retail sector end users as supported by reviewed literature.

Driving Factors for Efficiency Improvements

Overall, the literature reviewed for this analysis emphasized two main points regarding retailer motivations for investing in energy efficiency: 1) the upgrades need to make business sense for the end user as they strive to lower operating costs, and 2) customer experience and expectations are a significant driving factor. For example, several reviewed articles and blogs within the retail industry emphasized the following point: "As consumers become more aware of environmental sustainability, they expect their retailers to share those standards."[103] In addition, a recent case study published by the U.S. DOE's National Renewable Energy Laboratory (NREL) discusses the underlying need to "demonstrate that energy efficiency makes good business sense."[104] The NREL case study also highlights the point that retail chains look to replicate the lessons learned across their building portfolio, rather than approach upgrades as one-off projects at individual facilities.

The EPA outlines several common motivations among retail sector end users in its ENERGY STAR building manual. These include the following:

- Retailers stand to gain increased profitability by investing in building upgrades. This can result from reduced vulnerability to energy prices, increased sales stemming from a more pleasant shopping environment, lower prices, and branding that resonates with consumer expectations, and an enhanced public image.

- Common reasons retailers initiate energy-related upgrades include equipment breakage or burn out, piecemeal upgrades made to existing space, and improving customer space with better lighting, heating, cooling, and ventilation.

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[101] ENERGY STAR Building Manual, retail chapter, Updated in January of 2008.
[102] ENERGY STAR Building Manual, retail chapter, Updated in January of 2008.
[103] "Green Retail Chains, Top Ten United States Retail Chains with Cleantech Initiatives", http://www.greenchipstocks.com/articles/green-retail-chains/1352 and "Driving Efficiency Survey shows retailers are setting goals, taking actions to improve energy efficiency, lower costs", http://www.chainstoreage.com/article/driving-efficiency-%E2%80%A9survey-shows-retailers-are-setting-goals-taking-actions-improve-energy-e
[104] NREL Helps Retailers Checking 'Nice' on Energy Savings List, Colorado Energy News, January 2012. http://coloradoenergynews.com/2012/01/nrel-helps-retailers-retailers-checking-nice-on-energy-savings-list/

This common focus on improving the customer experience may also contribute to the focus on lighting system upgrades.

Barriers to Efficiency Improvements

The MCA team found relatively few efficiency programs (and published program evaluations) focused on the retail chain store sector. However, in December 2011, ECONorthwest published a report on PG&E's retail and hospitality program.[105] The report noted the following insights based on end-user surveys:

- "Firms did not show much interest in financing provided through PG&E. This may be a reflection of current economic conditions, some firms claimed to be debt-adverse. It is also likely that financing costs through traditional financial institutions is very low, and firms perceive that PG&E has little to no advantage over financial institutions."

- "Current economic conditions have made it difficult for firms to consider investing in new equipment. Reduced consumer spending has negatively impacted both the retail and hospitality sectors. However, many firms indicated that the economic downturn has made energy efficiency more appealing—any investment in equipment will need to be cost-effective and purchasing efficient equipment will lower long-term costs."

Similarly, a June 2011 report on global energy efficiency indicators by the Institute for Building Efficiency notes several retail sector barriers to energy efficiency.[106] These included:

- "Agreeing with global respondents, 30 percent of retailers cited a lack of funding to pay for improvements as the leading barrier, followed closely (25 percent) by an insufficient payback or return on investment. Another 14 percent regarded uncertainty about savings/performance as a barrier, while only 8 percent pointed to a lack of technical expertise to evaluate or execute projects."

[105] ECONorthwest. Process Evaluation of the PG&E 2006-2008 Retail & Hospitality Program, Prepared for Pacific Gas & Electric, December 2011.

[106] Institute for Building Efficiency (An Initiative of Johnson Controls). "2011 Energy Efficiency Indicator: Global Results: Executive Summary," June 2011. http://www.institutebe.com/Energy-Efficiency-Indicator/2011-global-results.aspx. Summary of retail sector findings available at http://www.chainstoreage.com/article/driving-efficiency-%E2%80%A9survey-shows-retailers-are-setting-goals-taking-actions-improve-energy-e.

2.4.4.3 Key Findings for Large Retail Chain Sector

Table 2-12 summarizes key findings for the institutional sector that will be revisited in Section 4.

Table 2-12. Key Findings for Large Retail Chain Store Sector

Category	Key Findings
EFP Program Participation and Support	» Unlike other priority sectors, projects with store owners and occupants as project applicants represented the majority (67 percent) of performance-based EFP savings. » Unlike the other priority sectors, almost all (96 percent) of this sector's performance-based savings arise from lighting and lighting controls projects. Similarly, across all EFP savings (prequalified and performance-based), lighting measures account for 90 percent of sector savings.
Reasons and Drivers for Efficiency Improvements	» Retail chains tend to replicate successful measures and lessons learned across their building portfolio. » Primary drivers include lower operating costs and addressing customer experience (i.e., in the store) and expectations (from a public relations perspective).
Project Funding	» Efficiency investments compete closely with other projects (including opening new stores). » Retailers have rapid payback requirements (two years or less) for projects in existing buildings.
Barriers to Efficiency Improvements	» Financial concerns represent the primary barriers to efficiency improvements for retailers, including a lack of funding and insufficient payback or return on investment. Uncertainty about savings/performance is a secondary barrier.

Source: MCA team analysis

These findings, and those from the preceding priority market sector sections, are revisited and tied to recommendations in Section 4.

3. Service Provider Market Analysis

This section of the report considers the market for energy efficiency retrofits from the perspective of the EFP's other target audience, energy efficiency service providers (including ESCOs). NYSERDA largely relies on the energy efficiency services sector as a channel to educate energy end users about the incentives available under the EFP and to generate interest in retrofit projects that will benefit from program funds. Many efficiency retrofit programs identify these service providers generally as trade allies, referring to the mutual benefits that accrue from implementation of retrofits that utilize program funding. While the program targets the increased energy savings, the service provider benefits from additional project revenue that may not have occurred without program incentives.

Viewing the program through the business model lens, these service providers are also beneficiaries of EFP incentives and represent an audience from which NYSERDA seeks specific actions in response to its program offerings. By better understanding the drivers, barriers, and business practices of the service provider market, NYSERDA can enhance outreach, improve program processes, and increase service provider interest and participation in the EFP.

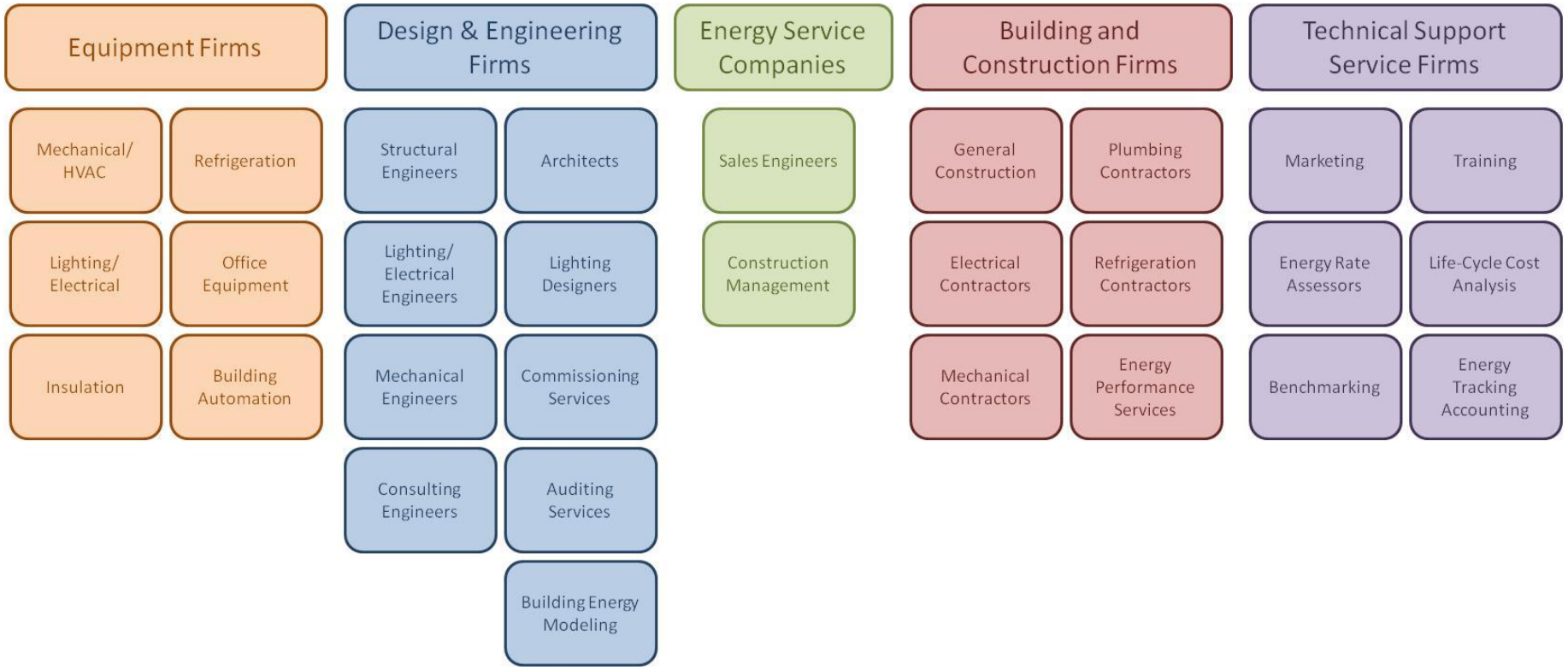
Section 3.1 begins by describing the overall structure of the energy efficiency industry and the various roles and relationships among different types of market actors. Section 3.2 provides more detailed analysis of the drivers and barriers underlying the success of the service provider market using Porter's Five Forces, a common industry analysis framework. Finally, Section 3.3 focuses on the current business practices, market trends, and perceived opportunities for service providers based on Market Assessment surveys.

3.1 Industry Structure

A critical first step in understanding the energy efficiency service provider industry requires one to define what the term "service provider" includes. Recent industry studies have highlighted that program administrators and implementers may define this sector too narrowly in program design or outreach efforts. For example, some programs may focus primarily on ESCOs in their outreach efforts. However, ESCOs (those that offer performance contracting) only constitute about 10 percent of the total person-years of current and forecasted employment in the energy efficiency services sector nationally (including contractors they hire).[107] NYSERDA, on the other hand, has historically used a more encompassing definition of ESCO as any firm that can enter a performance contract with NYSERDA.[108] As shown in Figure 3-1, the sector can comprise a diverse set of firms and business models.

[107] C. Goldman, J. Peters, M. McRae, S. Lutzenhiser, and M. Spahic. "Energy Efficiency Services Sector: Workforce Size and Expectations for Growth," Ernest Orlando, Lawrence Berkeley National Laboratory, 2010.
[108] Ruth Horton, NYSERDA. (2006). "Resource Acquisition and Market Transformation: Leveraging the Positive and Dealing with Conflicts." Accessed June 13, 2012. http://www.aceee.org/files/pdf/conferences/mt/2006/cc1-horton.pdf.

Figure 3-1. Commercial-Institutional Energy Efficiency Service Providers



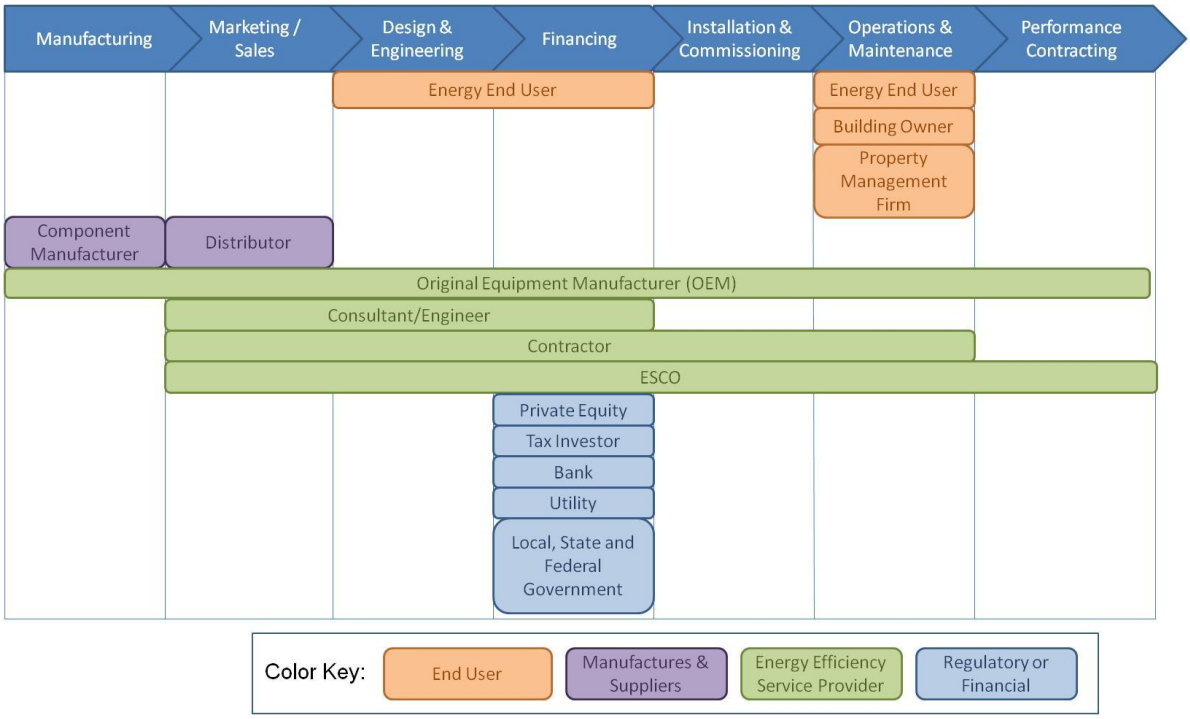
Source: Adapted from Goldman, et al.[109]

[109] C. Goldman, J. Peters, M. McRae, S. Lutzenhiser, and M. Spahic. "Energy Efficiency Services Sector: Workforce Size and Expectations for Growth," Ernest Orlando, Lawrence Berkeley National Laboratory, 2010.

For many of the firms providing related services, energy efficiency may not be their core business focus. Rather, efficiency-related activities can comprise a single business line or service offering within a firm's overall business model.[110] For example, engineering firms may have begun offering building audit services as an extension of their conventional design services. Market transformation and resource acquisition programs such as NYSERDA's EFP may have played a role in firms' increasing focus on energy efficiency services. Section 3.3 further explores the degree to which New York firms have changed their efficiency-related service offerings in recent years.

A broader way to define the service provider role, and the definition used in this report, focuses on the firm's position in the overall value chain for providing energy efficiency retrofit services. Figure 3-2 illustrates the overall value chain for a generic energy efficiency retrofit project. Potential roles for the energy efficiency service provider appear in the blue boxes at the top of the figure, showing the breadth of potential responsibilities that a firm may undertake.

Figure 3-2. C&I Energy Efficiency Project Value Chain



Source: MCA team analysis.

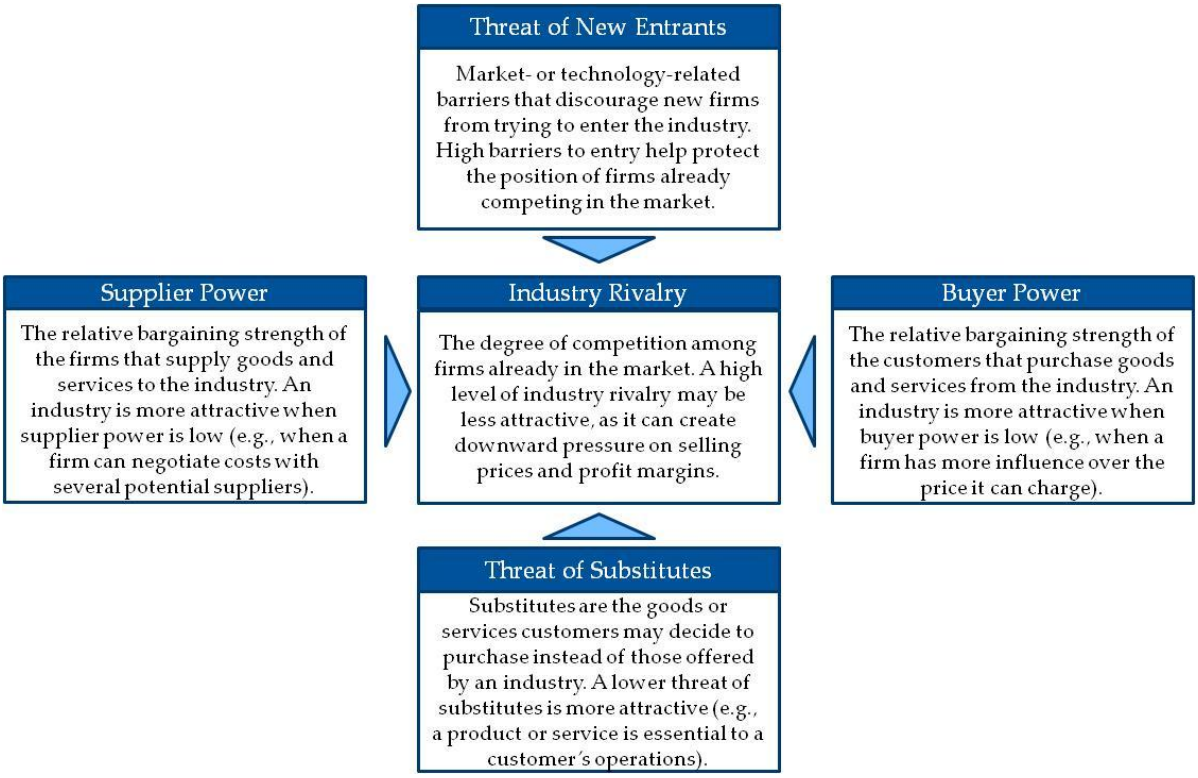
This analysis broadly defines energy efficiency service providers as those who directly interact with end-use customers to implement energy efficiency projects in existing buildings. These firms appear in the green boxes in Figure 3-2, and may play roles that span most of the energy efficiency project value chain.

[110] C. Goldman, J. Peters, M. McRae, S. Lutzenhiser, and M. Spahic. "Energy Efficiency Services Sector: Workforce Size and Expectations for Growth," Ernest Orlando, Lawrence Berkeley National Laboratory, 2010.

3.2 *Service Provider Drivers and Barriers*

This section approaches the characterization of the service provider market using Michael Porter's Five Forces model, a common industry analysis framework.[111] The Five Forces model explores the attractiveness of a particular industry by examining the relative influence of market-related factors that lie outside of the control of any one firm. By characterizing the source and scale of the collective challenges facing an industry, a firm can determine where its strengths may provide a competitive advantage or where it has weaknesses that it may need to address. Figure 3-3 illustrates the Five Forces model, providing a brief definition of each of the five factors it considers.

Figure 3-3. Porter's Five Forces Model



Source: Adapted from M. Porter, "Competitive Advantage: Creating and Sustaining Superior Performance," 1985.

The remainder of this section will characterize the service provider market in the context of the Five Forces model, drawing primarily upon recent industry literature. Each subsection further defines each factor as it relates to the energy efficiency service provider industry and provides insights into the particular drivers and barriers facing those firms. It also generally describes the potential for the EFP to influence each of these factors. The following section, Section 3.3, presents the MCA team's Market Assessment findings that relate to factors for which the program has the greatest influence.

[111] M. Porter. "Competitive Advantage: Creating and Sustaining Superior Performance," 1985.

3.2.1 Supplier Power

In the Five Forces model, the term "supplier power" considers the relative influence and control exercised by actors upstream from a firm's own place in the value chain. In the case of the energy efficiency service provider, firms must consider two different categories of potential suppliers. These include 1) equipment manufacturers and distributors and 2) the investors and lenders that finance many energy efficiency service providers or the projects they complete. This subsection describes the degree to which these suppliers hold influence and control over the service provider market.

3.2.1.1 Equipment Manufacturers and Distributors

As previously shown in Figure 3-2, equipment manufacturers and distributors stand at the head of the energy efficiency project value chain. These firms design, manufacture, and distribute the equipment and products that create the potential for end-use customers to save energy and money through efficiency projects. These suppliers may market their products to both the service providers that will design and construct projects and directly to the energy end user who ultimately approves the selection of a particular piece of equipment.

The degree of influence held over service providers by equipment suppliers comprises several interrelated issues. First, as with most products, having more suppliers from which to purchase equipment generally puts more power in the hands of the service provider. Assuming those products can all meet the end-use customers' requirements, a service provider can seek competitive pricing from several potential suppliers. On the other hand, if customer demand for a particular type or brand of equipment is especially high, the service provider may have less influence over the supplier of that particular piece of equipment. The relative power of a supplier may depend largely on the specific types of equipment they provide. For example, equipment suppliers that offer larger, specialized equipment (e.g., HVAC equipment or building automation systems) may have more market influence than suppliers of less expensive types of equipment (e.g., lighting ballasts and fixtures).

In some cases, equipment manufacturers and distributors may seek to compete directly with service providers by working directly with end-use customers to develop and construct efficiency projects. By extending their reach down the value chain, such equipment suppliers might be able to offer pricing advantages over other service providers. In this particular case, those suppliers might hold additional power over other firms in the service provider market.

3.2.1.2 Investors and Lenders

The other type of supplier to the energy efficiency services sector comprises the investors and lending institutions that provide the equity and project finance capital to fund service providers and large retrofit projects. For example, in the case of an ESCO, the firm may raise capital through private or public equity shareholders who invest in the firm with an expectation for certain financial returns. In some cases, ESCOs may also take on corporate debt to help fund a portfolio of projects. In either case, the ESCO relies on this supply of operating capital to fund its project development and implementation activities. Similarly, an end-use customer may need to borrow money in order to implement an energy

efficiency project. In both of these examples, the borrower will need to negotiate interest rates and loan terms with potential suppliers of those funds (e.g., corporate lending institutions).

The relative bargaining power of suppliers of capital manifests in both their willingness to provide that financing and the interest they require the borrower to pay. Each of the issues is affected by both the general economic climate and the perceived attractiveness of the investment opportunity relative to other potential investments. For the energy efficiency services sector, the persistent atmosphere of economic uncertainty and volatility may make it difficult to gauge the potential availability and cost of capital from one week to the next. While some firms in the broader energy industry have encountered difficulties related to the ongoing recession, some energy efficiency firms continue to gain interest from investors.[112] Continuing economic uncertainty and reduced revenues are driving many companies to find new ways to reduce their operating costs. This includes investments in energy efficiency projects that can lower companies' energy bills.[113]

Similarly, the willingness to lend by commercial banks that provide debt financing directly to energy end users may also influence service providers' business. While these loans are made directly to the customer rather than the service provider, the availability and cost of that financing can affect a service provider's ability to close the deal on a particular project.

Supplier Power
EFP Influence: Limited

Equipment Supplier Issues:
- Diversity and number of suppliers for types of end-use equipment (e.g., HVAC equipment)
- Customer demand for specific types or brands of equipment
- Degree to which equipment suppliers can compete directly with service providers (i.e., via vertical integration)

Investor and Capital Supplier Issues:
- Overall availability and cost of equity and debt capital in the market (i.e., interest rates and loan terms)
- Ability of the service provider or project to attract interest from lenders (i.e., perceived risk, estimated return on investment)

EFP Influence: Limited

Opportunities for the EFP to influence the power of suppliers in the energy efficiency market appears somewhat limited. While NYSERDA may specify particular equipment systems or performance standards, the program is unlikely to require certain manufacturers' or distributors' equipment or systems. In terms of the supply of capital, the availability of NYSERDA incentives or expertise may lower lenders' perceived risks or improve their payback period expectations. Beyond these incentives, however, the EFP has little direct influence over investors' or lenders' willingness to provide funding to ESCOs or other service providers. Based on this limited influence, the MCA team did not focus its Market Assessment survey efforts on potential indicators of supplier power.

[112] Sarah Perez. "Cleantech Venture Investment Up 12% From Previous Quarter," TechCrunch, October 6, 2011. http://techcrunch.com/2011/10/06/cleantech-venture-investment-up-12-from-previous-quarter/.

[113] Michael Butler. "Renewable Industries Predictions for the Second Half of 2011," *Renewable Energy World Magazine*, September 27, 2011. http://www.renewableenergyworld.com/rea/news/article/2011/09/renewable-industries-predictions-for-the-second-half-of-2011.

3.2.2 Buyer Power

In the Five Forces model, the term "buyer power" considers the relative influence and control exercised by actors downstream from a service provider in the value chain. In the case of energy efficiency service providers, these customers are the energy end users targeted by the EFP. This subsection discusses the degree of influence held by the end-use customer in regard to the service provider.

Two primary issues contribute to the relative influence end-use customers have in a transaction with an energy efficiency service provider. As with supplier power, the first of these relates to the overall supply of firms that can meet end users' collective demand for their services. In cases where a customer feels that they can receive comparable services at a lower cost from another firm, buyer power would increase. In some cases, end users may even seek competitive bids from several contractors before choosing a firm to complete a project. Conversely, if an end user's energy-related needs require highly specialized products, services or knowledge, they may have fewer firms to choose from that meet their specific needs.

The second key issue contributing to buyer power stems from the relative importance of energy efficiency and related investments to an end user's overall operations. For example, energy efficiency upgrades or early equipment replacements may not represent a requisite operating expense for the energy end user. Many base their final decision on whether to implement a project at least partially on the project's expected cost and payback period. If the financial projections fail to meet their requirements or a customer lacks the capital required to move forward, they may simply delay or discontinue the project altogether.[114] If a customer decides not to move forward with a project after several months of discussions with a firm, the service provider will effectively lose the time and effort they spent developing the opportunity. On the other hand, service providers may have opportunities to reduce project costs through scope reductions or discounts.

Buyer Power
EFP Influence: Moderate

End-Use Customer Issues:
- Number of energy efficiency suppliers competing for end users' business
- Necessity and urgency of the end users' investment in the energy efficiency project or equipment

EFP Influence: Moderate

While the EFP may help influence an end user's final decision to pursue a particular project, the program has limited influence on the necessity and urgency of those decisions. However, the program may hold moderate influence on buyers' power over the service provider relationship through NYSERDA's provision of program staff's technical expertise. By providing such technical expertise (along with other NYSERDA programs such as Flex Tech) and reviews of project plans, the EFP may enable those end users with dedicated facility management staff to perform some services in-house when they might otherwise hire a service provider. In addition, the incentives themselves may indirectly influence buyer power through any effect they have on encouraging additional firms to enter the efficiency retrofit

[114] N. Wobus, et al. "Market Characterization and Assessment: NYSERDA DG-CHP Demonstration Program," Navigant Consulting, 2011.

market or add related services. The Market Assessment findings in Section 3.3 present several indicators related to these issues.

3.2.3 Threat of Substitute Products and Services

The Threat of Substitutes box in the Five Forces model considers the alternative spending or investment opportunities vying for end-use customers' money and attention; these issues relate closely to those underlying buyer power. As the number of competing spending needs increases (or budgets available to pay for those needs shrink), customer demand for a particular industry's services may fall.

As mentioned in the preceding section, one potential substitute for an energy efficiency project may simply be the fact that the project is not vital to the customers' operations. The economic recession may have had a compounding effect on end users' hesitation or inability to fund such projects.[115] On the other hand, some customers may face the need to replace aging systems or broken equipment that presents an opportunity to upgrade to more efficient options. Others may see early replacement of less efficient systems as a low-risk opportunity to reduce energy costs in response to tightened budgets or reduced revenues.[116,117]

As mentioned above, competition for capital and operating budgets within an organization could reduce demand for energy efficiency improvements. Particularly in the private sector, recent literature indicates that demand for energy efficiency services may be wavering as businesses struggle to find revenues and hesitate to make unnecessary capital investments.[118] On the other hand, initiatives in the public sector may partially mitigate this barrier through dedicated improvement budgets. Some of these initiatives may be driven in part by cost reductions, while others are in response to government- or executive-level mandates related to broader environmental goals. For example, in early 2011, the New York City Department of Education announced plans to fund cost-reducing lighting upgrades in 772 schools throughout its system and specifically target ESCO partnerships for their implementation.[119] Similarly, CUNY outlined specific

Threat of Substitutes
EFP Influence: Moderate to High

Substitute Product/Service Issues:
- Necessity and urgency of the end users' investment in the energy efficiency project or equipment
- Internal competition for capital and operating budgets with customer organizations.

[115] KEMA. "Business Sector Market Assessment and Baseline Study: Existing Commercial Buildings," Vermont Department of Public Service, 2009.
[116] Jane S. Peters et al. "2008 BetterBricks Overall Market Progress Evaluation Report," Northwest Energy Efficiency Alliance, 2009.
[117] Michael Butler. "Renewable Industries Predictions for the Second Half of 2011," *Renewable Energy World Magazine*, September 27, 2011. http://www.renewableenergyworld.com/rea/news/article/2011/09/renewable-industries-predictions-for-the-second-half-of-2011.
[118] Elisa Wood. "Is the Energy Efficiency Market Still MUSH?", *Renewable Energy World Magazine*, June 10, 2011. http://www.renewableenergyworld.com/rea/blog/post/2011/06/is-the-energy-efficiency-market-still-mush.
[119] NYC Department of Education. "City Announces Comprehensive Plan to Increase Energy Efficiency and Environmental Quality at Schools," Press Release, February 23, 2011. http://schools.nyc.gov/Offices/mediarelations/NewsandSpeeches/2010-2011/energyeffandenviroqualityrelease22311.htm.

energy efficiency projects in its fiscal year (FY) 2011-2012 budget request, driven largely by its partnership with the City's PlaNYC initiative.[120]

EFP Influence: Moderate to High

The EFP holds a moderate to high level of influence over the threat of substitutes for end users. Specifically, the provision of incentives that specifically target energy efficiency projects effectively adds resources to that portion of an organization's capital improvements budget. Such incentives effectively lower the hurdle for a decision in favor of an energy efficiency project versus some other project vying for that organization's limited budget. Where the EFP's influence stops, however, is in affecting the urgency or necessity of either the efficiency improvements or competing projects. The Market Assessment findings in Section 3.3 present several indicators related to these issues.

3.2.4 Threat of New Entrants

The "threat of new entrants" box in the Five Forces model describes the barriers that might prevent new firms from trying to compete within a particular industry. An industry where few barriers exist to prevent the entrance of new firms may pose risks to those firms already operating in the market. Signals of heightened customer demand or attractive profit margins can attract attention from outside of an industry, increasing the likelihood that new players will seek opportunities to capture part of that value.

For many types of firms and service offerings (e.g., energy audits or lighting retrofits) industry literature suggests that the barriers facing new market entrants are relatively low.[121] However, in some cases these barriers to entry may vary based on the specific types of projects or services a firm intends to offer. For example, the relative complexity of enterprise-level energy management services (i.e., where an ESCO offers a managed portfolio of real-time demand-reduction services to a large company) presents a set of technical and regulatory barriers that may discourage some potential competitors.[122]

A second set of issues that may create barriers to a new firm entering a market relates to the availability of technically skilled labor. A recent industry study on the size and growth of the energy efficiency services sector workforce indicated that ESCOs have had difficulty finding candidates with sufficient managerial or engineering skills and energy efficiency experience. The perceived shortage of skilled labor is less pronounced among general contractors and equipment installers.[123]

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[120] CUNY. "The City University of New York Five-Year Capital Plan Request FY 2011-12 through FY 2015-16 and New York City Reso-A Request FY 2012," 2011. http://www.cuny.edu/about/administration/offices/fpcm/departments/cb/00IntroductionFY11-12Request.pdf.

[121] Berk & Associates. "Energy Efficiency Supply Chain Study," Workforce Development Council of Seattle-King County, 2010. http://www.seakingwdc.org/pdf/09-10-reports/2010-Green-Reports/NEWOPSupplyChainStudy2010.pdf.

[122] Michael Butler. "Renewable Industries Predictions for the Second Half of 2011," *Renewable Energy World Magazine.* September 27, 2011. http://www.renewableenergyworld.com/rea/news/article/2011/09/renewable-industries-predictions-for-the-second-half-of-2011.

[123] C. Goldman, J. Peters, M. McRae, S. Lutzenhiser, and M. Spahic., "Energy Efficiency Services Sector: Workforce Size and Expectations for Growth," Ernest Orlando, Lawrence Berkeley National Laboratory, 2010.

EFP Influence: Limited

The EFP has limited direct influence over new firms entering the energy efficiency services market in New York. In general, the availability of incentives may help improve end-user demand for energy efficiency retrofits or attract new firms to the market who plan to make coordinating or leveraging such incentives a key part of their business or marketing strategies. The Market Assessment findings in Section 3.3 discuss a few indicators related to increased service provider activity in the New York market.

Threat of New Entrants
EFP Influence: Limited

New Market Entrant Issues:
- Technical complexity of efficiency-related equipment and building systems.
- Availability of and competition for qualified technical, engineering and management staff.

3.2.5 Industry Rivalry

At the center of the Five Forces model lies the industry's internal rivalry or, simply put, the degree of competition among firms in a market. As previously shown in Figure 3-1, the energy efficiency services sector comprises a diverse mix of firms that may focus on only a portion of the energy efficiency market. In this sense, the competition faced by a particular firm will depend on the specific services it offers. Nationally, increasing awareness of and demand for energy efficiency services, combined with efficiency's applicability to many different firms' core competencies, has increased interest in the sector. Many firms have subsequently added energy efficiency-related services to target a portion of this growing demand, increasing competition in the industry.[124] As mentioned under the threat of new entrants, increased interest in the sector at the national level has also heightened the competition among firms for qualified engineers and other technical staff.[125]

Industry Rivalry
EFP Influence: Limited

Industry Competition Issues:
- Growth rate of demand for services from end-use customers
- Degree of specialization among firms competing in the broader market (e.g., sub-markets)
- Availability of and competition for qualified technical, engineering and management staff

EFP Influence: Limited

Given the scale and scope of the energy efficiency services market, it is unlikely that the EFP by itself can wield much influence over the relative level of competition. However, the program may have some effect on the particular sectors or energy systems on which service providers focus their efforts, particularly through its allocation of program budgets to specific equipment categories or its use of sector-specific outreach focus contractors. Similarly, as will be discussed in Section 4, NYSERDA's review and validation of project designs and energy savings for some performance-based projects can increase the perceived availability of qualified firms. The Market Assessment findings in the next section explore several indicators of the level of competition within the New York energy efficiency market, including end users' perception of the adequacy of qualified

[124] Goldman et al.
[125] Goldman et al.

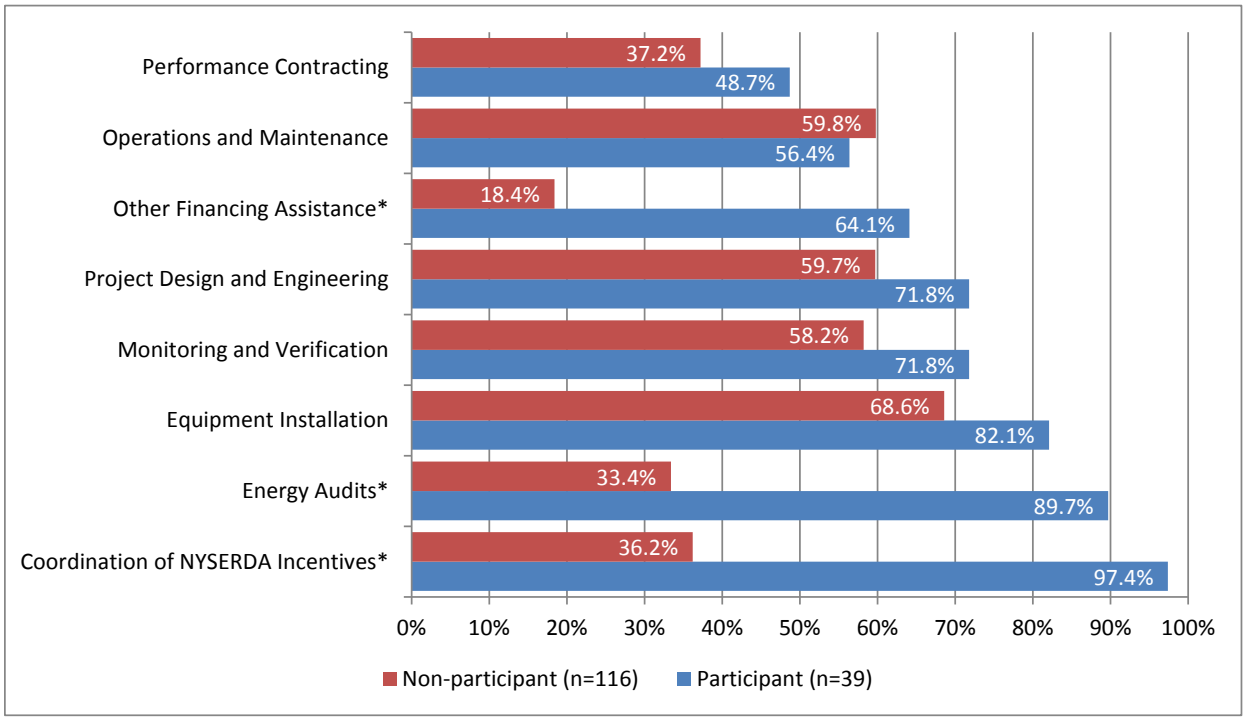
contractors and the degree to which service providers' have sought to increase their competitiveness through specialization or other strategies.

3.3 *Market Assessment – Indicators of Trends Affecting Market Factors*

The remainder of this section presents specific findings from the Market Assessment surveys presented in the context of the industry structure, drivers, and barriers described above.[126] Indicators and related findings appear in the same order for each of the four market factors explored. (The team did not assess indicators of supplier power.) A summary of key findings appears at the end of this section.

As an introduction to the types of services offered by firms in each category, Figure 3-4 illustrates the percent of respondents who said they offered each of eight services related to energy efficiency improvements.

Figure 3-4. Share of Service Providers Offering Various Energy Efficiency Services



*Indicates differences between the two populations that are statistically significant at the 90 percent confidence level.
Service categories are not mutually exclusive.
Source: MCA team analysis.

[126] The participant service provider surveys focused on those firms that have engaged in at least one performance-based project through the EFP. These surveys will not be representative of the entire participant service provider market (i.e., those engaged only in prequalified incentives are excluded) On the other hand, the non-participant survey covers the entire population of firms that had not yet participated in the EFP. In addition, the MCA team sought sufficient sample sizes to allow for statistical comparison of responses from three types of service providers. For more details, see Appendix C.

In terms of the types of energy efficiency services offered by service providers, the surveys revealed few statistically significant differences between participants and non-participant firms. Figure 3-4 reveals that the significant differences in each population's likelihood of providing specific services lie in energy audits and other financial assistance.[127] The discrepancy between firms' likelihood to offer other financial assistance (excluding performance contracting) may indicate the perceived role that such financing options play in a firm's ability to successfully sell energy efficiency-related improvements and projects to customers. (The below discussions on threat of substitutes and industry rivalry further explore this finding.) For energy audits, the discrepancy may reflect the fact that energy efficiency-related activities make up less of non-participant firms' revenues; 77 percent of non-participants offer services unrelated to energy efficiency compared to only 39 percent of participant firms.

3.3.1 Indicators: Buyer Power

As previously discussed, buyer power is primarily influenced by the number of energy efficiency service providers competing for end users' business and the necessity and urgency of end users' investment in energy-efficient projects or systems. This subsection presents Market Assessment indicators related to these issues.

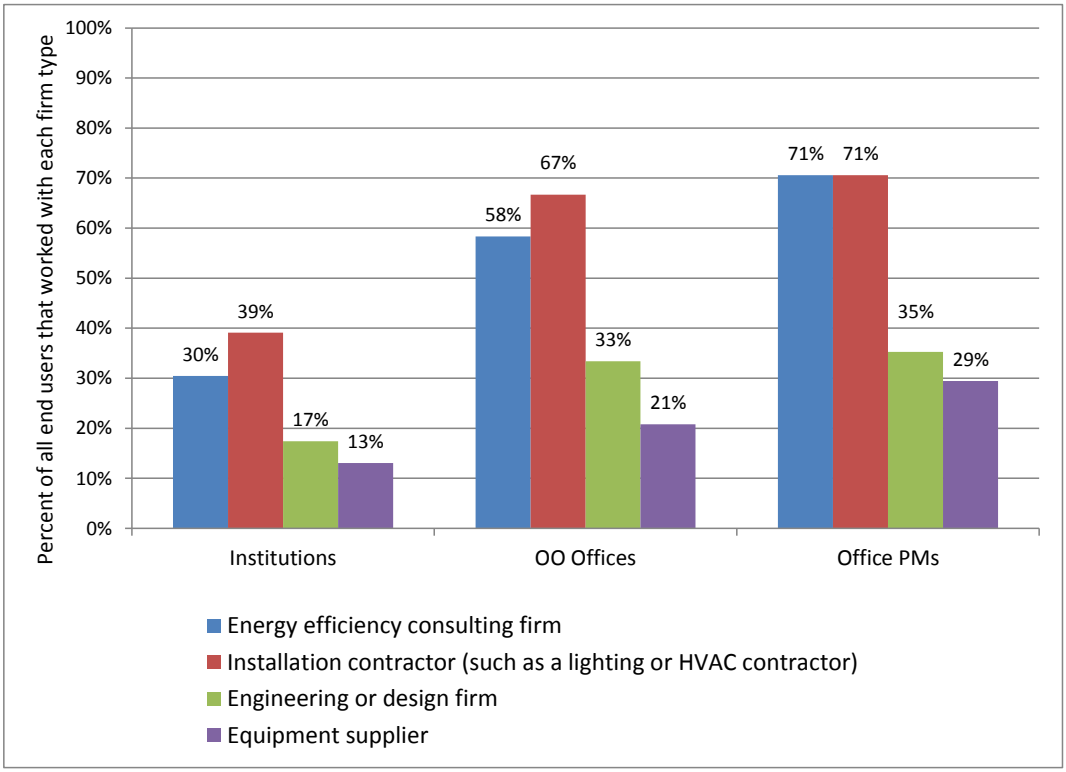
3.3.1.1 End-User Reliance on Service Providers

According to the non-participant end-user surveys, 52 percent of institutional end users and 68 percent of owner-occupied office end users felt that there were too few or not enough well-qualified companies providing energy efficiency products or services in New York. Such findings suggest that at least half of end users in these sectors perceive too little competition in the service provider market. Consequently, end users (the buyers) have less power relative to service providers than they would in a more competitive market. This perceived lack of adequate competition may vary, however, for different types of service providers.

In Section 2.4, the Priority Market Segment Analysis revealed that a majority (65 to 95 percent) of participating end users in the three priority sectors tend to hire at least one outside firm when completing performance-based EFP projects. At a high level, this finding suggests that most end users continue to rely on some outside assistance to implement performance-based EFP projects. Like decreased competition, this reliance also decreases the relative power of buyers over the service provider market. Assessing the types of firms end users hire for such projects can also indicate the services for which the EFP most directly helps increase demand. Figure 3-5 shows the percentage of all end users in each priority sector that directly hired each of four categories of service provider over the course of their EFP project.

[127] The fact that fewer non-participants coordinate NYSERDA incentives (for programs other than the EFP) was expected by definition of "non-participant." While not involved in EFP projects, some of these non-participants have participated in and coordinated incentives for other NYSERDA programs (e.g., New Construction, Flex-Tech).

Figure 3-5. Percent of End-User Participants that Worked Directly with Different Service Providers



Note: Responses are not mutually exclusive. Total includes end users that did not hire an outside company. Source: MCA team analysis.

As shown in the above figure, participant end users in the institutional and office sectors are most likely to work directly with installation contractors and energy efficiency consulting firms for performance-based projects. Fewer contract directly with engineering and design firms or equipment suppliers.[128]

3.3.1.2 Drivers for Energy Efficiency Projects

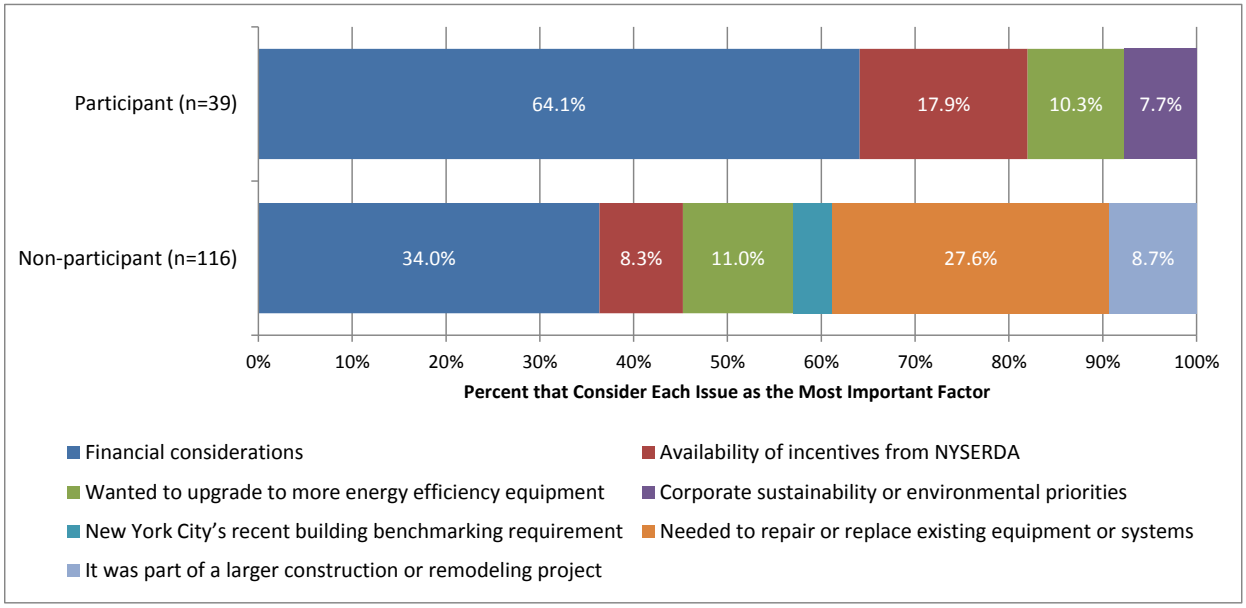
Service provider perceptions of the drivers surrounding customers' decisions on efficiency retrofits can inform analysis of the two downstream portions of the Five Forces model – buyer power and threat of substitutes. This section discusses service providers' perceptions of the importance customers place on energy efficiency improvements, especially in light of the economic recession. While the team separately asked the end users themselves about such drivers, service providers' perceptions of these factors provide a better indication of how that market will respond to changes in demand and customer needs.

The MCA team asked service providers to choose the single most important consideration facing end users when deciding whether to pursue an energy efficiency retrofit. As shown in Figure 3-6, a plurality

[128] Some overlap may exist between energy efficiency consulting firms and engineering/design firms (i.e., some end users may have considered a service provider to fit both descriptions). The MCA team assumes that the difference between the two indicates a percentage of energy efficiency consultants that are not also engineering/design firms.

of both populations indicated that financial considerations (e.g., reducing operating costs, availability of funding) carried the most weight in such decisions.

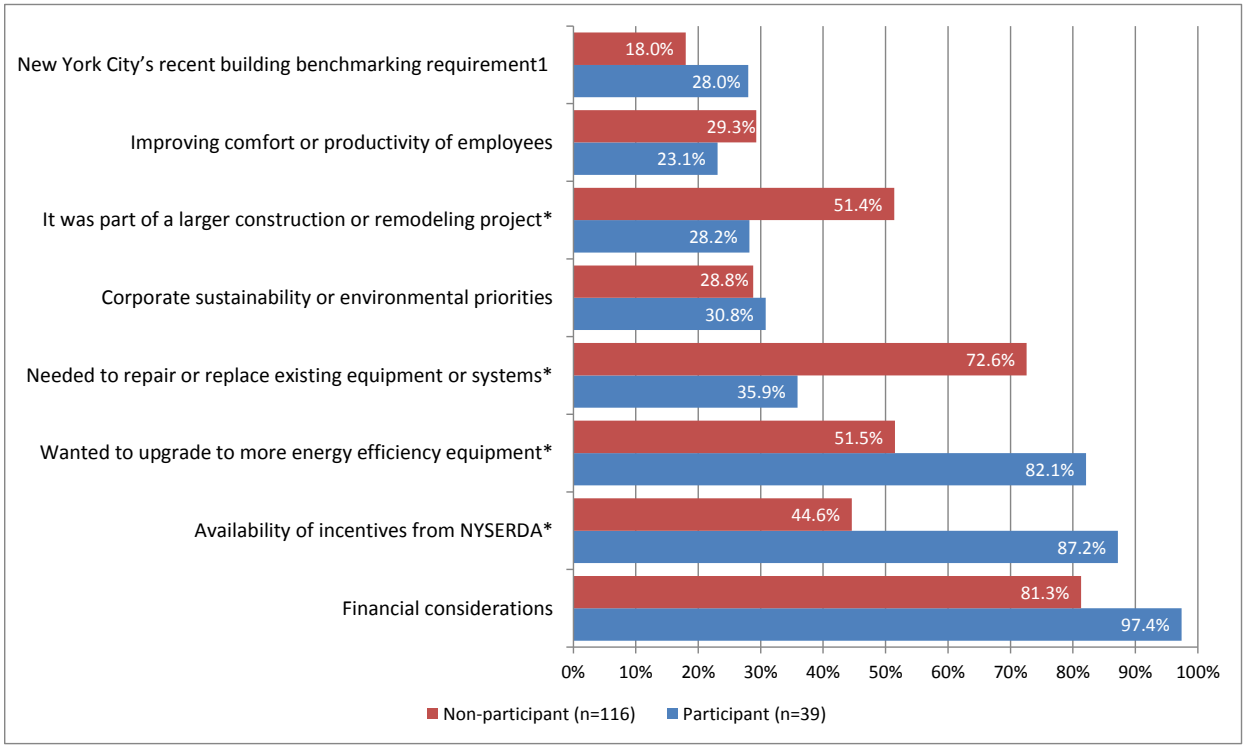
Figure 3-6. Factors Perceived as Most Important for Customers Deciding Whether to Proceed with a Retrofit Project



Responses are mutually exclusive within each sample.
Source: MCA team analysis.

Notably, non-participant service providers were more likely to indicate customers' need to repair or replace existing equipment or systems as a top consideration. Because the participant population represents those firms that have completed projects with performance-based incentives, this finding suggests that the need for equipment replacements plays a smaller role in end users' consideration of performance-based projects. In the context of buyer power, this finding indicates that urgency or necessity (at least that related to broken equipment or systems) plays a lesser role in performance-based projects (thereby increasing the relative power of buyers). For additional comparison of various factors' potential role in end users' efficiency retrofit decisions, Figure 3-7 shows the percentage of service providers that perceived each consideration as a major factor in such decisions.

Figure 3-7. Share of Service Providers that Perceive Various Factors as Major Drivers for Customers Considering EE Retrofits



Note: (1) For the NYC building benchmarking question, the survey only asked downstate participants about the issue. All non-participants responded, regardless of regional focus.
*Indicates differences between the two populations that are statistically significant at the 90 percent confidence level.
Source: MCA team analysis.

The above figure highlights several significant differences in perceptions of various project drivers (and potentially in the types of projects under consideration). For service providers supporting performance-based projects, the availability of NYSERDA incentives and customers' desire to upgrade to more energy-efficient equipment appear to carry greater weight in end users' decision-making process. Non-participants, however, perceive end users' need to repair or replace equipment and their desire to leverage larger construction or remodeling projects as bigger factors in efficiency retrofit decisions. In general terms, participating service providers may perceive end users that pursue performance-based projects as more proactive in searching for energy efficiency savings; whereas non-participant firms perceive more customers that pursue efficiency retrofits on a more opportunistic basis. Again, these findings indicate that the drivers for performance-based projects lay less in necessity or urgency and more in a desire for cost or energy savings.

3.3.2 Indicators: Threat of Substitutes to End Users

As previously discussed, the threat of substitutes on end users' demand for energy efficiency services is influenced by the perceived urgency of efficiency improvements (discussed above) and the number of priorities competing for the capital budgets that fund such projects. This subsection presents Market

Assessment indicators related to these issues, including perceived effects of the economic recession on demand for efficiency services.

3.3.2.1 Effects of Economic Recession

A key factor that could affect the threat of substitute products or services taking the place of energy efficiency retrofits lies in the economic recession's potential impacts on end users. As summarized in Section 3.2.3, these impacts could include reductions in capital budgets, decreased willingness or ability to secure loans, or simply greater hesitation to spend money on nonessential expenses. Conversely, end users may turn to energy efficiency to help reduce operating costs in the face of reduced revenues. To this end, the MCA team asked service providers to indicate whether they thought end users' investments in energy efficiency had increased, decreased or stayed the same since the beginning of the economic downturn in 2008. Table 3-1 shows service providers' perceptions for each of the priority market sectors.

Table 3-1. Perceptions of Changes in Sector Energy Efficiency Investments Since Fall 2008

Sector	Response Rate	Increased	Stayed the Same	Decreased
Participants (n 39)				
Colleges and Universities	64%	48%	40%	12%
Hospitals and Health Care Facilities	69%	33%	33%	33%
Offices Buildings and CRE	92%	44%	14%	42%
Large Retail Chain Stores	46%	33%	22%	44%
Non participants (n 115)				
Colleges and Universities	43%	38%	32%	30%
Hospitals and Health Care Facilities	49%	43%	34%	23%
Offices Buildings and CRE	80%	37%	23%	40%
Large Retail Chain Stores	48%	38%	29%	33%

Note: Based on the original survey design, the team asked service providers about the college and hospital sectors separately. Percentages for increased, stayed the same, and decreased represent shares of the firms that provided a response. (Others said "don't know" for some sectors.)
Source: MCA team analysis.

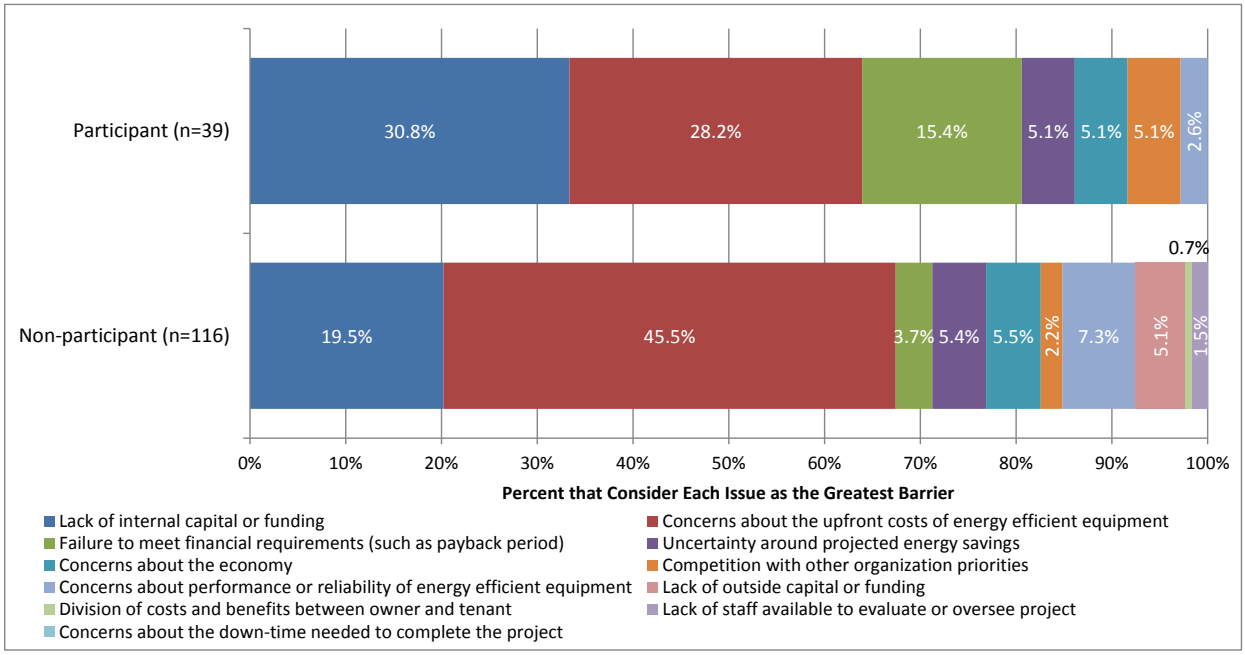
Among both participant and non-participant service providers, the majority of respondents perceived that energy efficiency investments in each sector had either stayed the same or increased since the beginning of the recession. While some service providers still perceived substantial spending decreases in some sectors (particularly offices and large retail), the overall perception of continued or increasing demand for efficiency services suggests that the recession has had limited effects on increasing the threat of substitutes (i.e., competing spending needs) for the service provider market.

3.3.2.2 Barriers to Energy Efficiency Projects

The MCA team also assessed service providers' perceptions of the key barriers preventing customers from pursing retrofit projects. The relative role of financial considerations among these barriers can help indicate the effect of limited capital budgets on the threat of substitute needs. The results, shown in

Figure 3-8, reveal that firms perceive a combination of several financial-related factors as posing the most significant challenge to end users' pursuit of efficiency retrofit projects.

Figure 3-8. Factors Perceived as Greatest Barriers to Customers' Investments in Energy Efficiency



Note: Differences between the two populations are statistically significant at the 90 percent confidence level. Responses are mutually exclusive within each sample.
Source: MCA team analysis.

As shown, such financial considerations remain the primary barriers to completing energy efficiency improvements. Non-participant firms are more likely to perceive concerns about the upfront costs of energy-efficient equipment as the greatest barrier to efficiency retrofits, with lack of internal funding as a substantial but less prominent barrier. Service providers that support performance-based EFP projects, however, perceived these two factors as almost equally significant. In addition, a sizable share of participant firms also cited potential projects' failure to meet customers' internal financial requirements as the most significant barrier to moving projects forward.

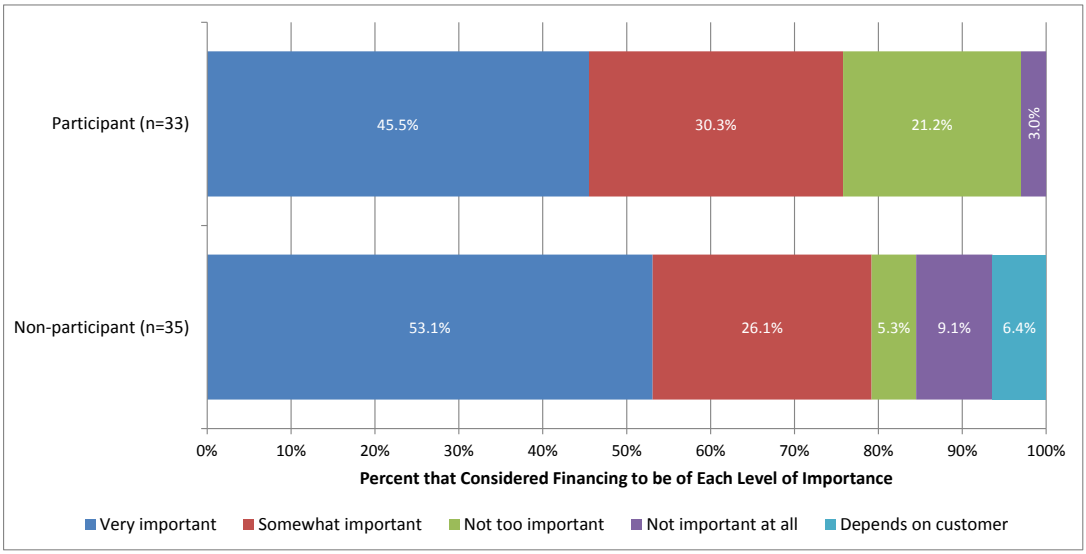
These differences suggest that participant firms have had greater success in steering customers past initial perceptions of the higher cost of efficient systems. Rather, their customers are more likely to get to the stage where they consider whether they have sufficient budgets to afford projects or if those projects meet their funding requirements (e.g., payback or internal rate or return). These findings indicate that the threat of substitutes (in the form of limited capital budgets) remains a key limiting factor on the demand for energy efficiency projects, whether they involve simpler equipment replacements or larger system-wide improvements.

3.3.2.3 Trends in Financing Energy Efficiency Improvements

One of the key strategies service providers can employ to lower the threat of substitutes (and address internal rivalry by differentiating themselves) lies in their offering of various financing options. By arranging performance contracting, shared savings contracts, or low-interest loans specifically for energy efficiency improvements, service providers can somewhat reduce the impact of customers' reduced capital budgets or concerns about upfront costs.

As discussed earlier (see Figure 3-4), firms participating in performance-based EFP projects showed significantly greater likelihood of offering financing assistance to their customers. When asked directly, 85 percent of participants confirmed that they offer financing for energy efficiency retrofit projects, either directly or through a third party. By comparison, only 27 percent of non-participants offer such assistance.[129] It is unclear, however, whether participant firms offered such financing prior to their involvement in the EFP or, in part, so that they could deliver larger performance-based projects. Of those that do offer financial assistance, the MCA team asked firms to rate the importance of that assistance to end users' willingness to implement efficiency projects or purchase energy-efficient equipment. As shown in Figure 3-9, close to half of both populations felt that such assistance is "very important" to those customers and their projects, with a majority calling it somewhat or very important.

Figure 3-9. Perceived Importance of Service Providers' Offer of Financial Assistance to Customers

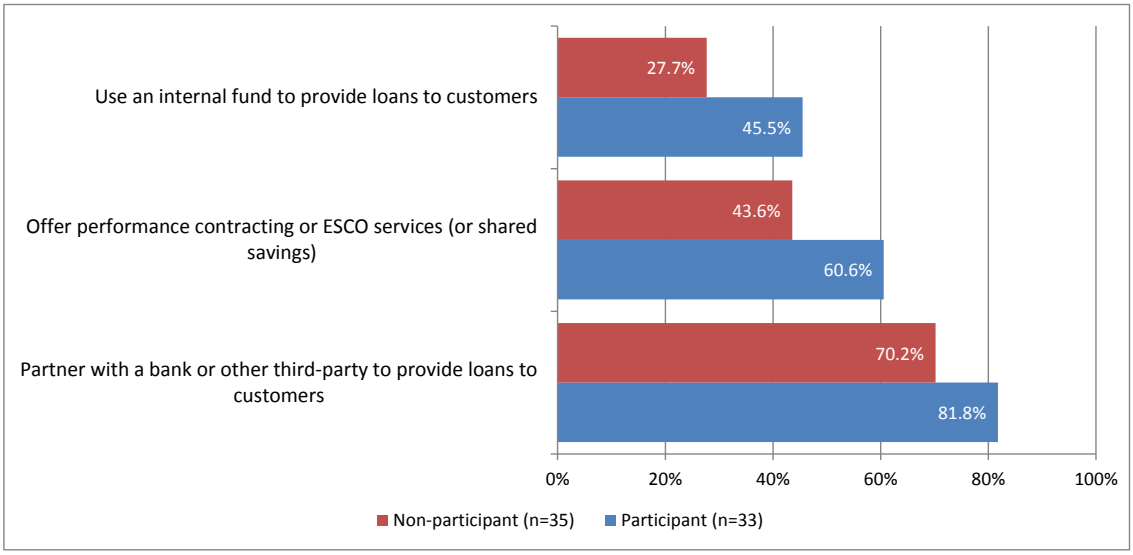


Note: Percentages represent share of only those that offer financing. Responses are mutually exclusive.
Source: MCA team analysis.

Among the firms that offer financing assistance, the MCA team sought to characterize the types of financing mechanisms and arrangements offered. Figure 3-10 illustrates the share of firms offering each of the top three types of assistance offered.

[129] This difference is statistically significant at the 90 percent confidence level.

Figure 3-10. Share of Service Providers Offering Each Type of Financing to Customers



Note: Percentages represent share of only those that offer financing. Responses are not mutually exclusive.
Source: MCA team analysis.

Figure 3-10 illustrates that service providers offering financial assistance most often collaborate with a bank or other third-party organization to provide loans to their customers.[130] Given the relatively low percentage (27 percent) of non-participant firms that offer any financing options, the above figure provides less insight into those firms' offerings than those of the participating service providers. Considering that nearly 85 percent of participants provide some type of financial assistance, the above numbers indicate that just over one half (51 percent) of participating firms offer performance contracting or ESCO services, while 69 percent of all participant firms partner with third parties to offer loans directly to customers. Collectively, these findings suggest that service providers' offering of various forms of financing assistance can significantly lower the threat of substitutes for end users considering energy efficiency projects. However, the participant findings also suggest that the completion of an EFP performance-based project does not require a performance contract or ESCO-type arrangement.

End users' acceptance of and demand for such performance contracting will likely influence service providers' decisions to continue or increase their offering of such arrangements in the future. The MCA team asked service providers that provide performance contracting about perceived changes in end users' willingness to engage in performance contracts. Table 3-2 shows these responses for each of the priority market sectors targeted by this study. [131]

[130] Two non-participant firms mentioned equipment leasing and capital leasing as additional forms of financing assistance.
[131] Note the relatively small sample sizes.

Table 3-2. Perceptions of Changes in Sectors' Willingness to Engage in Performance Contracts in Past Three Years

Sector	Response Rate	Increased	Stayed the Same	Decreased
Participants (n 18)				
Colleges and Universities	56%	20%	70%	10%
Hospitals and Health Care Facilities	56%	40%	40%	20%
Offices Buildings and CRE	78%	50%	36%	14%
Large Retail Chain Stores	45%	13%	62%	25%
Non participants (n 13)				
Colleges and Universities	62%	40%	40%	20%
Hospitals and Health Care Facilities	38%	25%	50%	25%
Offices Buildings and CRE	14%	25%	58%	17%
Large Retail Chain Stores	54%	0%	33%	67%

Note: Based on the original survey design, the team asked service providers about the college and hospital sectors separately. Percentages for increased, stayed the same, and decreased represent shares of the eligible firms that provided a response. (Others said "don't know" for some sectors.) Eligible firms are those that specifically mentioned that they offer performance contracting.
Source: MCA team analysis.

Based on respondents' perceptions, the willingness of end users in most of the priority market sectors to enter performance contracts has either stayed the same or increased over the past three years. To the degree that such contracts have increased the capacity of energy services companies to deliver quality projects and customers' access to energy efficiency services, this finding reflects important progress toward these key goals of NYSERDA's C&I programs.

Notably, half of eligible participating service providers perceived that customers in the office sector had increased in their willingness to use performance contracts. Large retailers, on the other hand, were perceived to be the least likely to have increased their acceptance of performance contracts, with a majority of non-participants claiming such willingness had decreased.

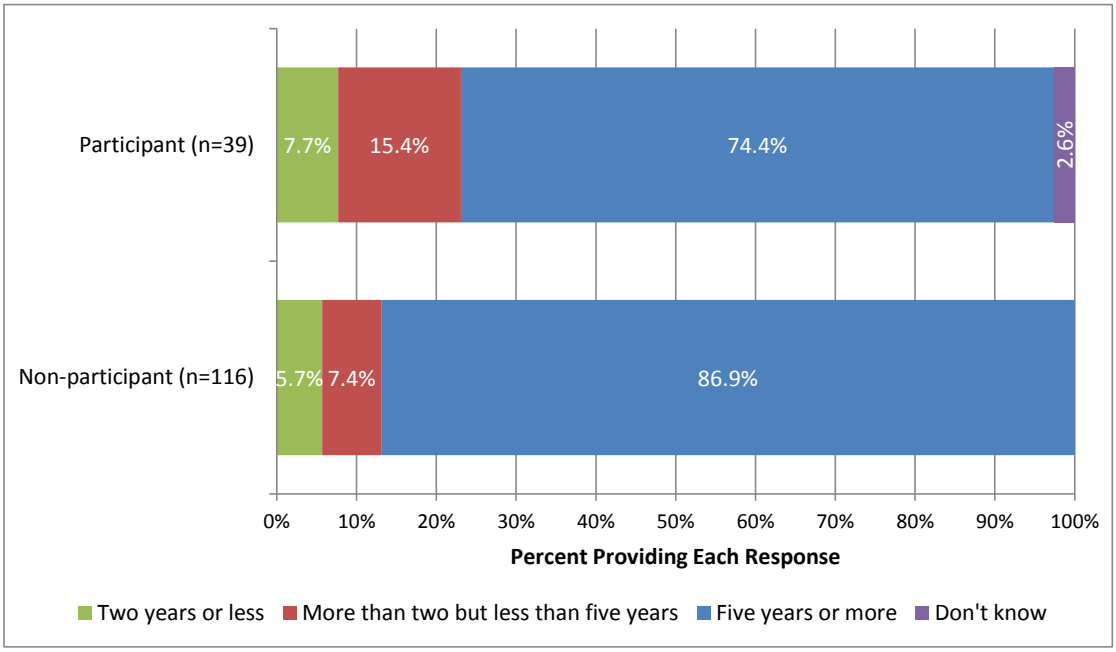
3.3.3 Indicators: Threat of New Entrants

As previously discussed, the threat of new entrants influences the overall level of competition in a particular market. Through the service provider surveys, the MCA team sought to gain insight into any recent increases in attention and activity in New York's energy efficiency market. This subsection presents Market Assessment indicators of the degree to which new firms have entered the New York efficiency retrofit market or that existing firms have added new energy efficiency services.

3.3.3.1 Entrance of New Firms

The team first asked respondents how many years they had been doing business in the state of New York. As shown in Figure 3-11, a majority of both participant and non-participant populations have been active in the state for at least five years.

Figure 3-11. Duration of Service Providers' Business Activity in New York

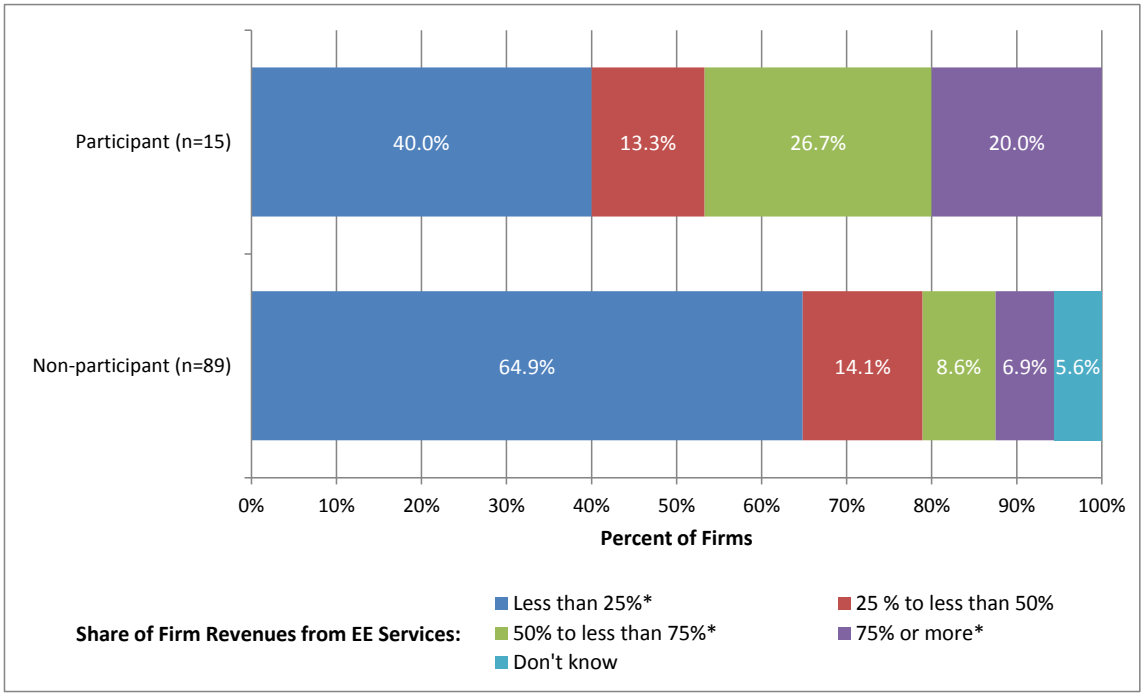


Note: 2.6 percent of participant respondents were unsure how long the firm had been active in New York.
Source: MCA team analysis.

The MCA team next assessed these firms' relative focus on energy efficiency by asking whether they offered any services unrelated to energy efficiency. A majority (62 percent) of firms that participate in the EFP indicated that they focus exclusively on energy efficiency services, a significant difference compared to the 21 percent of non-participant firms with such a focus. Notably, among participating firms, all of those that reported doing business in the state for fewer than five years (23 percent) focus exclusively on EE services. This finding reveals that younger energy services firms tend to have a narrower focus on EE services. While the overall addition of new firms in the market appears to be relatively slow, the demand for energy efficiency services in New York may be a leading factor in that increase.

Among firms that do not focus exclusively on energy efficiency, the participant and non-participant populations showed additional disparity concerning the amount of revenue they derive from energy efficiency services. Figure 3-12 shows the share of these firms (those that offer both EE and non-EE services) that derive differing ranges of their total revenues from energy efficiency-related services. In other words, the figure shows the relative importance of energy efficiency services toward the bottom line of companies that do not focus exclusively on efficiency.

Figure 3-12. Share of Firm Revenue from Energy Efficiency-Related Services (Among Firms that Offer Efficiency- and Non-efficiency-related Services)



*Indicates differences between the two populations that are statistically significant at the 90 percent confidence level.
Source: MCA team analysis.

As shown, nearly 47 percent of participating firms that offer non-efficiency services still derive 50 percent or more of their in-state revenues from energy efficiency-related activities. By comparison, the majority (65 percent) of non-participating firms with non-efficiency services derive less than 25 percent of their New York revenue from such services (about 50 percent of all non-participants). This finding reveals that most firms engaged in performance-based EFP projects focus their efforts on energy efficiency even if they offer non-efficiency-related services. The fact that only 21 percent of non-participants focus exclusively on energy efficiency, and the majority of the other 79 percent derive a relatively small share of revenues from efficiency services, suggests that non-participants provide relatively little competitive pressure on the market for performance-based efficiency improvements.

3.3.3.2 Addition of Efficiency Services Among Existing Firms

The degree to which existing firms have recently added efficiency-related services provides another indicator of the threat of new entrants in specific areas of the retrofit market. In an effort to understand the markets' perception of increasing demand for specific services, the MCA team asked respondents whether they had added any energy efficiency-related services in the past three years. If they had added services, the team inquired as to which types of services and the reasons firms began to offer them. Table 3-3 lists each population's responses.

Table 3-3. Degree and Type of New Energy Efficiency Services Offered by Firms

	Participant (n 39)	Non participant (n 116)
Firms That Have Added EE-Related Services in Past Three Years	**38.5%**	**30.4%**
New Services Added*		
Equipment Installation	20%	24%
Coordination of NYSERDA Incentives	13%	7%
Energy Audits	13%	15%
Performance Contracting	13%	0%
LED Lighting	13%	0%
Controls	13%	0%
Monitoring and Verification	7%	8%
Commissioning and Retro-Commissioning	0%	13%
Lighting (general)	0%	8%
Reasons New Services Were Added*		
Customer Demand	27%	49%
Wanted to Offer More Complete Suite of Services to Customers	7%	32%
Acquired Another Firm that Offered the Services	13%	0%
Incentives	13%	0%
Facility/Owner-Specific Opportunities	13%	0%

Source: MCA team analysis. Responses are not mutually exclusive for either new services added or reasons new services were added. Percentages refer only to the portion of respondents who had added a service.

Between roughly 30 and 40 percent of retrofit service providers have added at least one type of efficiency-related service in the past three years. Among those who have added services, equipment installation was the single most commonly mentioned service within both populations; however, no single service was mentioned by a majority of respondents. Rather, the responses indicate that firms have added a wide range of efficiency-related services.

When asked for the reasons they added the services, the plurality of firms mentioned that they were responding to customer demand. In a follow-on question, less than six percent of either population responded that they had stopped offering any efficiency-related services in the same timeframe. The finding that approximately one-third of firms are adding efficiency services aligns with the above finding that some firms have recently entered the energy efficiency retrofit market in New York. Both findings suggest a low to moderate response from the service provider market to a continued increase in customer demand for such services.

3.3.4 Indicators: Industry Rivalry

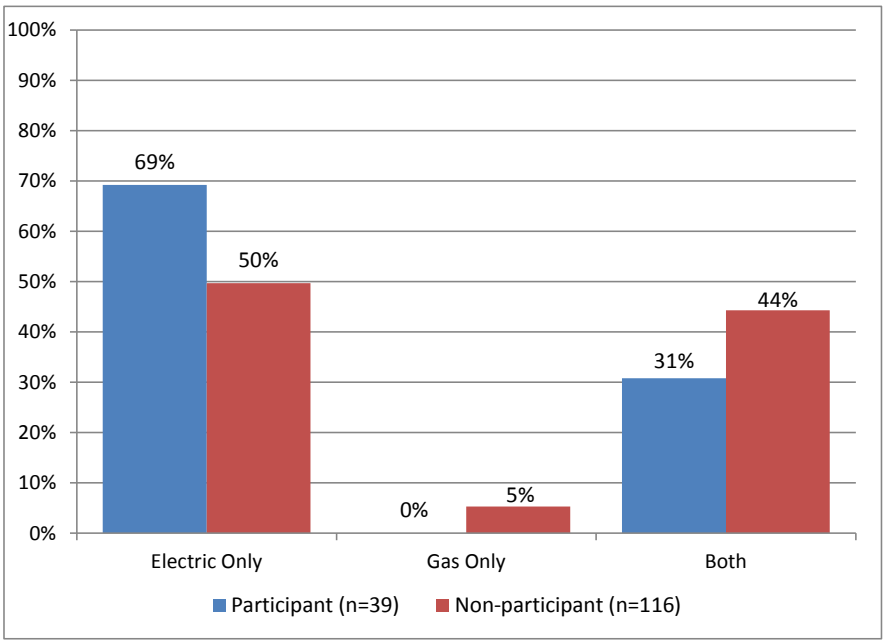
Industry rivalry refers to the overall level of competition in a particular market. The preceding findings suggest a moderate increase in demand for energy efficiency services in the New York market, as well as evidence that some firms have either entered the market or added specific efficiency service offerings in

the past three years. In response to such increases in demand and competition, some firms may pursue some level of specialization within a market to help differentiate their services from those of competitors. The MCA team sought to identify such specialization in three categories: energy-use categories (i.e., gas or electric), specific end-user sectors, and types of equipment or systems. In addition, the team sought input on the types of marketing tactics firms employ to win new business.

3.3.4.1 Firm Specialization – Energy-Use Category

The MCA team first clarified the degree to which firms tend to focus their services on either electric- or gas-related energy systems. Figure 3-13 illustrates whether participant and non-participant service providers focus on electric or gas systems and equipment, or whether they target both.

Figure 3-13. Scope of Equipment Types Covered by Service Providers[132]



Note: One non-participant firm was unsure about the scope of the firm's services.
Source: MCA team analysis.

As shown, a majority (69 percent) of participants and about half (50 percent) of non-participants focus exclusively on electric systems and equipment. Except for a small share of non-participants (five percent), the remainder serves both types of systems. Notably, among participant service providers, 100 percent of firms that have done business in New York for fewer than five years work only on electric systems and equipment. This same subset of respondents also replied that they focus exclusively on energy efficiency-related services (see Figure 3-11). These findings reveal that nearly a quarter (23.1 percent) of the firms participating in performance-based EFP projects are relatively new to the New York

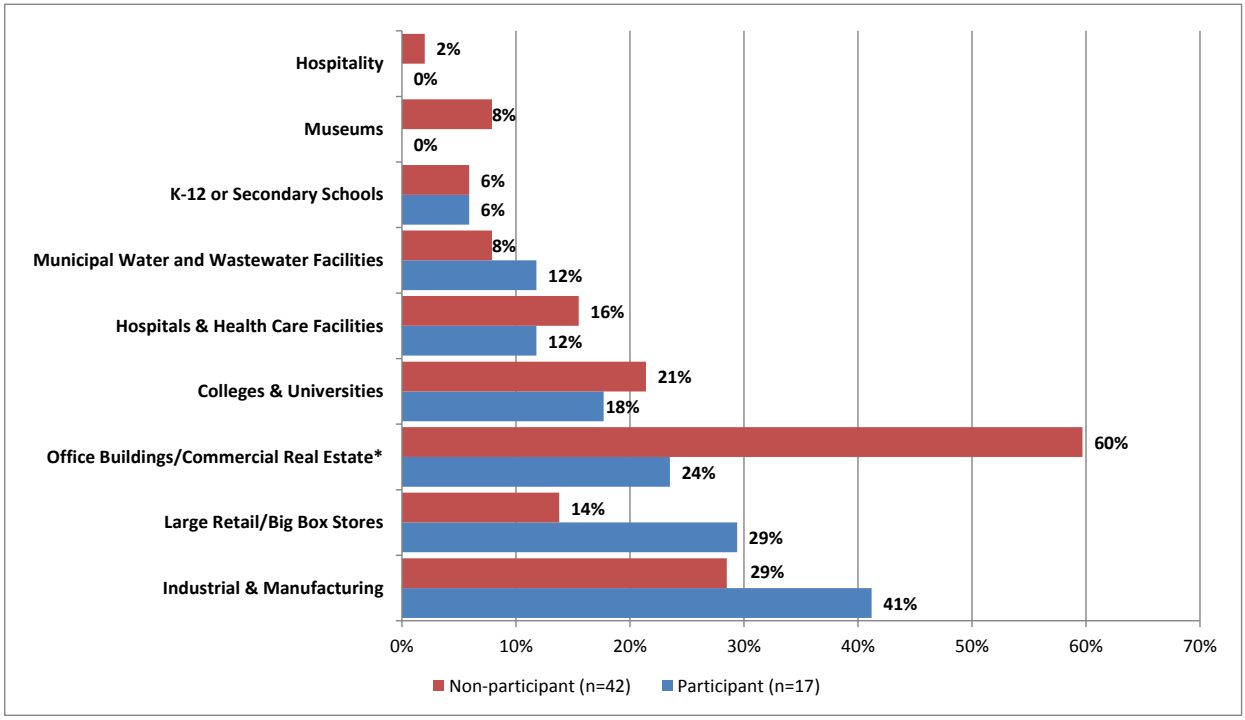
[132] As stated in Section 1.2, the participant population specified for this study focused on providers of performance-based EFP projects with electric savings. To the degree that some service providers perform only gas-based EFP performance-based projects, that population is not represented by this survey.

market and focus narrowly on electrical efficiency projects. In the context of Porter's Five Forces, this entry of new firms may indicate both a perceived increase in demand for such services and increasing competition among the firms serving the performance-based project market.

3.3.4.2 Firm Specialization – Sector or Building Type

Among survey respondents, 44 percent of participant and 36 percent of non-participant service providers claimed to focus their energy efficiency services on at least one market sector or building type. Figure 3-14 illustrates the degree to which these firms focus on each of nine end-user sectors.

Figure 3-14. Sectors or Building Types Targeted by Firms that Focus Energy Efficiency Efforts



Note: Percentages represent the share of only those firms that focus on at least one sector. Categories are not mutually exclusive.
*Indicates differences between the two populations that are statistically significant.
Source: MCA team analysis.

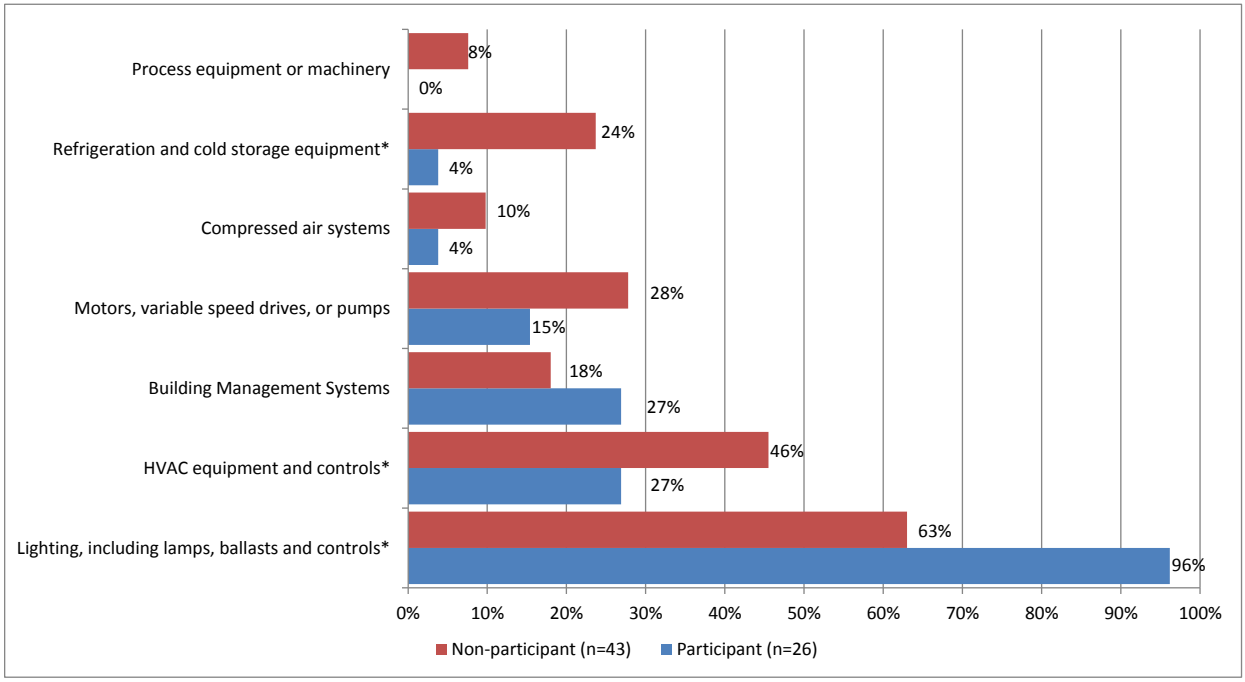
Among participants, firms that focus efficiency-related services on specific sectors most frequently mentioned industrial and manufacturing customers (41 percent), followed by large retail chain stores (29 percent) and office buildings (24 percent). Notably, of those that mentioned the industrial/manufacturing focus, five of the six firms conduct a majority of their business in upstate New York. Also of note, all of the participant firms that focus on large retail stores are smaller firms with ten or fewer employees. The most striking difference between the participant and non-participant responses occurs in the degree of focus on the office building and commercial real estate sector. Nearly 60 percent of non-participant firms

that focus on a sector (or 21 percent of all non-participant firms) claim to focus at least a portion of their energy efficiency retrofit services on the office sector.

3.3.4.3 Firm Specialization – Types of Equipment or Systems

In the last potential area of specialization, 67 percent of participant and 37 percent of non-participant service providers claim to focus their energy efficiency retrofit services on specific types of equipment or building systems.[133] Figure 3-15 illustrates the degree to which these firms cited each of seven categories of equipment or systems as a major area of focus for their firm.

Figure 3-15. Share of System-focused Firms Claiming Equipment Categories Are a Major Focus



Note: Percentages represent share of firms that focus on at least one sector, not every firm in the sample. Categories are not mutually exclusive.
*Indicates differences between the two populations that are statistically significant.
Source: MCA team analysis.

Most strikingly, 96 percent of participant service providers with an equipment-specific focus claimed that lighting systems and controls are a major focus of their efficiency retrofit efforts. This compares to only 27 percent each who cited HVAC systems and BMS as a major focus area. Similarly, non-participant service providers also most frequently cited lighting as a major focus (63 percent), though less so than participants. On the other hand, non-participants are significantly more likely to focus such services on HVAC (46 percent) and refrigeration systems (24 percent).

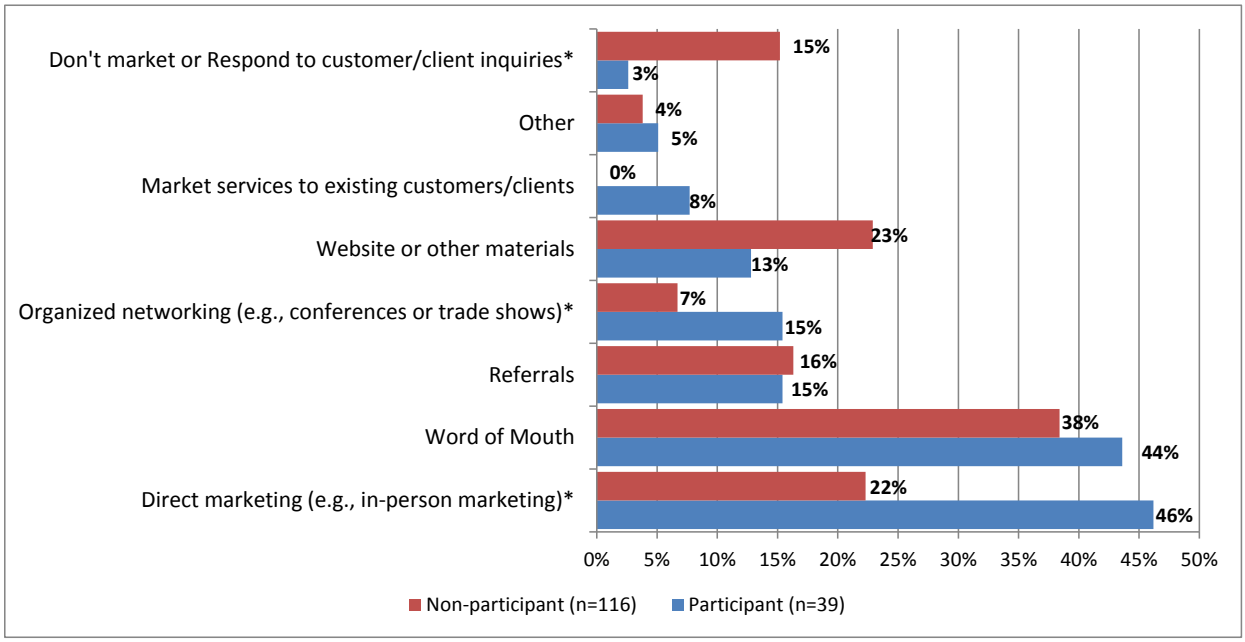
[133] This difference is statistically significant at the 90 percent confidence level. A few respondents in either sample were unsure if their firm focused EE retrofits on specific equipment.

As suggested by the share of energy savings in the EFP project database, lighting continues to receive the greatest share of attention when it comes to energy efficiency retrofits, particularly for performance-based projects. Overall, 64 percent (67 percent of the 96 percent of firms with an equipment focus) of participating service providers focus on lighting systems. Conversely, among firms supporting EFP projects with performance-based incentives, HVAC systems receive less focus than in the broader efficiency retrofit market. This discrepancy may indicate that market barriers are continuing to prevent some end users from considering or implementing HVAC system upgrades within the requirements of performance-based incentive programs. On the other hand, participating service providers may also perceive that a sufficient level of demand and opportunity for lighting system retrofits warrants that they continue to focus the bulk of their resources on those systems.

3.3.4.4 Marketing Tactics Used to Address Competition

Beyond measuring the above strategic methods for improving competitiveness, the MCA team also asked respondents an open-ended question to characterize the tactics that firms most often use to market their energy efficiency retrofit services to customers. Figure 3-16 shows the results of this inquiry.

Figure 3-16. Methods Firms Use to Market Energy Efficiency Retrofit Services to Customers



Note: Responses categories are not mutually exclusive. *Indicates differences between the two populations that are statistically significant.
Source: MCA team analysis.

A large share of service providers in both populations (38 to 44 percent) mentioned word-of-mouth marketing (i.e., informal referrals) as a key marketing tactic. Firms participating in performance-based EFP projects, however, are far more likely to rely on direct marketing (e.g., cold calls or in-person visits) to sell their projects to potential customers. This increased reliance on personal interaction may reflect

the more complex or costly nature of the decisions end users face when considering performance-based energy efficiency improvements. While non-participants and their customers are more likely to focus on equipment replacements, participating service providers are likely working to convince end users to upgrade systems before the end of their useful life (see Figure 3-6 and Figure 3-7). Such decisions likely require additional information and consideration of issues like opportunity costs and payback periods.

3.3.5 Summary of Service Provider Market Assessment Key Findings

This section highlighted recent trends in New York's energy efficiency service provider market, presented in the context of the key drivers and barriers affecting the attractiveness of that market for potential and existing firms. The Market Assessment survey explored indicators related to four of the five key factors discussed, and highlighted significant differences between the perceptions and behaviors of firms that have participated in performance-based EFP projects and those that have not. Figure 3-17 provides a brief summary of the key findings surrounding each of these four factors.

Figure 3-17. Summary of Service Provider Findings

Threat of New Entrants (Moderate) EFP Influence: Limited	**Industry Rivalry (Moderate)** EFP Influence: Limited to Moderate
• The modest addition of new firms in the market reflects a perceived increase in demand for energy efficiency service in New York. • Non-participant firms currently provide relatively little competitive pressure on the market for performance-based efficiency improvements. • 30- to 40 percent of service providers have added at least one type of efficiency-related service in the past three years. • EFP can increase the threat of entrants through outreach to non-participant firms.	• Most participant service providers focus on electricity efficiency; about 30 percent serve both gas and electric systems. • Nearly half of participant firms focus efficiency services on certain sectors, especially large retail and office buildings. • 64 percent of participant firms focus to some degree on lighting systems, versus only 18 percent for HVAC. • EFP has limited influence on rivalry, but can appeal to firms' desire to differentiate amidst competition.
Buyer Power (Moderate) EFP Influence: Moderate	**Threat of Substitutes (High)** EFP Influence: Moderate to High
• Most end users rely on outside firms to implement performance-based EFP projects, decreasing buyer power. • On the other hand, urgency and necessity play a more limited role in decisions for performance-based projects. These end users are more driven by financial considerations, incentives and a drive for energy efficiency. This increases buyer power relative to service providers. • EFP can increase buyer power through technical expertise and the provision of efficiency-specific funding.	• Steady or increasing demand for efficiency services suggests that the recession has had limited effect. • While participant firms have succeeded in steering customers past upfront cost concerns, budget limitations and payback requirements continue to present challenges. • Financial assistance plays an important role, with most participating firms offering it in some form. However, only about half of participant firms use performance contracts. • EFP can lower the threat of substitutes by providing efficiency-specific funding.

Source: MCA team analysis

The following section incorporates these findings with those in the End-Use Customer Analysis to present a business model approach to EFP's key opportunities and offerings moving forward.

4. Recommendations EFP's Offering and Opportunity

This section presents the EFP through the lens of a private-sector business, detailing the program's specific opportunities in and value proposition for each target sector.[134] It combines the key findings from the end-user and service provider MCAs to provide specific recommendations for marketing the EFP's performance-based incentives.

Section 4.1 describes the program's general offering in terms of the features and benefits that it provides to either end users or service providers. Section 4.2 then presents the MCA team's recommendations for the key opportunities and positioning the EFP should pursue for each of these audiences, including priority sector-specific recommendations.

4.1 EFP's Product Offering

This section presents an overview of the service provided by the EFP's performance-based incentive program. This includes the program's features and benefits for each of its two target audiences (end users and service providers), its stage of development in the market, and its market entry point.

4.1.1 Features and Benefits

The features of a product or service generally describe the characteristics of that offering that will appeal to a business's potential customers. In this case, the features of the EFP comprise those attributes that foster interest and action among either end users or the service providers that help "sell" participation in the program. The product's benefits include the subsequent advantages or impacts the target audience derives from each of the product's features. Table 4-1 on the following page provides an overview of the key program features and benefits for each of EFP's two target audiences.

[134] The outline of this section is derived from: Lawrence, S. and F. Moyes. "Writing a Successful Business Plan," Deming Center for Entrepreneurship at the Leeds School of Business, University of Colorado at Boulder, 2007.

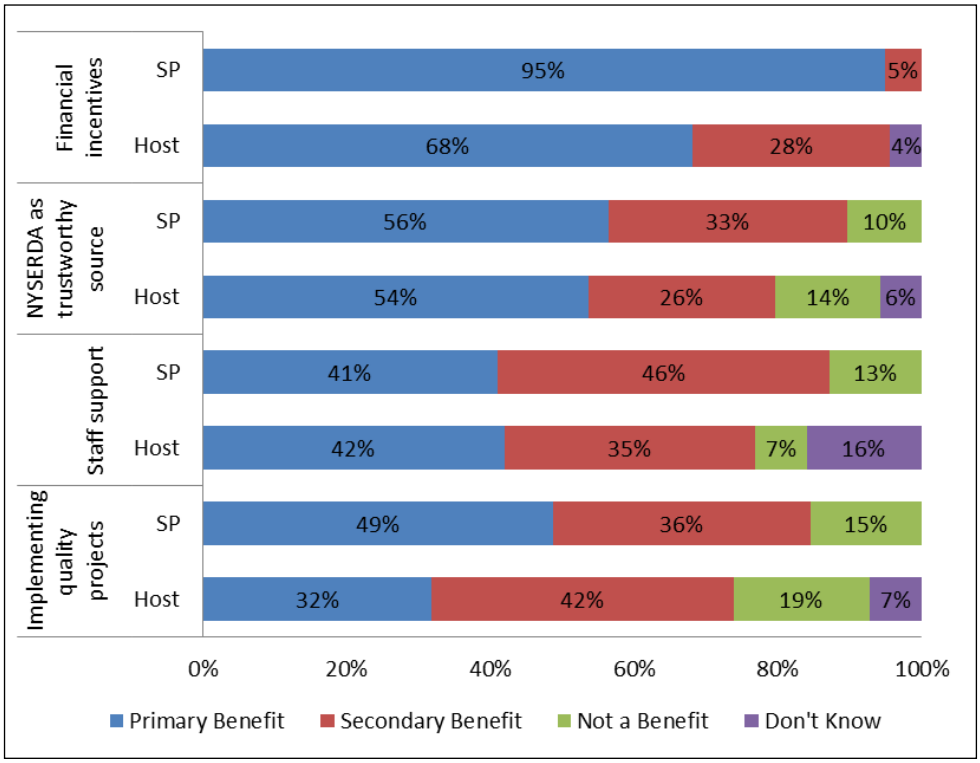
Table 4-1. Key Features and Benefits of the EFP's Performance-based Offering

Feature	Description	End User Benefits	
Competitive Incentives	EFP provides performance-based incentives for the energy systems that represent the greatest share of end users' energy consumption and their greatest share of energy savings and cost reductions.	**Budget Enhancement:** Incentives supplement end users' capital budgets with funds dedicated to energy efficiency improvements. These funds make a meaningful contribution to reducing upfront costs and improving project payback periods, making large efficiency upgrades more feasible and attractive.	**Enhanced Sales and Competitiveness:** EFP incentives, and the ability to help end users design a successful performance-based project, can better position service providers to capture new business from customers' interested in deeper energy and cost savings.
Trustworthy and Independent Advisor	EFP's performance-based programs offer an independent, trustworthy source of information about efficiency options.	**Project Validation:** EFP staff shares end user's interests in maximizing energy savings (and subsequent cost savings), providing a trustworthy, third-party source to validate project options and designs.	NYSERDA and interests in with the program helps validate the legitimacy of service provider's approach.
Quality Assurance	Performance-based projects emphasize verifiable energy savings through M&V, particularly for large projects.	**Best Quality:** EFP shares end user's interests in projects achieving the savings estimated in their designs. M&V requirements help increase confidence in projected energy savings, thereby enabling performance contracting.	**Reputation for Quality:** NYSERDA and EFP staff shares service providers' interests in delivering quality projects to end users. M&V requirements contribute to service providers' quality assurance, and to their subsequent reputation in the market.
Technical Expertise and Project Support	EFP's program staff provides technical expertise to supplement that of customers' in-house facility staff. They understand the opportunities and needs of various organizations and facilities.	**Good Service:** Staff helps navigate the application process and provide the information organizations need to reach decisions on potential projects.	**Good Service:** Staff helps service providers learn and navigate the application process and provide the information their customers need to reach favorable decisions on potential projects.

Source: MCA team analysis

In this study's companion EFP Process Evaluation, Research into Action assessed service provider and host customer participants' perceptions about the importance of these four program benefits.[135] In the business model framework, these perceptions reveal how NYSERDA's positioning of the program has been received and how it might position the program moving forward. Figure 4-1 shows the perceived importance of each benefit among each population.

Figure 4-1. Perceived Benefits of Participation in an EFP Performance-based Project



Note: Includes service provider (SP; n = 39) and host customer (Host; n = 69) participants.
Source: Research into Action. *Process Evaluation: Existing Facilities Program Final Report.* Prepared for NYSERDA, November 2011.

4.1.1.1 End-User Benefits

The features and benefits on the preceding page highlight the EFP's performance-based program's core offering to both end users and service providers. For end users, the program's primary feature (competitive financial incentives) addresses several key barriers to the broader implementation of energy efficiency improvements, particularly those associated with various financial issues (e.g., upfront costs, limited capital budgets, and financial requirements). The second most important feature lies in NYSERDA's role as a trustworthy and independent advisor. For end users, program staff provides an

[135] Research into Action. *Process Evaluation: Existing Facilities Program Final Report,* Prepared for NYSERDA, November 2011.

independent, third-party that helps validate their project options and the reasonableness of projected energy savings.

The other two features (quality assurance and technical expertise) provide secondary, but still important, benefits for end users. NYSERDA's M&V requirements for larger projects translate to a commitment to the highest quality "product" (energy efficiency project) available and reduce the risk of poor project performance. Program staff's commitment to review designs and verify energy savings helps increase host customers' confidence in their project and, in some cases, may enable performance contracting and other alternative financing mechanisms. The technical expertise of NYSERDA staff provides host customers with a "one-stop shop" for identifying and navigating opportunities to leverage incentives for energy efficiency improvements across their organizations and understanding project and application requirements.

4.1.1.2 Service Provider Benefits

For service providers, the EFP's two primary features (competitive incentives and independent review) translate broadly into improved sales and competitiveness. Aside from lowering project costs for service providers' customers (increased sales), association with the EFP legitimizes service providers' project designs and improves their credibility. Similarly, NYSERDA's M&V requirements (quality assurance) help to validate and verify the service providers' projected energy savings and therefore lead to better designed and higher quality projects. By undertaking (and later succeeding at) a performance-based project, service providers reveal confidence in their ability to design and deliver a high-quality project. With the industry's reliance on word-of-mouth and direct sales, this reputation for quality and expertise may make a meaningful difference in future project opportunities. Program staff's technical expertise also helps service providers build familiarity and success with EFP's performance-based projects, improving firms' ability to help less sophisticated customers navigate the performance-based project process.

4.1.2 Stage of Development

The stage of development generally describes where in a general product life cycle (i.e., early-stage, growing, mature, or declining) a product or service lies. In the case of energy efficiency incentives generally, the MCA team estimates that the market is in a later growth stage. With continued focus on emissions reductions and energy savings, new government and utility programs continue to offer organizations reduced-cost opportunities to improve their energy management and usage.[136] EFP's prequalified incentives fall into this general category. Performance-based incentives, however, fall closer to the early stage of market development. With larger investment requirements than prequalified incentives or equipment replacements, performance-based projects still encounter significant barriers in terms of high upfront costs and limited capital budgets.

[136] "2011 Energy Efficiency Indicator: Global Results: Executive Summary." Institute for Building Efficiency (An Initiative of Johnson Controls), June 2011. http://www.institutebe.com/Energy-Efficiency-Indicator/2011-global-results.aspx.

4.1.3 Entry Point

For an early-stage product or service, businesses often focus on identifying a specific market entry point where they can build initial success, learn important lessons, and adjust their offering before expanding to the broader market. The MCA team estimates that the EFP has already gained entry to the market's early adopters – those end users with an interest and commitment to deeper energy savings than are available from prequalified incentives and those service providers willing to undertake riskier projects in the interest of gaining access to the performance-based project market.

4.2 EFP's Market and Sector Opportunities

This section seeks to characterize the specific opportunities for positioning and marketing the EFP performance-based component moving forward. **These "opportunities" represent the MCA team's recommendations for the service provider market and each of the three priority market sectors.**

4.2.1 Service Provider Recommendations

The opportunity presented in this section draws upon the above summary of program features and benefits (Table 4-1) and the summary of key findings for the service provider market (Figure 3-17).

OPPORTUNITY SUMMARY

As mentioned in the service provider drivers and barriers section (Section 3.2), increased competition in the service provider market stands to benefit end users through downward pressure on prices and increased bargaining power. However, a majority of participating end users in the institutional and owner-occupied office sectors indicated that too few quality firms exist in the service provider market (Section 3.3.1).

Recommendation #1: NYSERDA should seek to increase the number of quality firms engaging end users in performance-based EFP projects. In so doing, the program can drive additional competition among firms working on performance-based projects, potentially leading to higher volumes of projects, lower costs to end users, or new competitive offerings from service providers (e.g., multi-firm partnerships or new approaches to project financing).

TARGET AUDIENCES

For the above opportunity, NYSERDA has two target audiences within the broader service provider market. They are as follows:

- ***Non-Participant Firms.*** Unlike the narrow definition of non-participant used elsewhere in this report (i.e., firms that have not engaged in projects with either a prequalified or performance-based incentive), this target audience includes those firms that have completed projects with prequalified incentives. The EFP's focus for this audience is to convince new firms to learn about and undertake projects supported by EFP performance-based incentives.

- ***Current Performance-based Project Participants.*** These firms were previously or are currently engaged in performance-based projects and include the early adopters of the EFP performance-

based project approach. Based on findings in the EFP Process Evaluation, the majority of these firms remain satisfied with the EFP, and nearly half perceive the program's contribution to the implementation of quality projects as a primary program benefit.

Within each of these target audiences, program staff should consider that participants (and potential participants) comprise a diversity of service offerings and scopes of expertise. For example:

- » While most participant service providers focus on electrical efficiency improvements, about 30 percent broadly serve both gas and electric systems.
- » Not all performance-based participants can offer comprehensive (i.e., multi-system) energy efficiency projects; a large share of firms focus on specific electric systems (e.g., lighting).
- » Performance-contracting is not a requisite component of performance-based projects (though it may help to leverage EFP incentives). Only about half of participant firms use performance contracts.

These differences suggest that identifying potential target firms, particularly among non-participants, may initially require relatively broad outreach to identify interested organizations.

PROGRAM POSITIONING

As presented in Table 4-1, the key benefits for firms engaged in performance-based projects arise from increased sales opportunities from EFP incentives and enhanced competitiveness through increased legitimacy.

Recommendation #2: The EFP should leverage these perceived benefits to position participation in the performance-based program as an indicator of a firm's advanced capabilities, commitment to maximizing energy savings, and overall higher-quality services. This recommendation can be tailored to each service provider target audience:

- » For the downstate region, the MCA team anticipates that the NYC GGBP requirements will lead to increased demand for energy efficiency services. In the near-term, this may initially include services related to benchmarking (e.g., EFP's MBCx offering) and retro-commissioning. As benchmarking data becomes publicly available, however, some firms may strive to improve their performance based on increased awareness or a desire to appeal to more energy- and cost-conscious tenants or buyers. As demand for such services increases, those firms with experience implementing high-quality, large-scale projects will be better positioned to capitalize on whole-building or multi-facility projects.[137]

- » For non-participant firms, the above positioning provides an opportunity to gain access to and experience with larger-scale projects that can improve the firm's reputation and revenues. As competition among firms engaged in performance-based projects increases, those firms that

[137] These initiatives will likely contribute to increased demand for energy efficiency. NYSERDA staff should be aware of the potential implications for freeridership going forward. From the perspective of the upfront cost barrier, NYSERDA's EFP still has an important role to play in encouraging projects and energy savings that would not otherwise occur without such incentives.

have previously completed performance-based projects will likely seek to further differentiate themselves through enhanced offerings (e.g., innovative financing or more competitive pricing).

4.2.2 Priority Market Sector Recommendations

The opportunities presented in this section draw upon the above summary of program features and benefits (Table 4-1) and the summary of key findings for each of the three priority market sectors.[138] It presents EFP's overarching opportunity for end users followed by sector-specific recommendations for each of the priority sectors discussed in this report.

4.2.2.1 Overarching Opportunity Summary

As mentioned in the discussion of current EFP customer participation, most performance-based projects implemented by end users in the priority sectors involved a single energy use system; multi-system projects have been relatively rare (see Table 2-5). In addition, the majority of performance-based savings have come from lighting and lighting controls projects (see Figure 2-16), but non-lighting measures represent greater per-project savings opportunities (see Table 2-4). Non-participants from the priority market sectors cited both lighting and HVAC improvements as holding considerable energy savings potential for their facilities, and a majority intend to implement such projects in the next two to three years. In addition, BMS and (to a lesser extent) RCx also gained considerable mention among these end users as projects they intend to implement.

Recommendation #3: NYSERDA should seek to increase its performance-based energy savings through the following two-fold approach, each with a different target audience:

1. ***Organic Growth.*** Program staff should seek opportunities to market additional performance-based projects to facility owners who have previously completed such projects. This may mean seeking broader savings by replicating projects (e.g., lighting upgrades) at facilities with similar characteristics as that of the original project facility.[139] Conversely, owners may also seek deeper savings (e.g., from cooling or controls upgrades) at a particular facility that already underwent lighting improvements.

2. ***Avoid Missed Opportunities.*** Non-participants clearly stated the intent to undertake numerous efficiency improvements in the next two to three years; however, many may continue to bypass performance-based incentives in favor of smaller upgrades. By capturing a portion of these planned projects and converting them to larger, performance-based projects, EFP staff can capitalize on that portion of the market with at least some awareness and willingness to pay for efficiency upgrades. This effort may benefit by leveraging what facility owners learn from their planned RCx and BMS projects.

[138] See Table 2-7, Table 2-9, Table 2-11, and Table 2-12.

[139] NYSERDA staff should be aware of the potential implications for freeridership going forward. From the perspective of participants that replicate projects, the EFP will have contributed to an increased willingness to implement projects based on past project successes. In addition, the EFP will likely still have a decisive role in reducing upfront cost barriers for projects that would not otherwise occur without its incentives.

4.2.2.2 *Program Positioning*

As presented in Table 4-1, the key benefits for end users engaged in performance-based projects arise from enhanced capital budgets for efficiency improvements and independent validation of project designs and projected energy savings. Again, the MCA team anticipates that the NYC GGBP requirements will lead to increased demand (particularly in the downstate region) for energy efficiency services. As building owners and occupants begin to gain insights from efficiency audits and RCx efforts, as well as from the increased visibility of building benchmarking results, some firms will likely pursue efficiency improvements to achieve identified cost reductions or improve their benchmarks. However, many decision makers will still hesitate to implement energy efficiency improvements based on the barriers (e.g., upfront costs) discussed in this report. As such, the EFP still has an important role to play in encouraging projects and energy savings that would not otherwise occur without such incentives.

Recommendation #4: Increased awareness of energy efficiency opportunities from the GGBP requirements may not be sufficient for host customers to overcome uncertainties about possible energy savings or limited capital budgets. NYSERDA should raise awareness of EFP's potential role in implementing opportunities identified through benchmarking efforts. Specifically, we recommend the following:

- Program staff should encourage end users to implement larger, performance-based projects that they would not otherwise pursue without NYSERDA's independent review or validation of project designs.
- NYSERDA should continue to market the performance-based programs' contributions to addressing the persistent cost and financial barriers facing end users. Specifically, NYSERDA should increase its focus on the value of M&V in enhancing the quality and lowering the risk of large, whole-system or whole-building efficiency improvement projects.

EFP marketing messages should remind these end users that they can benefit by engaging with a service provider that has demonstrated experience with performance-based projects or through NYSERDA's involvement in those projects.

Recommendation #5: For the upstate end-user market, program staff should market the success of past performance-based projects, as well as the improvements downstate facilities are undertaking to comply with PlaNYC requirements, as evidence of performance-based projects' contribution to deeper energy and cost savings.

4.2.2.3 *Institutional Sector Opportunities*

In addition to the above general opportunities, the two following findings stand out from the institutional sector-specific findings listed in Table 2-7:

- Institutional projects reveal a more diverse distribution of performance-based energy savings across measure categories than other priority market sectors.
- About half of non-participants have upgraded lighting systems in the past three years, and fewer organizations plan to implement lighting projects in the next two to three years than projects involving HVAC, motors or BMS.

These findings suggest the following key opportunities for the EFP within the institutional sector:

» ***Recommendation #6:*** NYSERDA should conduct project-specific case studies on the more diverse, non-lighting projects in the institutional sector, enabling program staff to identify key lessons and best practices from these projects to encouraging additional end users to undertake non-lighting projects. These learning opportunities can help increase performance-based project savings both within and beyond the institutional sector.

» ***Recommendation #7:*** NYSERDA should avoid missed opportunities by capturing and converting the projects that non-participants intend to undertake into larger, performance-based projects. The institutional sector's past involvement in diverse, performance-based projects and near-term intent to implement non-lighting improvements creates an ideal opportunity for gaining first-time participants in the performance-based side of the program.

4.2.2.4 Office Sector Opportunities

For the office sector, the following findings emerge from the owner-occupant and property manager-specific findings listed in Table 2-9 and Table 2-11:

» Seventy percent of performance-based savings comprise lighting and lighting controls upgrades, with the remainder split between controls/VFDs (21 percent) and cooling (8 percent).
» Among owner occupants, only 30 percent have upgraded lighting systems in the past three years, with fewer having upgraded HVAC systems. More than half intend to implement lighting upgrades in the next three years.
» Property managers placed greater emphasis on NYSERDA incentives as a motivator for replacing lighting, HVAC, and motors than either owner occupants or institutions.
» While a large share of property managers have updated lighting and HVAC systems in the past three years, these end users typically oversee multiple buildings. A majority (63 percent) still plan to implement lighting upgrades in the next three years, while about half intend to implement HVAC upgrades, BMS, and RCx.

As with the institutional sector, the offices sector has shown some diversity in its approach to performance-based projects, revealing the following opportunities:

» ***Recommendation #8:*** Program staff should again seek to learn from the specific motivations and results of non-lighting projects to help encourage additional implementation of such projects among both past performance-based participants and newly recruited end users. However, while such diversity will help improve long-term growth of performance-based energy savings among office end users, it appears that significant opportunities for lighting upgrades still exist among both owner-occupied and property-managed buildings.[140]

[140] As previously noted, improving federal lighting standards will likely soon decrease the amount of energy savings the program can claim from lighting measures as baseline and measure lifetime assumptions change.

» ***Recommendation #9:*** Property managers' emphasis on incentives' role in motivating projects, combined with their control and oversight of multiple facilities, suggests that they may be a more responsive and attractive audience for near-term marketing efforts. NYSERDA should seek to leverage existing relationships with property managers to gather feedback on the program and seek opportunities to replicate successful projects in other buildings in those property managers' portfolios.

4.2.2.5 Large Retail Chain Store Opportunities

For the retail chain store sector, the following findings emerge from the sector-specific findings listed in Table 2-12:

» Unlike other priority sectors, projects with store owners and occupants as project applicants represented the majority (67 percent) of performance-based EFP savings.
» Unlike the other priority sectors, almost all (96 percent) of this sector's performance-based savings arise from lighting and lighting controls projects. Similarly, across all EFP savings (prequalified and performance-based) lighting measures account for 90 percent of sector savings.
» Retail chains tend to replicate successful measures and lessons learned across their building portfolio.
» Retailers have rapid payback requirements (two years or less) for projects in existing buildings.

The combination of the above factors leads the MCA team to suggest that the potential for growth of performance-based project savings within the large retail chain sector may be somewhat limited. The potential for repetition of successful projects at facilities across the state is attractive (18 organizations account for the sector's 190 performance-based projects); however, based on this tendency toward a portfolio approach and their near-term payback requirements, the MCA team believes many of these organizations have likely already implemented the efficiency projects that meet their financial requirements.

» ***Recommendation #10:*** The MCA team recommends that NYSERDA undertake a short-term, focused outreach effort (using program staff) to explore the potential for additional performance-based opportunities in this sector. For the 18 organizations that have previously participated in performance-based projects, a program representative could contact company representatives to inquire about their interest in repeating lighting projects at additional locations as well as opportunities for projects targeting other systems (e.g., cooling or controls).[141]

While a few dozen non-participant retailers exist in New York, many of those with the largest facilities (i.e., big box stores) have already participated in the program. Based on the MCA team's experience, these organizations are less responsive to unsolicited outreach.

[141] The MCA team attempted such inquiries, but had limited success in gaining access to appropriate company representatives. NYSERDA staff may have better success based on credibility and attachment to the program.

5. Conclusion

This report considered the EFP's recent success and future opportunities through the lens of a private-sector business. In this case, rather than targeting bottom-line growth in revenues and profits on behalf of shareholders, the EFP's business is driven by bottom-line growth in energy savings and demand reduction on behalf of NYSERDA's stakeholders. The program's target markets comprise both the energy end-use customers who ultimately represent the demand for energy efficiency improvements and the service providers that help design and implement those projects.

The team focused its evaluation efforts on electrical energy efficiency projects that have received performance-based incentives. These performance-based incentives far outweigh the overall and per-project energy savings generated from the program's prequalified incentives. From a business model perspective, these higher per-project energy savings (i.e., program "revenues") encourage program staff to focus its limited resources on developing and implementing these higher-return, performance-based projects. Sections 3 and 4 presented analysis and key findings for the program's end-user and service-provider target markets, respectively, including three priority end-user market sectors (institutions, offices, and large retail chain stores). Section 5 distills these key findings into an abridged business plan framework that defined the key offering of and recommended opportunities for EFP's performance-based projects.

This section provides an abbreviated version of those recommendations. Table 5-1 provides an overview of the offering via the key program features and benefits for each of EFP's two target audiences. A summary of the key recommendations for each target audience follows.

Table 5-1. Summary of Key Features and Benefits of the EFP's Performance-based Offering

Feature	End User Benefits	Service Provider Benefits
Competitive Incentives	Supplement end users' capital budgets and make a meaningful contribution to overcoming financial barriers.	Position service providers to capture new business from customers interested in deeper energy and cost savings.
Savings Verification	Provides trustworthy, third-party validation of project designs while reducing uncertainty around projected energy savings.	M&V requirements contribute to service providers' design quality and to their subsequent reputation in the market.
Comprehensive Approach	End users maximize the impact of incentives by identifying untapped opportunities or bundling projects.	EFP staff helps service providers identify and learn about offerings that best leverage their own expertise.
Technical Expertise	Staff helps end users identify likely areas and systems to reduce energy use and costs and help provide information needed to support project decisions.	Staff helps service providers learn and navigate the application process and provide information customers need to reach favorable project decisions.

Source: MCA team analysis

5.1 Service Provider Recommendations

Increased competition in the service provider market stands to benefit end users through downward pressure on prices and increased bargaining power. However, a majority of participating end users in the institutional and owner-occupied office sectors indicated that too few quality firms exist in the service provider market.

- ***Recommendation #1:*** NYSERDA should seek to increase the number of quality firms engaging end users in performance-based EFP projects. In so doing, the program can drive additional competition among firms working on performance-based projects, potentially leading to higher volumes of projects, lower costs to end users, or new competitive offerings from service providers (e.g., multi-firm partnerships or new approaches to project financing).

- ***Recommendation #2:*** The EFP should aim to convince new firms to learn about and undertake projects supported by performance-based incentives by marketing the program's perceived benefits to service providers – that the program is an indicator of a firm's advanced capabilities, commitment to maximizing energy savings, and overall higher-quality services. An anticipated increase in demand for high-quality energy efficiency services will create particular opportunities for firms with past performance-based project experience while drawing new firms to attempt performance-based projects.

5.2 *Overall End-User Recommendations*

Most performance-based projects implemented by end users in the priority sectors involved a single energy-use system. In addition, the majority of performance-based savings have come from lighting and lighting controls projects, but non-lighting measures represent greater per-project savings opportunities. Looking forward, non-participants cited both lighting and HVAC improvements as holding considerable energy savings potential for their facilities, and many intend to implement lighting, HVAC, BMS, and (to a lesser extent) RCx efforts in the next three years.

» ***Recommendation #3:*** NYSERDA should seek to increase its performance-based energy savings through a two-fold approach. First, program staff should seek organic growth opportunities by marketing additional performance-based projects to facility owners who have previously completed such projects. Second, staff should capture a portion of small-scale projects being planned by non-participants and convert them to larger, performance-based projects. This will enable EFP staff to capitalize on that portion of the market with at least some awareness and willingness to pay for efficiency upgrades.

» ***Recommendation #4:*** NYSERDA should raise awareness of EFP's potential role in implementing opportunities identified through benchmarking efforts by: a) encouraging end users to implement larger, performance-based projects that they would not otherwise pursue without NYSERDA's independent review or validation of project designs and b) continuing to market the performance-based programs' contributions to addressing the persistent cost and financial barriers facing end users. Specifically, NYSERDA should increase its focus on the value of M&V in enhancing the quality and lowering the risk of large, whole-system or whole-building efficiency improvement projects.

» ***Recommendation #5:*** For the upstate end-user market, program staff can market the success of past performance-based projects, as well as the improvements downstate facilities are undertaking to comply with PlaNYC requirements, as evidence of performance-based projects' contribution to deeper energy and cost savings.

5.3 *Priority Market Sector Recommendations*

The MCA team recommends the program pursue the following sector-specific opportunities:

Institutional Sector:

» ***Recommendation #6:*** By conducting project-specific case studies on the more diverse, non-lighting projects in the institutional sector, program staff can identify key lessons and best practices from these projects to encourage additional end users to undertake non-lighting projects.

» ***Recommendation #7:*** NYSERDA should avoid missed opportunities by capturing and converting the projects that non-participants intend to undertake into larger, performance-based projects.

Office Sector:

- ***Recommendation #8:*** The office sector has also shown, though to a lesser extent, diversity in its approach to performance-based projects. Program staff should seek to learn from the specific motivations and results of non-lighting projects to help encourage additional implementation of such projects among both past performance-based participants and newly recruited end users.

- ***Recommendation #9:*** NYSERDA should seek to leverage existing relationships with property managers to gather feedback on the program and seek opportunities to replicate successful projects in other buildings in those property managers' portfolios.

Large Retail Chain Store Sector:

- ***Recommendation #10:*** The MCA team recommends that NYSERDA undertake a short-term, focused outreach effort (using program staff) to explore the potential for additional performance-based opportunities in this sector. For the 18 organizations that have previously participated in performance-based projects, a program representative could contact company representatives to inquire about their interest in repeating lighting projects at additional locations as well as opportunities for projects targeting other systems (e.g., cooling or controls).[142]

[142] The MCA team attempted such inquiries, but had limited success in gaining access to appropriate company representatives. NYSERDA staff may have better success based on credibility and attachment to the program.

NAVIGANT

Appendix A. Program Logic Model Report

NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY
EXISTING FACILITIES PROGRAM
PROGRAM LOGIC MODEL REPORT
(FINAL – MAY 26, 2010)

Introduction

This document provides:

1) A table showing a list of documents relating to NYSERDA's Existing Facilities Program that were used to provide insight during development of this program logic model report;
2) A high level summary of the program, and the context of the markets within which this program operates. Information is also presented in this section on other complementary NYSERDA programs and other potentially complimentary or competing programs being offered through investor owned utilities in New York and the NYISO. Available market characterization information is also presented in this section, including a description of baseline conditions, technical energy and demand potential reductions, and the portion of that potential that the program is expected to achieve;
3) Key program-specific elements, including the ultimate goals of the program, market barriers, targeted market actors, program activities, inputs, anticipated outputs/outcomes, and potential external influences. Information on how program activities are expected to change the behavior of market(s)' actors is also presented in this section;
4) A program logic model diagram showing the linkages between inputs, program activities, outputs and outcomes, and identifying potential external influences;
5) A table listing the key outputs and outcomes, including identification of relevant measurement indicators and potential data collection approaches to guide later prioritization, and development of a monitoring and evaluation plan, and
6) A list of potential researchable issues for consideration within evaluation planning.

1. Related NYSERDA Documents

The following table identifies NYSERDA and other potentially relevant documents that were reviewed for this report:

Table 1 – Relevant Documents Reviewed

NYSERDA Document Description
New York's System Benefits Charge Programs Evaluation and Status Report, Year Ending December 31, 2009
NYSERDA PON 1219 – Existing Facilities Program
NYSERDA Existing Facilities Program website, http://www.nyserda.org/Programs/Existing_Facilities/default.html
GDS Associates. **New York Energy $mart℠** Peak Load Management Program Logic Model Report. July 2007.
GDS Associates. **New York Energy $mart℠** Enhanced Commercial Industrial Performance Program Logic Model Report. June 2007.
New York Energy $mart℠ Peak Load Reduction Program MCAC Report. Summit Blue Consulting. June 2004.
New York Energy $mart℠ Commercial and Industrial Performance Program MCAC Report. Summit Blue Consulting. March 2005.
Optimal Energy, Achievable Electric Energy Efficiency in New York State DRAFT November 2008.
Optimal Energy. Natural Gas Energy Efficiency Resource Development Potential in New York. Prepared for New York Department of Public Service. October 31, 2006.

2. Context and Program Description

2.1 Program Description

The Existing Facilities Program (EFP) promotes energy efficiency and demand management. This new program is a consolidation of two prior NYSERDA programs – the Peak Load Management Program (PLMP) and the Enhanced Commercial and Industrial Performance Program (ECIPP), and provides incentives for projects with both gas and electric savings. Building upon the success of these two programs, the July 1, 2008 merger provides a less complicated, more accessible program presentation to potential customers in the marketplace. EFP targets sectors of customers that include commercial and industrial businesses, health care facilities, universities and colleges, state and local governments, schools, hospitality/hotels, data centers and communications facilities.

There are two types of EFP incentives: prequalified and performance-based:

- **Prequalified** electric incentives encourage customers working on small-sized energy projects and equipment replacement projects to purchase and install more energy efficient measures. Some of the electric measures available to qualifying customers are lighting, heating, ventilation and air conditioning (HVAC), chillers, motors, variable frequency drives, and interval meters.
- **Performance-based** incentives are for customers or Energy Service Companies (ESCOs) working on large-scale projects achieving significant gas or electric consumption reductions. The incentives are typically higher than those for prequalified projects, and the performance-based projects require an engineering analysis, and are potentially subject to measurement and verification requirements. The various types of performance-based incentives are expected to result in the following impacts:
  - Electric efficiency incentives encourage the implementation of projects that deliver verifiable annual electric savings.
  - CHP incentives contribute to the installation cost of clean, efficient, and commercially available CHP systems.

- Industrial and data center process efficiency incentives help offset the costs of projects focused on increasing productivity, and decreasing electricity consumption on a per-unit of production basis.
- Demand response provides help with a portion of the cost for technology, such as load curtailment and shifting (LC/S) and distributed generation (DG), that enable facilities to participate in the New York Independent System Operator demand response programs (which reduce electricity load in response to emergency or market-based price signals).

Energy demand reduction contributes to improvements of New York's energy system reliability and security, while helping businesses and industries to reduce operating costs. Allowing customers, ESCOs, and contractors access to multiple incentive strategies to support their energy projects will enable the New York ESCO community to continue to grow the market for energy efficiency in existing buildings, process equipment, and non-building efficiency measures. The 13-year EFP budget is $308 million. Additional funding through the recently enacted Energy Efficiency Portfolio Standard (EEPS) is also providing further support within this market sector (*i.e.*, FlexTech and Industrial and Process Efficiency Programs).

2.2 Market Assessment

The most recent full Market Characterization, Market Assessment and Causality Evaluation (MCAC) report for the elements of the Existing Facilities Program were completed 2005 for ECIPP (then called the Commercial and Industrial Performance Program, or CIPP), and 2004 for PLMP (then called the Peak Load Reduction Program, or PLRP). All data in this section, unless otherwise noted, are from Sections 3 and 4 of these MCAC reports, and describe the state of energy efficiency in New York in 2004 and 2005. A full MCAC evaluation of the Existing Facilities Program began in fall 2009.

2.2.1 Description of Baseline Condition

Savings Already Achieved[143]

Through September 30, 2009, the Existing Facilities Program had reported savings of 1,328,838 MWh/year, and 332.9 MW of on-peak demand reduction. It should be noted that with EFP being the product of merging the PLMP and ECIPP programs, continued tracking of the original individual program goals is no longer possible. Cumulative annual savings for EFP, as a single program, are a combination of the savings achieved under PLMP and ECIPP. Results from projects with signed contracts prior to July 1, 2008 will be reflected under the earlier separate programs.

2.2.2 Expected Savings and Statewide Technical Potential

As shown in Tables 2 and 3 below, by the year 2015, the Existing Facilities Program is estimated to save approximately 1.9 percent of the achievable potential electric energy savings and 2.1 percent of the achievable potential gas savings estimated within New York's (excluding Long Island) existing commercial and industrial sectors. These numbers come from Optimal Energy's assessment of technical potential savings in New York for 2009-2015 and the supplemental revision dated September 22, 2009 to the SBC Operating Plan detailing expected program savings.[144] It should also be noted that all savings targets for the EFP in this table refer to projects receiving EEPS funding. While all EFP projects are

[143] **New York Energy $mart℠** Program Evaluation and Status Report, November 2009.
[144] Optimal Energy, Achievable Electric Energy Efficiency in New York State DRAFT November 2008.

currently funded this way, some projects in 2010 and 2011 may received funding through (and have their savings attributed to) SBC III.

Table 2 - Achievable Potential Savings and Existing Facilities Program Expected Savings Totals

Achievable Potential Savings, 2009-2015		
Sector	Annual Cumulative Energy Savings	Annual Cumulative Summer Peak Demand Savings
Commercial Existing Buildings and Industrial, NYC & Upstate- Electric	13,208 GWh	2,911 MW
Industrial, NYC & Upstate – Electric	2,887 GWh	420 MW
Total - Electric	16,095 GWh	3,331 MW
Existing C& I - Gas	7,597,000 MMBtu	-
Existing Facilities Program Expected Savings, 2009-2015		
Program	Annual Cumulative Energy Savings	Percentage of Achievable Potential
Existing Facilities- Electric Savings	307.8 GWh	1.9%
Existing Facilities- Gas Savings	158,306 MMBtu	2.1%

Table 3 - Cumulative Year by Year Annual Energy Savings (GWh)

	2009	2010	2011	2012	2013	2014	2015
Electric Energy							
Achievable Potential Total Energy (In Relevant Sectors)	**1,094**	**3,010**	**5,650**	**8,172**	**10,785**	**13,391**	**16,095**
Commercial Existing Buildings (GWh)	722	2,083	4,060	6,035	8,294	10,642	13,208
Industrial (GWh)	372	927	1,590	2,137	2,491	2,749	2,887
Existing Facilities Program (GWh)	161.4	173.6	198.0	246.8	295.6	307.75	307.75
Achievable Potential Total Demand (In Relevant Sectors)	**210**	**585**	**1,108**	**1,626**	**2,184**	**2,747**	**3,331**
Commercial Existing Buildings (MW)	156	450	877	1,316	1,822	2,347	2,911
Industrial (MW)	54	135	231	310	362	400	420
Gas							
Achievable Potential Existing C/I Sector (1,000 MMBtu)	**7,109**	**8,675**	**10,386**	**9,012**	**7,641**	**7,607**	**7,597**
Existing Facilities Program (1,000 MMBtu)	0	19.8	59.4	138.5	158.3	158.3	158.3

2.2.3 Awareness

In 2005, CIPP participants were asked about their awareness of energy-efficient measures and equipment. End-use customers who were CIPP participants were found to be much more familiar with these technologies than those who were not participants. For participating end-use customers, 97% described themselves as being "extremely familiar" or "somewhat familiar" with energy-efficient measures and equipment. Non-participant end users responded with 68% indicating that their familiarity fell into these same highest awareness categories.

ESCOs participating in CIPP reported a significantly higher level of knowledge regarding energy efficiency measures and equipment when compared to the non-participant contractor group: 80% of participating ESCO respondents stated that they were extremely familiar with energy efficiency measures, equipment, and services, compared to only 11% of the non-participants. Similarly, 46% of participating ESCOs believed their familiarity with energy efficiency measures and equipment had increased significantly during the past five years, compared to only 21% of the non-participating contractors.

Participating ESCOs stated that the primary reasons for their increasing awareness of energy efficiency measures and equipment were advances/changes in technology, and NYSERDA programs.

2.2.4 Availability

Over half of the end-use customers (55%) and 41% of the ESCOs participating in the CIPP in 2005 stated that the availability of energy efficiency measures was becoming less of a market barrier over the past five years.

The availability of energy efficiency measures is also improving as ESCOs increase their marketing of energy efficiency measures, and their recommendations of these measures. ESCOs participating in the CIPP exhibited a substantial difference from the non-participant group, with 43% of participating ESCOs reporting that they were significantly increasing the frequency with which they recommend energy efficiency measures, equipment, and services, compared to only 15% of the non-participant contractor group. The participating ESCOs cited NYSERDA incentives as the most important reason for their increased recommendation of energy efficiency measures.

2.2.5 Cost and Pricing

In 2005, end-use customers and ESCOs participating in CIPP reported that pricing/incremental cost remains the most significant market barrier to the installation of energy efficiency measures. Many of the end-use customers (34%) and ESCOs (33%) even stated that cost was increasing as a barrier, citing tighter financial situations in their organizations.

The pricing barrier is somewhat mitigated, however, when end-use customers factor energy cost savings into their analyses (*i.e.*, the incremental costs are offset somewhat by annual cost savings realized by installing energy-efficient measures and equipment). Both participating (100%) and non-participating (79%) end-use customers reported that they take energy cost savings into account when considering purchasing energy-efficient equipment.

Operations and maintenance (O&M) savings from energy efficiency measures and equipment represent another potential offset to the higher incremental costs associated with energy-efficient measures and equipment. Three quarters of participating ESCOs believed that all of their projects achieved O&M benefits in addition to the energy efficiency and financial benefits realized at the project sites. Only 10% of participating ESCO respondents felt that none of their projects achieved O&M savings.

2.2.6 Market Share

Increasing numbers and sizes of ESCOs in the market are an indicator, or proxy, for increasing sales of energy efficiency measures to end-use customers. The MCAC Team, through discussions with ESCOs in New York, probed for perceived changes in the size and activity in the State's ESCO market.

Although 37% of ESCOs in 2005 that had participated in CIPP believed that the number of ESCOs active in New York had increased significantly or somewhat during the past five years, 24% stated that the number had decreased somewhat. Another 22% of the participant ESCO group was unable to answer the question. The non-participant contractor group was similarly split, with 33% stating that the number of ESCOs active in New York had increased, 32% stating the number had stayed the same, and 28% unable to answer the question.

Both participating (46%) and non-participating (43%) ESCOs believed that ESCO activity in New York had increased during the past five years. However, a substantial number of respondents were unable to answer the question (22% of participants and 28% of non-participants).

2.3 Relevant NYSERDA, NY Utility and ISO-Sponsored Programs

In addition to NYSERDA's Existing Facilities Program there are a number of other potentially relevant and complementary programs being implemented or planning to be implemented in New York. NYSERDA places a premium on objective analysis, as well as collaboration, reaching out to solicit multiple perspectives and share information. In order to successfully achieve the energy efficiency goals of New York State, NYSERDA believes there must be a joint effort between NYSERDA and all other program administrators.

These other program administrators and their programs have been included as External Influences in Section 4.5 of this report and are identified in the program logic diagram as factors with the potential to impact achievement of NYSERDA's Existing Facilities Program goals. Some of the other programs include:

NYSERDA Programs

- Industrial and Process Efficiency Program
- FlexTech
- Business Partners
- **Energy $mart™** Focus
- CHP Program

EEPS Funding at NYSERDA[145]

All EFP projects are currently funded through the State's Energy Efficiency Portfolio Standard (EEPS). In its June 23, 2008 Order, the New York State Public Service Commission established EEPS and approved a subset of "Fast Track" programs to commence immediately. The Order also directed NYSERDA to submit a supplemental revision to its System Benefits Charge (SBC) Operating Plan incorporating the fast track programs, including enhancements to the fast track programs. Generally, these are programs that NYSERDA identified during the EEPS proceeding as existing programs that could quickly accommodate an increase in funding through existing program infrastructures to expedite energy efficiency savings without incurring significant additional fixed program costs. A total of approximately $229 million has been allocated for EEPS program funds, with an additional $37 million available for evaluation and administration. NYSERDA projections estimate that EEPS Fast Track programs will result in nearly 2.5 million MWhs of electricity savings between 2009 and 2015. Two of these programs, the Industrial and Process Efficiency Program and FlexTech, may channel projects directly to EFP for implementation and funding.

New York Energy $mart℠ Program Evaluation and Status Report, November 2009.

[145] Optimal Energy, Achievable Electric Energy Efficiency in New York State DRAFT November 2008.

[145] System Benefits Charge

Central Hudson Gas and Electric – *Small Business Energy Efficiency Program*[146]
The Business Energy Savings Central program is for nonresidential customers of Central Hudson with electric demand of less than 100 kilowatts average per month. This includes businesses, local governments, not-for-profits, private institutions, public and private schools, colleges and health care facilities. The program offers a free energy audit by one of Central Hudson's participating Trade Allies or a representative of Central Hudson, which provides a report detailing where efficiency measures can produce the most savings, the cost of installing each measure, the expected payback period for each installation, and rebates up to 70 percent of the equipment cost of a qualified efficiency upgrade. After installation, a Central Hudson representative will inspect the project based on the quality assurance plan at completion to verify that the upgrade matches the performance specified in the auditor's proposal.

Central Hudson – *Mid-size Commercial Business Program*[147]
This program would address energy efficiency for the nonresidential customer segment with electric loads of 100 kW to 350 kW. It would provide services including: energy audits, implementation assistance, and prescriptive and custom measures and incentives for implementing energy efficiency improvements at facilities within this electric demand range, such as hotels, motels, restaurants, grocery stores, and colleges. The proposed prescriptive measures and corresponding incentives are comparable to those offered by the Small Commercial Business Direct Installation electric energy efficiency program that Central Hudson currently operates for commercial customers with loads of up to 100 kW. Prescriptive rebates would include: (a) lighting; (b) heating, ventilation, and air conditioning (HVAC) equipment, including ground source heat pumps and heat pump water heaters; and (c) motors and variable speed drives for single speed motors. Eligible custom measures would receive a one-time incentive payment of $0.14 per kWh saved annually.

National Grid – *Small/Mid-Sized Business Energy Efficiency Program (Upstate New York)*[148]
National Grid's Small/Mid-Sized Business Program is for business customers in upstate New York with an average demand of 200 kilowatts or less (or 40,300 kilowatt-hours or less) per month. The program aids qualifying business customers in installing energy efficient equipment. National Grid provides a free energy audit and report of recommended energy efficiency improvements. If the business customer chooses to make the recommended improvements using National Grid's vendor and equipment, National Grid will pay 70% of the cost of the installation of energy efficient equipment. The remaining 30% can be paid through the customer's electric bill, at 0% interest over a maximum period of 24 months. Customers paying their 30% share in a single lump sum are provided a 15% discount. Eligible energy efficient equipment includes: lighting upgrades, energy efficient time clocks, occupancy sensors, programmable thermostats, walk-in and reach-in cooler measures, and other site-specific custom projects.

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[146] DSIRE website, New York Incentives/Policies for Energy Efficiency, Central Hudson Gas & Electric – Small Business Energy Efficiency Program, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY60F&re=0&ee=1and Central Hudson Gas & Electric website: www.savingscentral.com

[147] State of New York Public Service Commission, Order Approving Certain Commercial and Industrial Customer Energy Efficiency Programs with Modifications, October 15, 2009

[148] DSIRE website, New York Incentives/Policies for Energy Efficiency, National Grid – Small/Mid-Sized Business Energy Efficiency Program (Upstate NY), http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY51F&re=0&ee=1 and National Grid's "Cut Your Energy Costs, Strategies for Business Customers" http://thinksmartthinkgreen.com/files/uny_small_biz.pdf

National Grid (Niagara Mohawk) – *Energy Initiative Program*[10]
The Energy Initiative program would target commercial and industrial customers with a demand of less than 2 MW to promote retrofits of mechanical and electrical systems in commercial, industrial, agriculture, governmental, and institutional buildings. The program would provide technical assistance and incentives to encourage installation of energy efficiency measures and provide recommendations for ways to improve energy efficiency. The program addresses both electric and gas energy efficiency measures using both prescriptive and custom measures and incentives.

Niagara Mohawk proposes that the electric portion of the Energy Initiative program offer three services: financial incentives, technical assistance, and commissioning. Eligible customers could qualify for custom or prescriptive incentives. The proposed custom rebates would equate to either 50% of the total installed measure costs, which include labor and equipment, or the cost to buy down the equipment costs to the customer to the equivalent of a one-year payback, whichever cost is less to Niagara Mohawk. The proposed prescriptive measures include lighting systems, lighting controls, energy management systems and economizer controls, efficient motor and drive systems, air compressors, high performance ventilation, and variable frequency drives.

National Grid (Niagara Mohawk) – *Commercial High-Efficiency Heating and Water Heating Program*[13]
This program would offer prescriptive rebates to firm commercial customers and multifamily buildings that install high-efficiency heating and water heating equipment. The rebates would be designed to reduce the incremental cost between standard and high-efficiency equipment.

KeySpan Gas East Corporation (KEDNY/KEDLI) d/b/a National Grid – *Commercial Component of the Commercial and Industrial and Multi-Family Energy Efficiency Program*
This program would provide technical assistance and financial incentives to encourage customers to install gas energy efficiency measures in existing facilities. KEDNY/KEDLI would offer co-funding to customers of up to 50% of the cost of an engineering study or energy audit, up to a maximum of $10,000, to help the customer identify potential energy efficiency opportunities. Customers would be eligible for custom or prescriptive rebates.

Consolidated Edison- *Small Business Direct Installation Program*[149]
Consolidated Edison is offering free on-site energy surveys and incentives for energy efficient heating, cooling and lighting. Con Edison business customers with an average peak monthly electric demand under 100kW, qualify for a free energy survey. Con Ed will install energy efficiency measures at no cost such as compact fluorescent lamps (CFLs), low-flow aerators, high pressure rinse sprayers, and a water heater thermostat setback. Customers can also achieve even greater energy and financial savings with incentives of up to 70% when they install high efficiency lighting, ballasts and fixtures; retro commission existing heating, ventilation and cooling (HVAC) systems; install an Energy Star rated programmable thermostat for heating and cooling, and more.

Consolidated Edison- *Commercial and Industrial Equipment Rebate Program*[10]
The proposed program is designed to encourage commercial and industrial customers to purchase and install high-efficiency equipment in their facilities. It would offer customers financial incentives at a rate

[149] Con Edison Website: http://www.coned.com/energyefficiency/residential_gas_HVAC_program.asp

of up to 70% of either the measure cost or the incremental measure cost (depending on the measures installed) for installing high-efficiency heating, cooling, and ventilation equipment, or for upgrading lighting and motors.

Consolidated Edison- ***Commercial & Industrial Custom Efficiency Program***[150]
This program would provide incentives for energy efficiency measures in existing buildings and for new construction that are not offered through other programs. Incentives would be offered to participants for any measure, process, or operational improvement that provides cost-effective energy savings. C&I customers would be offered financial incentives for upgrading equipment or systems and improving processes (e.g., lean manufacturing, retro-commissioning, or monitoring-based commissioning) not covered specifically by other Con Edison C&I programs. Initially, the program would place special emphasis on data centers and health care facilities. Con Edison plans to offer a rebate to cover up to 50% of the cost of a technical survey to identify potential cost-effective measures in a facility. The total survey rebate amount would be capped at $50,000.

Consolidated Edison- ***Commercial & Industrial Custom Gas Efficiency Program***[13]
The proposed program would provide a delivery channel for natural gas efficiency measures that are not available through Con Edison's other programs. It would offer performance-based financial incentives to customers installing non-traditional or emerging technologies that result in cost-effective energy efficiency savings. Tiered incentives would be offered for an extensive list of eligible measures in the following general categories: space and water heating; heating, ventilation, and air conditioning (HVAC) controls; space conditioning; cooking; building envelope; and commercial laundries.

Consolidated Edison- ***Demand Response Programs*** –
Residential/Commercial

- Direct Load Control (Central Air Conditioning Program) – Con Edison offers a free programmable thermostat that enables the user to control the temperature in their home or business manually or via the internet. The thermostat is provided at no cost and gifts of $25 or $50 are given to residential and business customers respectively. The thermostat enables Con Edison to adjust the air conditioner temperature at critical times. An override feature is included. NYSERDA supports this program as Con Edison as the aggregator/applicant under the Demand Response component, requiring Con Edison to enroll the aggregated load into the NYISO's ICAP/SCR program.

Residential

- Residential Smart Appliances Program - For residential customers allows Con Edison to control a participating customer's electric appliances (if equipped with curtail-able technology) through the use of open communication devices. Customers will have the ability to override the company's control of their appliances when events are called. The program is aimed at reducing load by 240 kW. Customers will receive a $200 rebate for each Smart Appliance or Home Area Network and may receive additional payments of $10-$25 based on their response to tests and actual events. NYSERDA anticipates supporting this pilot program much like the Direct Load Control program.

[150] State of New York Public Service Commission, Order Approving Certain Commercial and Industrial Customer Energy Efficiency Programs with Modifications, November 12, 2009

» Critical Peak Rebate Program - A 3.8 megawatt pilot program for all customer classes. Participants who reduce their usage by at least 1 kW and up to 24 kW will receive a monthly payment of $1/kW-hr for reductions made during events. Participants who reduce 25 kW or more will receive an end of year payment of $1.50/kW-hr for reductions during events. NYSERDA does not support this program as it is not offsetting infrastructure costs, is not enabled curtailment and is not homogenous (like thermostats).

Commercial/Industrial

» Distribution Load Relief Program – Con Edison offers incentives for temporary load reduction of at least 50kW. There voluntary option offers energy payments and the mandatory option offers energy and capacity payments. NYSERDA supports the voluntary option with meters only and supports the mandatory option with meters or offsetting the costs of enabling infrastructure.
» Commercial System Relief Program – Con Edison offers incentives for temporary load reduction of at least 50kW, facilities must be located in New York City. Incentives include payment for energy and capacity plus distribution adders depending on how many curtailment calls are made.
» NYSERDA supports this program offsetting the costs for meters or enabling infrastructure.
» Critical Peak Rebate Program – As described above, but for commercial customers. NYSERDA supports this program with meter incentives predicated on they enable at least 40 kw.

New York State Electric and Gas and Rochester Gas & Electric – ***Non- Residential Commercial and Industrial Prescriptive Rebate Program***[10]

NYSEG/RG&E propose a prescriptive rebate program for their nonresidential electric and gas customers. The program is designed to serve commercial, industrial, institutional, and municipal customers with an electric load of less than 2 MW, although customers with demand of 2 MW or greater would also be eligible to participate. Electric rebates would be available for: air conditioning, chillers, heat pumps, lighting and lighting controls, electric motors, and variable speed drives. Rebates have been proposed on the basis of the measure type or efficiency rating. Eligible heating (gas) equipment and controls would receive rebates on the basis of type, size, and efficiency rating.

New York State Electric and Gas and Rochester Gas & Electric – ***Non- Residential Commercial and Industrial Custom Rebate Program***[13]

These proposed programs are directed toward commercial, industrial, institutional, and municipal customers with an electric load of less than 2 MW, although customers with load greater than 2 MW would also be eligible to participate. The programs are designed to encourage customers to identify and implement energy efficiency improvements in their facilities. NYSEG/RG&E propose general categories of eligible measures for rebates that may include, but are not limited to: energy management systems, building thermal envelope upgrades, energy recovery systems and economizers, variable-speed air compressors, energy efficient process improvements, geothermal heating and cooling, day-lighting systems, infrared radiant heaters, steam traps, grain dryers, and heat-recovery systems. Rebates would be paid on the basis of either 50% of the incremental difference between the cost of a standard equipment measure and the comparable energy efficient equipment option or the amount necessary to reach a two-year equipment payback period in energy consumption savings, whichever is less.

New York State Electric and Gas and Rochester Gas & Electric – B*usiness Energy Efficiency Assistance*[151]
NYSEG and RG&E partner with NYSERDA on several programs to encourage energy efficiency. Under these NYSERDA programs, the applicant will be required to make a financial contribution of at least 33.3% to the total investment made. Through NYSERDA's Energy Audit Program, NYSEG and RG&E will provide up to 50% matching funds, ($10,000 maximum) toward the total investment made as a result of an energy audit. Through either NYSERDA's Flexible Technical Assistance Program (Flex Tech) or New Construction Program, NYSEG and RG&E will pay up to 33.3% of the cost of a feasibility study or analysis, not to exceed $20,000 per study/analysis. If the applicant decides to make investments as a result of a study or analysis, RG&E will provide up to $50,000 toward the total investment made.

Orange & Rockland – *Commercial Existing Buildings Program*[10]
This program would target existing commercial and industrial customers with a peak demand of over 100 kW for retrofit projects and incentives to avoid lost opportunities for installing cost-efficient measures at the time of equipment replacement or facility expansion. The program offers incentives for both prescriptive and custom energy efficiency measures that include, but are not limited to: interior and exterior lighting, HVAC equipment, refrigeration, retro-commissioning, high-efficiency customer-site transformers, water heating measures, and high efficiency kitchen equipment. Incentives for custom measures include all cost-effective measures not offered prescriptively.

NYISO
It is possible participants in the Existing Facilities Program are eligible to participate in several demand response programs offered by the NYISO. Awareness of and coordination with these programs potentially has many benefits for both end-users and the state. The NYISO has two Demand Response programs: the Emergency Demand Response Program (EDRP) and ICAP Special Case Resources (SCR) program. Both programs can be deployed in energy shortage situations to maintain the reliability of the bulk power grid.[152]

- The Emergency Demand Response Program is designed to reduce power usage through the *voluntary* shutting down electrical end uses (or turning on on-site electric energy generators) within businesses and large power users. Companies, mostly industrial and commercial, sign up to take part in the EDRP. The companies are paid by the NYISO for reducing energy consumption when asked to do so by the NYISO.
- Special Case Resources is a program designed to reduce power usage through the *mandatory* interruption of large electrical end uses within participating businesses and large power users' facilities. Companies, mostly industrial and commercial, sign up to become SCRs. The companies must, as part of their agreement, curtail power usage, usually by shutting down critical end uses when asked by the NYISO. In exchange, they are paid in advance for agreeing to cut power usage upon request.
- Demand Side Ancillary Services Program (DSASP) – Program allows demand side resources to participate in the NYISO's Ancillary Services Markets for Regulation Service and Operation Reserves. For DSASP Reserve resources, there is a minimum 1 MW reduction, sustained for 1 hour, on a five-minute periodicity. For Regulation, the resource must be capable of a 1 MW

[151] NYSEG and RG&E websites: http://www.lookupstateny.com/assistance_rge2.htm
[152] NYISO website, http://www.nyiso.com/public/products/demand_response/index.jsp

reduction capable of Regulation response, supplying regulation service continually in both up and down directions for intervals in the scheduled hour, on a six-second periodicity.

» The NYISO's Day-Ahead Demand Response Program (DADRP) also allows energy users to bid their load reductions, or "negawatts", into the Day-Ahead energy market as generators do. Offers determined to be economic are paid at the market clearing price. DADRP allows flexible loads to effectively increase the amount of supply in the market and moderate prices.

3. Key Elements Summary

Based on a review of relevant NYSERDA documents, below is a summary of some key elements of the Existing Facilities Program.

3.1 Ultimate Goals:

The Existing Facilities Program is part of NYSERDA's Commercial/Industrial (C/I) sector program portfolio. The C/I sector portfolio is designed to address all SBC III & EEPS goals by promoting competitive markets for energy efficiency services and engendering widespread adoption of high-efficiency technologies. The market infrastructure and demand side goals for the broader C/I portfolio are listed in Table 4.[153]

Table 4 – Goals for NYSERDA's C/I Programs

Market Infrastructure/Policy	Demand Side
Expanded delivery channels for energy efficiency and demand response services	Projects demonstrate persistent energy savings and provide other benefits to end-users
Larger, robust and sustainable market for energy efficiency services and products	Customers have reliable information on which to base energy-related decisions
Increased capacity of energy services companies to deliver quality projects that produce reliable benefits	Customers have confidence in energy savings estimates and value the energy efficiency and green building features of their projects
Increased number of firms with experience and confidence in delivering energy efficiency and peak load reduction measures	Access to energy efficiency services is improved for all types of customers including underserved customers

The Existing Facilities Program contributes directly to the achievement of these goals by encouraging ESCOs to expand their services and improve the credibility of ESCOs and other contractors servicing energy-using equipment through technical review and verification. Experience with EFP and the review and verification activities associated with many EFP projects should improve the number and the capacity of energy services firms to deliver quality projects that produce reliable results.

EFP contributes to demand side goals by providing incentives to commercial, industrial and institutional customers for projects that actually save energy and by providing technical review and verification activities that reduce risk to the end-user. Better services and measures offered by increasing numbers of well-qualified firms should result in improved access to energy efficiency services for all types of customers.

[153] GDS Associates. **New York Energy $mart**[SM] Business and Institutional Programs Sector-Level Logic Model Report. May 11, 2006.

The program's success will be measured through assessing the amount of leveraged funds, the number of customer projects, and in the energy and demand savings achieved. Additionally, EFP works to encourage applications from eligible customers and supports the installation of equipment and technology that allows end users to permanently reduce their demand at system coincident peak or to participate in NYISO Demand Response programs. These programs can involve registering callable load or participating in dynamic pricing programs. The activities supported by EFP are designed to reduce coincident peak demand, improve energy efficiency for commercial, industrial and institutional customers, reduce operating expenses for customers, and provide a cleaner, healthier environment for all New York.

EFP outreach and incentives are intended to build market infrastructure and increase investment in demand response or peak demand reduction projects. EFP provides the technical and financial support that reduce the risk to end-users and offset the higher first cost associated with participation in demand response programs and installation of new technologies or equipment.

3.2 Market Barriers/Issues the Program Attempts to Address ("the Problem"):

The program operates within the larger NYSERDA **New York Energy $mart℠** portfolio designed to create market opportunities and maximize benefit for participants and society. To encourage participation, the Existing Facilities Program works to overcome a variety of market barriers including:

- Higher first cost associated with energy efficient options/undervaluing energy efficiency;
- Higher cost of doing business in the Con Edison utility territory
- Information costs and lack of information about available technologies and expected savings;
- Uncertainty of savings, reliability, or performance;
- Lack of experience with performance contracting;
- Performance uncertainties on the part of both the consumer and the contractor; and
- Perceptions of risk due to uncertainty, lack of information or experience.

Barriers associated with the commercial, industrial and institutional sectors can be broken down into three general categories: barriers affecting the supply side, mid-market/infrastructure barriers, and barriers affecting the demand side market actors. Supply-side and mid-market/infrastructure barriers include business practices and policies that deter the development or delivery of energy-efficient products and services, or indicate an insufficient availability of or commitment to such energy efficient products/services. Demand side barriers in the commercial and industrial sector primarily revolve around competing needs for capital, performance uncertainties, and information or search costs. Table 5 lists specific barriers related to market actors (not ordered by priority) for the commercial, industrial, and institutional sector. An asterisk (*) is used to identify those barriers directly addressed by EFP.

Table 5 - Commercial, Industrial and Institutional Sector Market Barriers and Actors

Market Area	Barriers (Priority for Evaluation)	Market Actors
Supply side	S1* – Limited availability of energy efficiency equipment (low) S2* – Lack of demand for energy efficiency equipment (med-high)	Manufacturers and suppliers of energy using equipment
Market Infrastructure / policy	M1* – Information or search costs. Specifically, the lack of expertise among equipment salesmen and installers who are unable to provide the analysis required by commercial and industrial customers in choosing a higher efficiency option (low-med) M2* – Performance uncertainty. Limited experience with energy-efficient equipment, load management equipment, and energy monitoring equipment (med) M3* - Uncertainty about product performance and profit potential for providing energy efficiency services (med) M4 – Service unavailability. Limited availability of sub-consultants with training and experience necessary for efficient equipment/building techniques and optimum energy performance of efficient equipment/building techniques (med) M5* - Undervaluing energy efficiency and sustainability (med-high) M6 - Consultants unwilling to learn and conduct services outside of their specific trade (low) M7* - Lack of knowledge of real-time pricing and other load management options (med) M8* – Increased need for coordination with utilities and other program administrators (med-high, but unsure because it's just starting)	Engineers and others capable of providing accurate information in an energy audit Builders, Consultants, retailers, salesmen, and installation consultants Sub-consultants and building trades
Demand side	D1* - Lack of awareness, knowledge and understanding of energy efficiency, \ and load management features, products and services (med-high) D2* - Information costs associated with understanding the energy related features and associated benefits (med) D3* - Competing needs for capital (higher first or incremental cost) (high) D4* - Lack of reliable information on energy-efficient choices and how they may apply to a given building or business (high) D5* - Resistance to new or innovative technologies (med- high, but depends on technology) D6* - Performance uncertainties (uncertainty of savings) (med-high) D7* - Lack of knowledge of real-time pricing and other load	Commercial and industrial business owners and managers Purchasers General consultants hired to oversee renovations or remodels that include energy efficient equipment

Market Area	Barriers (Priority for Evaluation)	Market Actors
	management options (high) D8* – Confusion caused by overlapping NYISO, NYSERDA, and utility programs (high – just a projection) D9 – Many downstate tenants are not sub-metered and do not have their energy consumption effectively communicated on a monthly basis. (med – high) D10 – Similarly, many downstate tenants are on lease structures which may put them at odds with the property owner should they pursue energy efficiency. (med) D11* – Cost of doing business is higher in the downstate ConEdison utility territory. (high, but higher incentives try to help with this)	

*indicates barriers that the Existing Facilities Program seeks to directly address

3.3 Targeted Market Actors:

The Existing Facilities Program targets ESCOs, building owners and lease holders in the existing commercial, industrial and institutional sectors, small businesses, including government facilities, multifamily buildings, and dairy farms. The Existing Facilities Program provides higher incentives in the Con Edison utility territory to offset the higher cost of doing business in the NYC metro area.

3.4 Existing Facilities Program Implementation Approach ("Activities"):

NYSERDA's Existing Facilities Program provides a number of activities that produce outputs that lead to short- and longer-term outcomes supporting the goals of the **New York Energy $mart**SM Program. [154]

These activities can be aggregated into four main areas:

1) Outreach activities;
2) Technical services;
3) Providing financial incentives and assistance; and
4) Quality assurance activities.

All of the EFP activities work to encourage applications from eligible customers and support the installation of quality energy efficiency projects that reduce summer peak demand and improve energy efficiency for commercial, industrial and institutional customers in New York. These investments should reduce operating expenses for customers and provide a cleaner, healthier environment for all New York. EFP activities are directed at both market infrastructure and the demand side by providing incentives that encourage ESCOs and other market actors to promote energy-efficient solutions to customers and by providing the technical review and financial support that reduce the risk to end-users and offset the higher first cost associated with new, energy-efficient equipment.

[154] Energy Efficiency Portfolio Standard, Compact Fluorescent Lighting Expansion Program Marketing Plan, NYSERDA, April 20, 2009, pg. 6.

Table 6 – Existing Facilities Program Activities

Outreach Activities
Promotional efforts (including presentations, email communication, press releases, website information, case studies, and notices in industry newsletters) inform ESCOs and end-users of the program opportunity and incentives available
Release of PONs (providing guidelines and application materials and informing the market of the incentives available)
Projects identified by end-users and ESCOs
Development and distribution of marketing and educational brochures for posting on NYSERDA and NYISO websites
Demand response workshops, websites, and other tools inform contractors and potential participants of the details of the
program and demand response and dynamic pricing opportunities
Presentations to trade groups and other marketing efforts, advertisements in trade journals, Heat Index Alerts and case studies
Technical Services
Deemed savings determined
Criteria for performance-based technical study determined
Technical consultants contracted with NYSERDA
Criteria for M&V requirements determined
Annual measure review and analysis done to bring measures and incentive levels in line with the market
Financial Support
Incentives for performance-based projects through Standard Performance Contract (outlining expected incentives)
Prescriptive incentives for other qualified measures
Quality Assurance
Review of DEA
Field verification of installed performance-based projects and review of M&V reports
Post inspection of installed projects

3.5 Program Inputs and Potential External Influences

The ability of NYSERDA's Existing Facilities to accomplish the outputs and outcomes likely to result in the program reaching its ultimate goals is dependent on the level and quality/effectiveness of inputs that go into these efforts. There are also external influences that can help or hinder the development of anticipated outcomes. Key Existing Facilities Program inputs and potential external influences are presented in Tables 7 and 8.

Specific outputs and outcomes anticipated for the Existing Facilities Program activities are shown in the logic diagram in Section 4 below. More information on these outputs, outcomes and associated measurement indicators can be found in Tables 9 and 10 immediately following the diagram (Section 5).

Table 7 – Existing Facilities Program Inputs

EEPS funding (Thousands of Dollars):

	2010	2011	2012	2013	2014	Total
Electricity	$2,910	$3,850	$8,160	$8,160	$3,300	$26,380
Gas	$769	$1,025	$2,050	$256	$0	$4,102
Total	$3,679	$4,875	$10,211	$8,416	$3,300	$30,482

- » Approximately $1.52 will be spent on marketing and outreach efforts between 2009 and 2014.
- » As the original ECIPP and PLMP each had SBC funding for the period 2006-2011, some projects may receive SBC funding as well in 2010 and 2011.

NYSERDA's program staff and related project-specific contract staff and their related C/I expertise

- » NYSERDA's credibility and relationship with key stakeholders, policy makers and key market actors
- » Staff experience implementing the **New York Energy $mart℠** program
- » NYSERDA's program staff and related project-specific contract staff and their related C/I experience

Coordination with other NYSERDA programs

- » Relationship between this program and other NYSERDA programs (cross promotion/coordination)

Existing awareness of NYSERDA among market actors

- » See Section 2.2.3 for specific awareness levels

Expertise of trade allies and contractors

Table 8 – Existing Facilities Program Potential External Influences

External Influences and Other Factors
Changes in political priorities
» Federal energy policies including energy related tax credits and the Federal Energy Policy Act of 2005, ARRA
» Perceptions of energy and global climate change issues
» Codes and standards
Weather and associated impacts on customer actions and energy bills
Broad economic conditions that affect capital investment and energy costs (rapidly changing economic conditions)
» Energy prices and regulation (changes in fuel and energy prices)
» Perceptions of the value of "green" buildings and LEED
» Activities of public and institutional purchasers and projects
Competition – internal and external
» Internal- End-use customer competing priorities
» External- Broader market and demand for provision and supply of EE services
Activities of non-NYSERDA energy efficiency and renewable energy programs

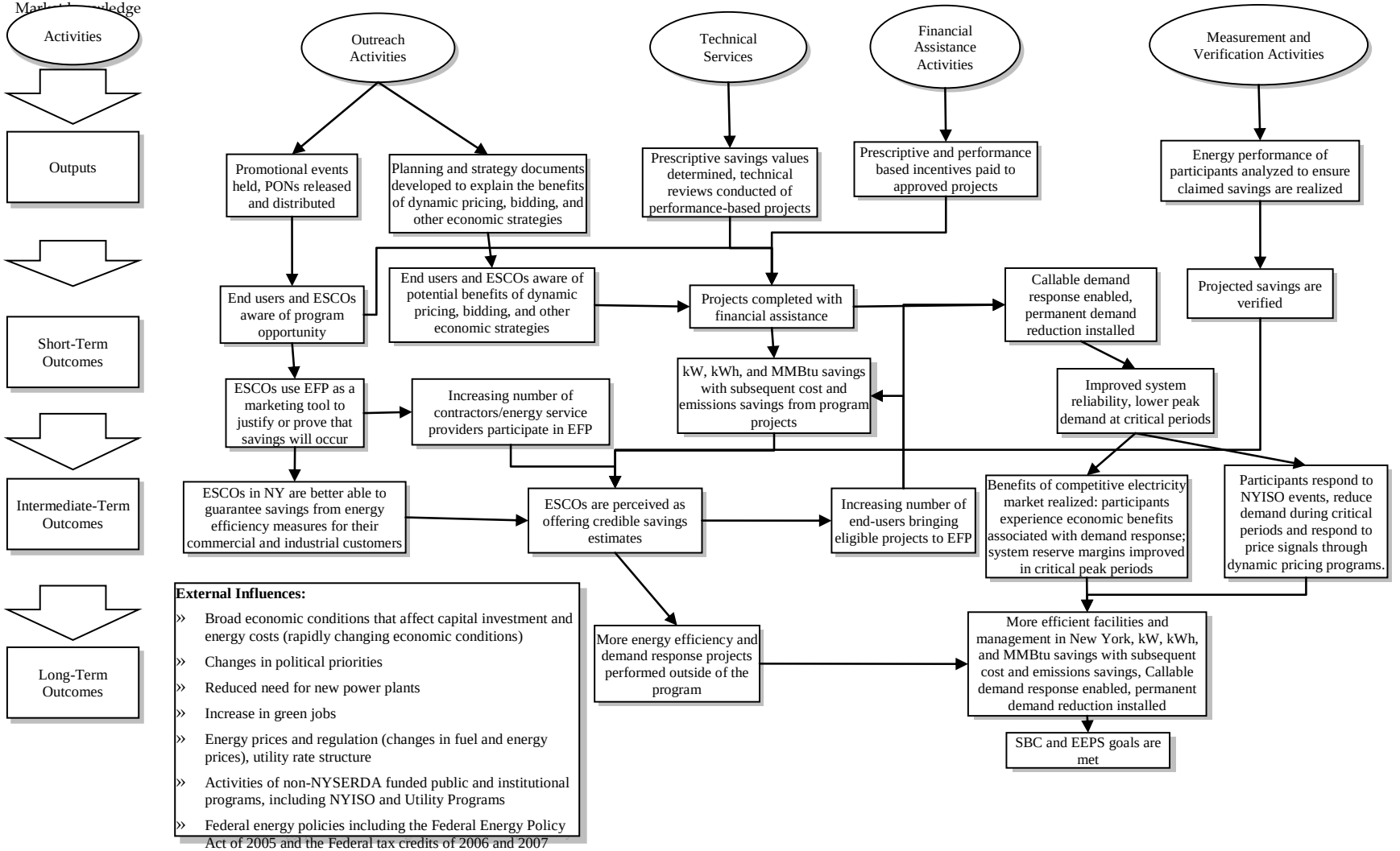
4. Program Logic Model Diagram

The following page contains NYSERDA's Existing Facilities Program logic model diagram showing the linkages between activities, outputs and outcomes, and identifying inputs and potential external influences. The diagram presents the key features of the program. The logic diagram presented here is at a slightly higher level than the tables in this report, aggregating some of the outcomes, in order to provide a logic model that is easier to read. (Evaluation research should use the more detailed tables, in addition to the diagram, when examining the anticipated linkages and performance through the various outcomes.)

Inputs:

- SBC & EEPS funding
- NYSERDA's program staff and related project-specific contract staff and their related C/I expertise
- Relationship between this program and other NYSERDA programs (cross promotion/coordination)
- Trade ally and contractor expertise
- Staff experience implementing the **New York Energy $mart℠** program
- NYSERDA's credibility and relationship with key stakeholders, policy makers and key market actors
- Market knowledge

Existing Facilities Program



5. Outputs, Outcomes and Associated Measurement Indicators

It is important to distinguish between outputs and outcomes. For the purposes of this logic document, outputs are defined as the immediate results from specific program activities. These results are typically easily identified and can be counted; often by reviewing program records.

Outcomes are distinguished from outputs by their less direct (and often harder to quantify) results from specific program activities. Outcomes represent anticipated impacts associated with NYSERDA's program activities and will vary depending on the time period being assessed. On a continuum, program activities will lead to immediate outputs that, if successful, will collectively work toward achievement of anticipated short, intermediate and long-term program outcomes.

The following tables list outputs (Table 9) and outcomes (Table 10), taken directly from the logic model and associated measurement indicators. For each indicator, a proposed data source or collection approach is presented. When required, the need for baseline data is also noted. Items in this table should be prioritized and subsequently considered as potential areas for investigation as part of a formal program evaluation plan.

Table 9 – Existing Facilities Outputs, Associated Indicators and Potential Data Sources

Outputs (<1 year)	Indicators	Data Sources and Potential Collection Approaches
Outputs from Outreach Activities		
Promotional and press events held	Numbers of presentations, meetings, press releases by geographic region	Program records
PON release and distribution kick-off	Number of times PON downloaded or requested	Website tracking
Planning and strategy documents developed to explain the benefits of dynamic pricing, bidding, and other economic strategies	Number of planning documents, strategy documents, and guidelines designed to explain and encourage participation in economic approaches to demand response	Program materials NYISO materials
Outputs from Technical Services		
Prescriptive savings values determined, technical reviews conducted of performance-based projects	PON requirements used to identify projects Number of prescriptive and performance-based applications received	Interviews with applicants and potential applicants Program records
Outputs from Financial Assistance Activities		
Prescriptive and performance-based incentives paid to approved projects	Value of incentives provide, by geography and size of project Number of SPCs executed	Program database/records
Outputs from Measurement and Verification Activities		
Energy performance of participants analyzed to ensure claimed savings are realized	Number of post inspections conducted Percent of projects that meet post inspection expectations	Program records

Table 10 – Existing Facilities Outcomes, Associated Indicators and Potential Data Sources

Outcomes	Indicators	Data Sources and Potential Collection Approaches
Short-Term (1-3 years) Outcomes		
End users and ESCOs aware of program opportunity	Proportion of end users and ESCOs aware of ESP by geographic region or service territory	Survey of marketing
End users and ESCOs aware of potential benefits of dynamic pricing, bidding, and other economic strategies	Targeted end users know the meaning of demand response, what is required to achieve it, and what types of opportunities are available for their participation	Surveys of targeted end-users and ESCOs
Projects completed with financial assistance	Number of projects completed by size, cost, projected savings, type of measures installed and geography Amount of funds leveraged from ESCOs and end-users to complete projects	Program records/database
Callable demand response enabled, permanent demand reduction installed	Number of projects and total available demand reduction created through the project	Program records/database NYISO records
Projected savings are verified	Proportion of projects meeting or exceeding projected energy and demand savings Proportion of projects meeting or exceeding projected energy and demand savings in downstate (ConEdison) territory vs. Upsate	M&V records
ESCOs use EFP as a marketing tool	Proportion and number of ESCOs including EFP in marketing materials Proportion and number of ESCOs reporting EFP as valuable to customers Proportion and number of ESCOs using EFP savings to sell projects Proportion of end-users reporting confidence in EFP savings estimates	Review of marketing materials Surveys with ESCOs Interviews with end-users Market study
Increasing number of contractors/energy service providers participate in EFP	Number of unique ESCOs in EFP and the geographic area and business type of customers they	Surveys with ESCOs Program records

Outcomes	Indicators	Data Sources and Potential Collection Approaches
	serve/market Proportion of contractors acting as ESCOs	Market study
kW and kWh savings with subsequent cost and emissions savings from program projects	Quantity of kW, kWh and MMBtu saved, resulting in reduced emissions associated with generation (lbs CO2 and other emissions reductions)	Evaluation, M&V activities
Improved system reliability, lower peak demand at critical periods	Improved system peak reliability and demand Peak demand at critical periods compared with baseline	Impact evaluation of NYISO
Intermediate-Term (3-5 years) Outcomes		
ESCOs in NY are better able to guarantee savings from energy efficiency measures for their commercial and industrial customers	Proportion of ESCOs able to guarantee and meet savings for customers	Interviews with end-users and ESCOs
ESCOs are perceived as offering credible savings estimates	End-users have confidence in ESCOs ESCOs market share	Market studies of end-users and contractors
Increasing number of end-users bringing eligible projects to EFP	Number of applications received	Program records/database
Benefits of competitive electricity market realized	Demand response aggregators exist ESCOs offer peak load reduction products and services	Survey of market actors (ESCOs and aggregators) offering demand response and peak load reduction services
Participants experience economic benefits associated with demand response;	EFP participants continue to participate in NYISO programs EFP participants increase their participation in demand response programs EFP participants report benefits from participation in demand response programs	Survey of program participants
system reserve margins improved in critical peak periods	System peak reliability and demand	Impact evaluation of NYISO
Participants respond to NYISO events, reduce demand during critical periods and respond to price signals through dynamic pricing programs.	EFP participants reduce peak KW in different ISO programs	Impact evaluation of EFP DR incentives

Outcomes	Indicators	Data Sources and Potential Collection Approaches
Long-Term Outcomes (5+ years)		
More energy efficiency and demand response projects performed outside of the program	Number and size of demand response projects performed outside of the program, by size and geography Program spillover (as calculated by Impact Evaluation team)	Market surveys, NYISO records
More efficient facilities and management in New York	Percentage of buildings with capability to respond to demand response calls increases Percentage of buildings with low Energy Use Index increases Proportion of C/I building stock that is energy efficient	Study of current practice in demand response and building energy use for NY State buildings
kW, kWh, MMBtu savings with subsequent cost and emissions savings	Results of energy and demand savings from all projects (program and non-program (quantity of kW, kWh and MMBtu saved), resulting in reduced emissions associated with generation (lbs CO2 and other emissions reductions)	Evaluation, M&V activities Market surveys
Callable demand response enabled and permanent demand reduction installed	Total available demand reduction created through the project	Program records/database NYISO records
Program contributes to achievement of overall EEPS and SBC Commercial/Industrial portfolio goals		

6. Testable Hypotheses (Researchable Issues) for Evaluation Effort

Based on this program logic model assessment for NYSERDA's Existing Facilities Program, a number of researchable issues have been identified and are noted below. Some of these have been investigated and continue to be investigated through NYSERDA evaluation activities.

Research addressing these questions will help to validate the reasonableness of the associated theories and will help inform NYSERDA program staff of progress and potential areas for program enhancement and refinement.

Based on recognition of key underlying program hypotheses, the following issues are proposed for potential testing. These issues are grouped into short-, intermediate-, and long-term periods to represent when they are expected to become important or verifiable.
Short Term:

» Are more energy efficiency and demand response technologies being used by EFP projects than in non-EFP projects? Does this lead to increased acceptance of technologies in the market place?

- What is the proportion of contractors who offer energy services? How many participate in EFP?
- Do end-users and contractor/ESCOs perceive EFP as a simple program for existing buildings?
- What is the most effective messaging approach to getting customers interested in demand response? Are there particular messages that work best in certain situations or with certain industries?
- Is program activity in regional parity with SBC & EEPS collections (…downstate vs. upstate)

Intermediate Term:

- Does experience with the EFP and the review and verification activities associated with prescriptive and performance-based projects improve the capacity of energy services firms to deliver quality projects that produce reliable results?
- Is EFP contributing to a better perception of ESCOs and energy efficiency in the marketplace?
- Are an increasing number of project applications coming to EFP? If so, what factors to applicants cite for their participation?
- If a potential applicant has chosen not to participate in EFP, what are the reasons why?

Long Term:

- Does the existence of and activities associated with EFP lead to changes in the ESCO market? Are increasing numbers of ESCOs active in New York?
- Is there an increased understanding or use of performance contracting? Are ESCOs expanding the number or diversity of services they offer?

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Appendix B. Staff and Focus Contractor Interview Guides

NYSERDA Existing Facilities Program (EFP)
Market Characterization and Assessment (MCA)
Staff Interview Guide – Final

Introduction

- Thank you for your time.
- High-level overview of EFP MCA effort. The primary goals of the MCA evaluation effort are to:
    - Develop a comprehensive understanding of current and emerging markets (e.g., market structure and market actors);
    - Provide baseline and background information required by NYSERDA to define and deliver programs to target markets; and
    - Track changes in markets over time with a specific focus on market indicators that are likely to be impacted by program offerings.
- The goals of the interview:
    - Better understand your approach to the market
    - Identify key issues that the MCA can explore to help inform your work

Approach to the Market

1. It appears that you started working with EFP in 2008. Is that accurate? Were you with NYSERDA prior to that timeframe? If so, what were you doing?
2. It appears that the projects that you've managed have been focused in Commercial (31) and Industrial/Manufacturing (15) and lighting (39/62). Is that accurate?

    2.1. Why is that your focus?

        2.1.1. Are you a specialist in one of those specific sectors/technologies? To what extent have you worked in that industry / on that technology?

2.1.2. Are those sectors identified as priorities within EFP (or NYSERDA) right now, or have they been in the past?

2.2. How have those sectors changed since you've been working with EFP?

3. How do you identify your projects? To what extent are projects assigned to you, or do you develop projects yourself?

3.1. What strategies do you use to identify those customers?

3.1.1. How often do you identify projects through ESCOs/contractors vs. the customer?

3.2. When are you identified as a "Project Manager" – when the project reaches a certain point in the approval process

3.3. Are you doing outreach to potential applicants? If not, are there others at NYSERDA who do that?

4. Other information

4.1. Could you list any specific organizations of which your contacts are typically members (e.g., IFMA, BOMA)?

4.2. Could you list any specific trade or professional publications that your customers in those specific sectors read/subscribe to (e.g., ASHRAE's monthly publication, *Facility Management Journal)?*

Market Information That We Should Consider Collecting

1. One of the goals of the MCA is to provide baseline and background information required by NYSERDA to define and deliver programs to target markets. If you have any suggestions on the types of information about the market that would help you do your job, I'd like to hear your ideas.

1.1. What are the key trends that you have seen in the past couple of years?

1.2. What trends have you noticed more recently?

Closing

Thank you for your time.

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NYSERDA Existing Facilities Program (EFP)
Market Characterization and Assessment (MCA)
Outreach Contractor Interview Guide – Final

Introduction

- Thank you for your time.

- High-level overview of EFP MCA effort. The primary goals of the MCA evaluation effort are to:

    - Develop a comprehensive understanding of current and emerging markets (e.g., market structure and market actors);

    - Provide baseline and background information required by NYSERDA to define and deliver programs to target markets; and

    - Track changes in markets over time with a specific focus on market indicators that are likely to be impacted by program offerings.

- The goals of the interview:

    - Better understand your approach to the market

    - Identify key issues that the MCA can explore to help inform your work

Approach to the Market

1. How long have you been under contract to NYSERDA for outreach contracting? To which programs do you direct participants?

2. What are the key opportunities and challenges for energy efficiency in the _____ market?

    2.1. Do you work primarily through contractors and ESCOs or directly with building owners/tenants?

    2.2. How do potential customers perceive NYSERDA's requirement for measurement and 1 verification?

3. How do you currently interact with NYSERDA's Existing Facilities Program?

4. How do you think you'll direct your efforts to reach this market in the next couple of years?

5. What would you like to know about this market that would enhance your ability to market the Existing Facilities Program?

6. Other information

   6.1. Could you list any specific organizations of which your contacts are typically members (e.g., IFMA, BOMA)?

   6.2. Could you list any specific trade or professional publications that your customers in those specific sectors read/subscribe to (e.g., ASHRAE's monthly publication, *Facility Management Journal)?*

Closing

Thank you for your time.

Appendix C. Detailed Survey Methodology

The MCA Team completed its primary data collection efforts for the evaluation of NYSERDA's EFP on October 31, 2011. The team executed the approved sampling methodology in close consultation with APPRISE, Inc., NYSERDA's data collection contractor. Despite the best efforts of APPRISE and the MCA Team, sampling targets for some of the end user segments proved infeasible given the nature of the market and the survey-based approach.

Based on these data collection results, and in light of recent direction from Department of Public Service (DPS) staff and consultants, the MCA Team initiated a review of its analysis plan for the primary data collected for the EFP market evaluation. This appendix reviews the results of the MCA Team's sampling efforts and outlines the revised analysis plan that NYSERDA and DPS approved on February 8, 2012.

This appendix is organized in three sections:

- Section C.1: Original Survey Populations and Sample Design
- Section C.2: End User Analysis Plan
- Section C.3: Service Provider Analysis Plan

Sections C.2 and C.3 present the MCA Team's original sampling plans, results of the survey efforts and proposed revisions to data analysis plans for the end user and service provider populations, respectively.

C.1 Original Survey Populations and Sample Design

The MCA Team included four primary target populations in its survey efforts: participating and non-participating end users and participating and non-participating energy efficiency service providers. To meet NYSERDA's stated objectives for analyzing regional variations, the Team divided each population into upstate and downstate segments. As outlined in the Final MCA Work Plan, the Team adopted a target of meeting 90/10 absolute confidence/precision for each upstate and downstate population segment. Table C-1 outlines this primary segmentation approach and provides a detailed definition of the eligible respondents in each population.

While the EFP offers both prequalified and performance-based incentives, NYSERDA chose to focus this evaluation on those end users and service providers most likely to install performance-based measures. The per-project energy savings for performance-based measures far outweigh those from prequalified measures.[155] NYSERDA staff would like to better understanding the drivers and barriers for completing performance-based projects. This focus required additional distinctions about the end users and service providers that the MCA Team considered to be either participants or non-participants for the purposes of this evaluation. The definitions in Table C-1 acted as guidelines for determining sample frame populations and sample sizes for each target population.

[155] Based on analysis of EFP program data provided by NYSERDA on April 27, 2011.

Table C-1. Primary Survey Population Segments and Definitions

Target Group	Upstate Confidence/ Precision Target	Downstate Confidence/ Precision Target	Definition
Participating End Users	90/10	90/10	Facility owners, property managers, or tenants associated with projects that received performance-based incentives and that fall into one of the four target sectors. Excludes projects that received only prequalified incentives.
Participating Service Providers	90/10	90/10	Service providers listed as an applicant for projects that received performance-based incentives, but not limited to the four target sectors. Excludes projects that received only prequalified incentives.
Non-participating End Users	90/10	90/10	Facility owners, property managers, or tenants eligible to receive EFP incentives who have not yet applied for or received an incentive for a project. Those that have received either performance-based or prequalified incentives from EFP are excluded from being non-participating customers. Further those with projects listed as Encumbered or Not Yet Encumbered will also be excluded from being non-participating customers. Individual sample frames will be provided for each of the four target sectors.
Non participating Service Providers	90/10	90/10	Service providers with SIC codes identical to those for Participating Service Providers, but not associated with an EFP incentive (performance-based or prequalified) for completed projects. Those who are associated with projects listed as Encumbered or Not Yet Encumbered will also be excluded from being non-participating service providers.

Source: Memo: EFP Market Characterization and Assessment (MCA) – Approach to Survey Sample Preparation (September 15, 2011).

SUB-SEGMENTING THE END-USER POPULATION: PRIORITY MARKET SECTORS

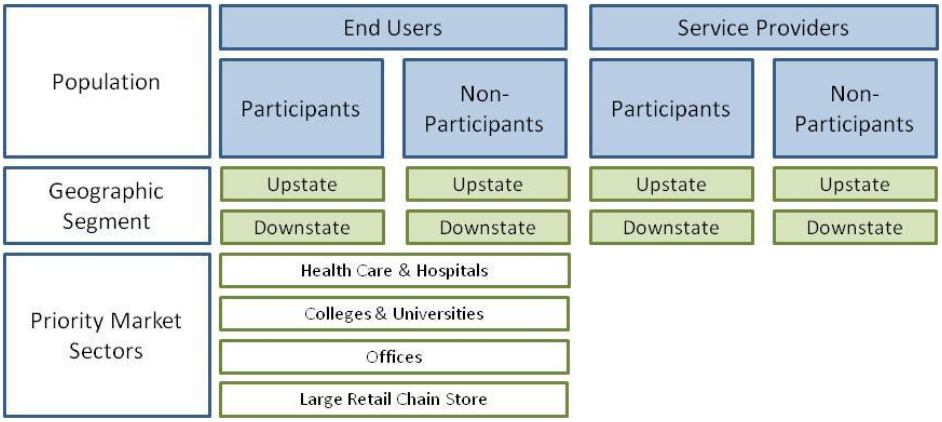
For this evaluation, the MCA Team implemented a survey approach that targets four specific market sectors identified by NYSERDA staff as high-priority segments based on their adoption of performance-based measures. The resulting analysis will provide NYESRDA with deeper insights and more actionable recommendations to improve the program's interaction with the market in regard to these types of incentives.

As described in a March 11, 2011 memo to NYSERDA,[156] the MCA Team used preliminary analysis of the EFP project database to recommend four priority market sectors on which to focus its end user data collection efforts. Following discussions with the NYSERDA evaluation team and EFP program staff, the MCA Team and NYSERDA agreed on the following priority market sectors:

- Health Care and Hospitals
- Colleges and Universities
- Offices
- Large Retail Chain Stores (e.g., Big Box Stores)

Individually, these four sectors each represent high levels of program participation for performance-based projects and program savings. Collectively, they account for 24 percent of performance-based measures and 18 percent of performance-based savings achieved in the EFP to date.[157] NYSERDA program staff recognizes that each of these sectors tends to have different decision-making structures and sets of drivers and barriers related to energy efficiency improvements. The resulting MCA findings will inform the efforts of NYSERDA program staff to replicate and expand the implementation of such performance-based projects and savings, both within these sectors and other sectors with similar decision-making characteristics. Figure C-1 provides an overview of the MCA Team's original approach to the four survey populations and subsequent geographic and market sector segments.

Figure C-1. EFP Survey Populations, Geographic Segments and Priority Market Sectors



Source: MCA Team Analysis

C.2 End User Analysis Plan

This section presents the MCA Team's original sampling plan, results of the survey efforts and proposed revisions to data analysis plans for the end user populations.

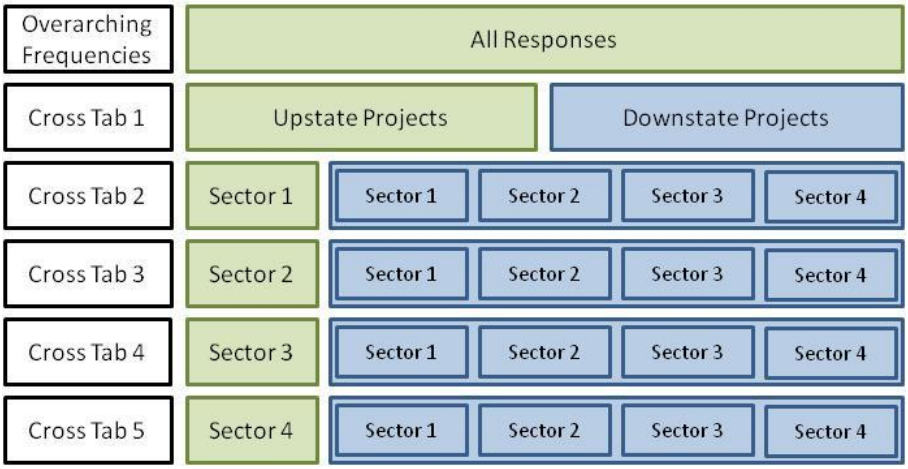
ORIGINAL SAMPLING PLAN

[156] MCA Team Memo: EFP MCA – Preliminary Findings from Database Analysis and Recommendations for Prioritizing Sectors (March 11, 2011).

[157] Based on analysis of EFP program data provided by NYSERDA on April 27, 2011.

This section describes the sampling methodology implemented by the MCA Team for each of the two end-user survey populations. The Team focused its end user evaluation efforts on the differential aspects of energy efficiency-related perceptions, behavior, and decision making among each of the four priority market sectors. In addition to analyzing response frequencies for the collective sample, the team intended to cross-tabulate responses based on both geographic location (i.e., upstate versus downstate) and priority market sector. This included four individual cross-tabs comparing responses from each sector to the collective average from all four sectors. This original approach is presented in Figure C-2, with green boxes indicating the subject segment and blue boxes indicating the comparison population for each analysis.

Figure C-2. Original End-User Survey Data Analysis Approach



Source: MCA Team Analysis

The MCA Team used the EFP tracking database to identify program participants with installed, performance-based projects in each of the four priority market sectors.[158] The Team eliminated duplicate contacts based on the name of applicants associated with each end-user facility, generating a list of unique end-user contacts for each sector. The Team also segmented the remaining contacts based on the geographic location (i.e., upstate or downstate) of the majority of the organization's participating facilities. The number of unique participant contacts identified for each target sector and geographic segment appears in Table C-2.

[158] Encumbered and Not Yet Encumbered projects were excluded, as these end users would not be able to comment on all aspects of the program.

Table C-2. Summary of Original End User Sampling Plan

Target Sector	Unique Participating End Users		Share of Participant Population		Recommended Participant Sample Size			Recommended Non Participant Sample Size		
	Upstate	Down state	Upstate	Down state	Upstate	Down state	Total	Upstate	Down state	Total
Offices	21	43	33.3%	68.3%	11	22	33	23	48	71
Health Care & Hospitals	20	11	31.7%	17.5%	11	6	17	22	12	34
Retail Chain Stores	14	5	22.2%	7.9%	7	3	10	16	6	22
Colleges and Universities	8	4	12.7%	6.3%	4	2	6	9	4	13
TOTAL	**63**	**63**	**100%**	**100%**	**33**	**33**	**66**	**70**	**70**	**140**

Note: Five unique retail store contacts had both upstate and downstate locations. The Team allocated two to the upstate segment (those with a majority of locations upstate) and the remaining three to the downstate segment. The fact that both geographic segments had 63 unique end users was coincidental.
Source: MCA Team Analysis

As shown, the total population of unique project contacts (the sampling unit) across all four target sectors was 126. As discussed in Section C.1, the MCA Team designed its original sampling strategies to meet 90/10 absolute confidence/precision criteria on an upstate-downstate regional basis, per the Final MCA Work Plan. Using the participant population totals for both upstate (n=63) and downstate (n=63) end users, the Team calculated participant sample sizes of 33 for each geographic segment.[159] The MCA Team subsequently divided survey targets proportionally among the four priority sectors based on each sector's share of the total population of installed, performance-based projects in each of the upstate and downstate segments.

For the non-participant sample, the Team distributed sampling targets proportionally across the four target sectors using the same relative shares of program participation within each geographic segment. As discussed in the Final MCA work plan, the primary data collection efforts aimed to provide a non-participant comparison group of those eligible to participate in the program. The MCA Team worked closely with APPRISE to prepare non-participant sample frames for the four end-user priority sector targets. Given the difficulty and uncertainty in determining overall population sizes for some of the non-participating target segments (e.g., regional managers of retail chain stores), the MCA Team set its initial sample size target at 140 completions based on the Final MCA Work Plan.[160]

Office Sector Sub-Segmentation

The specific party applying for EFP incentives for an office sector facility can differ depending on who owns or occupies that facility. In some cases, the applicant may be the organization occupying the office space, either as an owner-occupant or a tenant with the capability to pursue certain energy efficiency upgrades. In other cases, the property management or real estate development company that manages or owns the property may apply to the program. To mitigate potential bias, APPRISE and the MCA Team sought to represent each of these types of decision makers in its assessment of the non-participant office target sector. Table C-3 shows the approximate share of performance-based projects attributable to each category of office sector applicant in the upstate and downstate regions.

[159] The MCA Team assumed a coefficient of variation of 0.5 and applied finite population correction to the participant population. Achieving 66 completed surveys would meet 90/7 absolute confidence/precision criteria for the four sectors at the statewide level based on the total target population of 126. The fact that both geographic segments had 63 unique end users was coincidental.

[160] The MCA Team assumed a coefficient of variation of 0.5 without finite population correction for non-participant samples. Achieving 140 completed surveys would meet 90/7 absolute confidence/precision criteria for the four sectors at the statewide level.

Table C-3. Sub-Segment Sampling Approach for Non-Participating Office End Users

Office End User Type	Share of Segment Participant Population		Recommended Non participant Sample Size		
	Upstate	Downstate	Upstate	Downstate	Total
Owner-Occupied / Tenant Decides	65%	35%	15	17	32
Developer or Property Manager	35%	65%	8	31	39
TOTAL	**100%**	**100%**	**23**	**48**	**71**

Note: Approximate shares based on information in the EFP project database.
Source: MCA Team Analysis

As shown, real estate development or property management firms are more likely to be listed as the applicant for downstate office sector projects than those in upstate counties. The Team based its non-participating office sector end-user survey targets on these proportions.

Final Sample Disposition

This section summarizes the results of the MCA Team's sampling efforts and discusses the two segments for which sample targets could not be reached.

Sample Achieved by Population and Sector

Table C-4 summarizes the final disposition of completed surveys among the **participating end user population.**

Table C-4. Disposition of Participating End-User Surveys

Target Sector	Target Sample Size			Completions			Variation from Target		
	Upstate	Down state	Total	Upstate	Down state	Total	Upstate	Down state	Total
Offices	11	22	33	14	24	38	3	2	5
Health Care & Hospitals	11	6	17	12	5	17	1	(1)	0
Retail Chain Stores	7	3	10	2	3	5	(5)	0	(5)
Colleges & Universities	4	2	6	5	1	6	1	(1)	0
TOTAL	**33**	**33**	**66**	**33**	**33**	**66**	**0**	**0**	**0**

Source: MCA Team Analysis

As shown, the MCA Team achieved its overall objective of 33 completions in each of the upstate and downstate geographies, as well as its proportional sampling targets for three of the four priority market sectors at the statewide level. However, during survey administration the Team encountered difficulties in achieving its targeted completions for the upstate retail chain store segment.

Table C-5 summarizes the final disposition of completed surveys among the **non-participating end-user population.** As shown, the survey team encountered difficulties in achieving its non-participant survey completion targets in two of the priority market sectors: retail chain stores and offices where a property management or real estate development firm is responsible for energy efficiency decisions.

Table C-5. Disposition of Non-Participating End-User Surveys

Sector	Recommended Sample Size			Completions			Variation from Original Target		
	Upstate	Down state	Total	Upstate	Down state	Total	Upstate	Down state	Total
Offices: Owner-Occupied	15	17	32	19	17	36	4	0	4
Offices: Property Manager	8	31	39	5	6	11	(3)	(25)	(28)
Health Care & Hospitals	22	12	34	22	12	34	0	0	0
Colleges & Universities	9	4	13	9	7	16	0	3	3
Retail Chain Stores	16	6	22	0	0	0	(16)	(6)	(22)
TOTAL	**70**	**70**	**140**	**55**	**42**	**97**	**(15)**	**(28)**	**(43)**

Source: MCA Team Analysis

Summary of Sampling Issues

The following details the factors contributing to the unachievable sampling targets.

Large Retail Chain Stores: Low Response Rate

For both the participant and non-participant surveys, the team met considerable difficulty in gaining access to and responses from appropriate contacts in the retail chain store sector. For the participant population, most targeted contacts worked at the corporate level; however, the specific job title of contacts varied considerably. Despite their participation in the program, the survey team was only able to complete interviews with 26 percent of these respondents. Normal participant response rates exceed 50 percent.

For the non-participant population, a majority of the large retail chain stores with locations in the state have already participated in the EFP to some degree, thus disqualifying them from the non-participant population. As a result, the MCA Team was only able to produce a sample frame of 15 potential organizations for the non-participating retail chain store segment, considerably below the targeted 22 completions. Repeated attempts to contact each of these organizations consistently led to unreturned voice messages or direct refusals from corporate "gatekeepers." Ultimately, the team was unable to achieve any completions with the non-participant large retail chain store segment.[161]

[161] The Team initially decided to allow sampling of non-chain retailers in an effort to reach the overall non-participant sample target of 140 completions. However, the small size and independent nature of the responding stores does not

Offices with Property Management Decision Makers: Low Response Rate

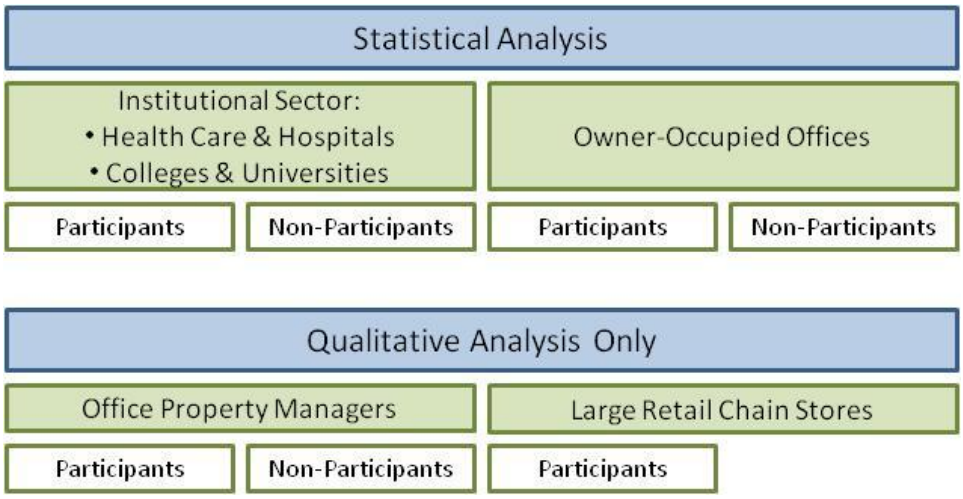
For the non-participant surveys, the team encountered low response rates from targeted contacts among property managers and real estate development firms, particularly in the downstate segment. In the upstate segment, the team screened 26 non-participant property management firms, but only five willingly completed the survey (a 19-percent response rate). In the downstate segment, the team screened 72 non-participating property managers, of which five completed the survey (an eight-percent response rate). These low response rates raise concerns about the representativeness of the property manager interviews.

Based on feedback from market actors and NYSERDA's office sector outreach contractor, most of the largest property management firms already participate in the EFP, somewhat limiting the potential non-participant sample. In addition, while other studies have experienced higher response rates for the downstate property management sector, they did so using an in-depth interview approach rather than a survey house and CATI instrument.

REVISED ANALYSIS PLAN

As a result of these difficulties in meeting the end user sampling targets, the MCA Team (in consultation with APPRISE) recommended and adopted a revised analysis plan for the end user populations. These revisions take into account recent directions from NYSERDA and DPS, including a decreased focus on regional segmentation (i.e., upstate/downstate) unless specific reasons exist for this split for a particular population. Figure C-3 illustrates the revised end user data analysis plan.

Figure C-3. Revised End-User Survey Data Analysis Approach



Source: MCA Team Analysis

provide a reasonable comparison population for the retail chain store participant segment. Therefore, the MCA Team excluded those responses from the final sample.

This amended plan aims to make the best use of the final samples achieved for each priority market sector. In principle, it does the following:

- » Eliminates direct statistical comparisons between the four priority market sectors
- » Focuses statistical analysis on those sectors with adequate survey sample sizes
- » Uses qualitative analysis of results for those sectors with smaller sample sizes
- » Lessens the emphasis on geographic segmentation (upstate versus downstate)

The remainder of this section details the approach as it relates to each of the original priority market sectors.

Institutional Market: Health Care and Colleges & Universities

The MCA Team combined survey responses from the Health Care & Hospital and College & University sectors to create an Institutional Market segment for evaluation. Several characteristics of these two sectors lend themselves to a combined assessment, including organizational structure, oversight of multiple facilities and reliance on dedicated, in-house facilities and energy management personnel. Given the relative success in achieving sample targets for these two sectors, combining them into a single, statewide segment provides a high level of precision for evaluation efforts. Table C-6 provides sample statistics for the combined Institutional Market segment based on the final sample.

Table C-6. Sample Statistics for Institutional Market Segment

Segment	Estimated Population	Completed Interviews	Strata Relative Precision @ CI	Weight[3]	Relative Precision @ CI
Participants					
Health Care & Hospitals	31	17	14.4%		
Colleges and Universities	12	6	29.3%		
Participant Total[1]	**43**	**23**			**12.5%**
Non-Participants					
Health Care & Hospitals	98	34	14.1%	0.96	
Colleges and Universities	214	16	21.8%	1.08	
Non-participant Total[2]	**312**	**50**			**15.2%**

Notes:
1) For participants, the MCA Team assumed a 0.5 coefficient of variation and applied finite population correction. The participant samples are considered to be self-weighting based on relative levels of participation.
2) For non-participants, the MCA Team assumed a coefficient of variation of 0.5 without finite population correction.
Source: MCA Team Analysis

Sample Weighting

For the Institutional Market segment, the MCA Team adopted separate weighting strategies for the participant and non-participant populations. The participant sample represents a self-weighted sample, as the MCA Team based the sample targets on each sector's relative share of EFP participation. For the non-participants, the MCA Team weighted the responses from each sector using electricity consumption estimates as a proxy for relative shares of the institutional efficiency market.

The MCA Team was not able to identify a reliable source of commercial energy consumption by building type that provides data specific to the state of New York. Therefore, the Team recommends using data from the Energy Information Administration's 2003 Commercial Buildings Energy Consumption Survey (CBECS).[162] The CBECs provides estimated energy usage for various market sectors and types of buildings at the regional level. For New York, the Team based its estimates on the U.S. Census Bureau's Mid-Atlantic Region, which includes New Jersey, New York and Pennsylvania.

The Team used the online Building Energy Data Book query tool (which uses the 2003 CBECS data) to find electricity use estimates for the specific sectors and types of buildings that best match the two priority market sectors included in the Institutional Market segment. The results of this analysis appear in Table C-7. These results, however, include all organizations in each sector (participants and non-participants). The MCA Team worked with APPRISE to estimate the share of each sector that has participated in the EFP and applied the non-participant estimate to calculate a relative share of potential electricity savings. The team compared these relative shares of potential to the share of completed surveys to calculate the subsequent weighting factors.

[162] U.S. EIA 2011. Commercial Buildings Energy Consumption Survey. Available: http://www.eia.gov/emeu/cbecs/.

Table C-7. Factors Based on Relative Electricity Consumption by End User Market Sector, 2003

Priority Sector	Buildings Included in CBECS Query	Electricity Usage (billion BTUs)	Estimated EFP Participation	Estimated EFP Non participants	Non participant Potential (billion BTUs)	Share of Non participant Potential	Share of Completed Surveys	Weighting Factor
Hospitals and Health Care	Hospital; Outpatient Health Care; Nursing Home	38,251	41%	59%	22,568	63.35%	68%	0.96
College and University	College, Library, Dormitory	16,618	28%	72%	11,965	34.65%	32%	1.08
TOTAL		**51,869**			**34,533**	**100%**	**100%**	

Note: Electricity usage is for U.S. Census Bureau Mid-Atlantic Region (New Jersey, New York and Pennsylvania). Source: U.S. Department of Energy, 2011. Building Energy Data Book. Based on 2003 Commercial Buildings Energy Consumption Survey (CBECS). Available at: http://buildingsdatabook.eren.doe.gov/CBECS.aspx.
EFP participation estimates provided by APPRISE Inc.

Owner-Occupied/Tenant-Decision Office Segment

As with the institutional market, the survey team achieved sufficient sample sizes to allow for standalone evaluation of offices with owner occupants or tenants empowered with energy efficiency decision-making capabilities. Table C-8 provides sample statistics for the Owner-Occupied/Tenant Market segment based on the final sample. The upstate/downstate segmentation is provided for weighting purposes.

Table C-8. Sample Statistics for Owner-Occupied/Tenant Office Market Segment

Segment	Estimated Population	Completed Interviews	Strata Relative Precision @ 90% CI	Weight	Overall Rel Precision @ 90% CI
Participants					
Upstate	13	11	11.1%		
Downstate	15	13	9.3%		
Total[1]	**28**	**24**			**6.9%**
Non-Participants					
Upstate	353	19	19.8%	0.49	
Downstate	1,058	17	21.1%	1.54	
Total[2]	**1,411**	**36**			**18.1%**

Notes:
1) For participants, the MCA Team assumed a 0.5 coefficient of variation and applied finite population correction. The participant samples are considered to be self-weighting based on relative levels of participation.
2) For non-participants, the MCA Team assumed a coefficient of variation of 0.5 without finite population correction. The MCA Team worked with APPRISE to estimate non-participant populations based on sample frames and eligibility results from the sampling effort.
Source: MCA Team Analysis and APPRISE Inc.

Sample Weighting

For the Owner-Occupied/Tenant Market segment, the MCA Team adopted separate weighting strategies for the participant and non-participant populations. The participant sample represents a self-weighted sample, as the MCA Team based the sample targets on each sector's relative share of EFP participation. For the non-participants, the MCA Team weighted the responses from each of the upstate and downstate geographies based on their relative shares of the overall office market. The MCA Team worked with APPRISE to estimate the share of non-participant owner-occupied offices in each region and compared them to the share of completed surveys to calculate the subsequent weighting factors. This approach is shown in Table C-9.

Table C-9. Weighting Factors Based on Relative Share of Non-participant Offices

Priority Sector	Non participant Estimated Population[1]	Relative Share of Offices	Relative Share of Completions	Weighting Factor
Offices - Upstate	353	25.0%	51.4%	0.49
Offices - Downstate	1,058	75.0%	48.6%	1.54
TOTAL	**1,411**	**100%**	**100%**	

Note: Population estimates provided by APPRISE Inc.
Source: MCA Team Analysis

Property Manager/Real Estate Developer Offices

Due to the sampling issues discussed in Section C.2, the survey team was unable to achieve a sufficient sample size for statistically significant evaluation of the Property Manager segment. As shown in Table C-10, the participant and non-participant sample sizes, as well as those of their subsequent upstate and downstate sub-segments, provide levels of relative precision that require cautious analysis.

Table C-10. Sample Statistics for Property Manager Segment

Segment	Estimated Population	Final Sample	Strata Relative Precision @ 90% CI	Overall Rel Precision @ 90% CI
Participants				
Upstate	7	3	55.5%	
Downstate	28	14	16.9%	
Total	**35**	**17**		**15.7%**
Non-Participants				
Upstate	17	5	45.1%	
Downstate	80	6	39.7%	
Total	**97**	**11**		**31.0%**

Notes:
1) For participants, the MCA Team assumed a 0.5 coefficient of variation and applied finite population correction. The participant samples are considered to be self-weighting based on relative levels of participation.
2) For non-participants, the MCA Team assumed a coefficient of variation of 0.5 without finite population correction. Estimated non-participant populations, precision and standard error calculations are placeholder values only. The MCA Team will work with APPRISE to better estimate non-participant populations based on sample frames and eligibility results from the sampling effort once NYSERDA approves the proposed analysis plan and weighting approaches.
Source: MCA Team Analysis

As a result, the MCA Team adopted a more qualitative approach to analyzing the resulting Property Manager data, issuing caveats where necessary to provide statistical context surrounding any findings. For example, the final sample size achieved for the downstate participant sub-segment provides for relatively meaningful statistical evaluation of that specific population. The MCA Team supplemented this analysis with additional reference to existing literature and recent relevant studies, including those of NYSERDA's Commercial Real Estate outreach contractor.[163]

Large Retail Chain Stores

Due to the sampling issues discussed in Section C.2, the survey team was unable to achieve a sufficient sample size for statistical evaluation of the Large Retail Chain Store sector. As shown in Table C-11, the participant sample size does not allow for meaningful analysis and, as previously noted, the survey team was unable to achieve any completions from the limited non-participant sample frame.

Table C-11. Sample Statistics for Large Retail Chain Store Sector

Segment	Estimated Population	Final Sample	Strata Relative Precision @ 90% CI	Overall Rel Precision @ 90% CI
Participants				
Upstate	14	2	99.2%	
Downstate	5	3	48.0%	
Total	**19**	**5**		**51.6%**

Note: For participants, the MCA Team assumed a 0.5 coefficient of variation and applied finite population correction. The participant samples are considered to be self-weighting based on relative levels of participation.
Source: MCA Team Analysis

As with the Property Manager segment, the MCA Team adopted a high-level, qualitative approach to analyzing the resulting data, issuing caveats as needed regarding the statistical context surrounding any survey findings. In addition, the MCA Team used NYSERDA's EFP tracking database to supplement this analysis with more in-depth characterization of the projects completed by Large Retail Chain Store sector participants.

C.3 Service Provider Analysis Plan

This section presents the MCA Team's original sampling plan, results of the survey efforts and proposed revisions to data analysis plans for the service provider populations.

[163] Pending agreement by HR&A Associates.

ORIGINAL SAMPLE DESIGN

This section describes the sampling methodology implemented by the MCA Team for each of the two service provider survey populations. Based on the Final MCA Work Plan, the Team targeted its analysis of the service provider market at the statewide level, but also sought to identify differential trends between upstate and downstate market segments. This would include a data cross-tabulation comparing responses between the two geographic segments in both the participant and non-participant populations. This approach is presented in Figure C-4.

Figure C-4. Service Provider Survey Data Analysis Approach

Source: MCA Team Analysis

As with participating end users, the MCA Team qualified participating service providers as those associated with any installed project that received performance-based incentives. However, the Team did not limit this population to projects in the four priority market sectors. The number of unique participating service provider contacts identified for each geographic segment appears in Table C-12.

Table C-12. Summary of Service Provider Sample Design

Target Sector	Unique Participating Service Providers	Recommended Participant Sample Size	Recommended Non Participant Sample Size
Upstate	30	21	70
Downstate	25	18	70
TOTAL	**55**	**39**	**140**

Note: Twelve service providers had projects in both upstate and downstate counties. The MCA Team categorized firms based on where the majority of their projects were located. Eight firms had a majority of their projects upstate, while three had a majority of projects downstate. One firm had an even number of projects in either geographic segment, but was categorized as downstate based on the location of its own offices (Westchester County). The Team also verified the location of the majority of each firm's efficiency-related projects during the survey screening process.
Source: MCA Team analysis

As shown, the total population of unique participating service provider contacts (the sampling unit) was 55. Using the participant population totals for both upstate (n=30) and downstate (n=25) service providers, the MCA Team calculated participant population target sample sizes of 21 and 18,

respectively, to achieve 90/10 confidence/precision criteria.[164] As mentioned above, the primary data collection efforts aimed to provide a non-participant comparison group of firms eligible to participate in the program. Again, given the difficulty and uncertainty in determining the overall population size for service providers that had not participated in the EFP, the MCA Team used the overall sample size target of 140 completions from the Final MCA Work Plan.[165]

Mitigating Potential Bias in Non-participant Sample

The Team recognized that the types of service providers eligible to participate in the EFP can vary significantly in terms of their capabilities and the scope of services they offer. In an effort to ensure diversity in the non-participant sample and mitigate potential bias toward a single type of service provider, the MCA Team worked with APPRISE to establish ceilings for the allowable sample to be collected from each of three categories of service provider. Based on a review of the most common SIC codes among firms listed as applicants in the EFP database, the MCA Team estimated non-participant sample targets for each of three sub-segments of service provider. Based on the limited information available to accurately approximate the composition of the actual market, these targets served only as rough goals for the sampling effort.[166] Table C-13 shows the maximum number of non-participant firms the team targeted from each of these categories.

Table C-13. Sampling Approach for Non-Participating Service Providers

Category	SIC Codes	Target	Downstate Target	Upstate Target
Lighting Contractors/ Energy Conservation Products	52110300, 52110301, 52110302, 52110303, 17310000, 17319903, 17319904	40%	28	28
HVAC Contractors	17110000, 17110100, 17110101, 17110103, 17110400, 17110403, 17110405, 17119901	20%	14	14
Engineers/Consultants	87489904, 87110401, 87110403, 87119906, 8789907	40%	28	28
Total		100%	70	70

Source: APPRISE and MCA Team analysis

[164] The MCA Team assumed a coefficient of variation of 0.5 and applied finite population correction for participant populations. Achieving 39 completed surveys from the population of 55 potential targets would meet 90/7 absolute confidence/precision criteria at the statewide level, but required a 70% response rate for both geographic segments.
[165] The MCA Team assumed a coefficient of variation of 0.5 without finite population correction for non-participant samples. Achieving 140 completed surveys would meet 90/7 absolute confidence/precision criteria at the statewide level.
[166] While SIC codes enable the identification of certain types of firms, they do not indicate the degree to which those firms serve either the residential or non-residential markets. Therefore, the MCA Team used relative shares of projects from the program database as a proxy for the types of firms most likely to participate in the EFP.

FINAL SAMPLE DISPOSITION

For participating firms, the MCA Team classified each service provider as either upstate or downstate based on the location of the majority of each firm's projects. To confirm the relative distribution of participating service providers among the two regions, the survey team asked each respondent to indicate in which region the majority its customers were located. Table C-14 summarizes the results of this question and the final disposition of completed surveys.

Table C-14. Disposition of Participating Service Provider Surveys

Originally Assigned Geography	Population	Target Sample Size	Geography per Survey Response (Question CB4)				Re categorized Completions
			Both	Down state	Upstate	Grand Total	
Upstate	30	21	10	1	10	21	20
Downstate	25	18	3	15	0	18	19
Total	**55**	**39**	**13**	**16**	**10**	**39**	**39**

Source: MCA Team analysis

As shown, one-third of the sample responded that its firm equally serves the upstate and downstate regions. Based on the program database, even those categorized as having a majority of projects either upstate or downstate may still have a significant number of projects in the other region. These results speak to the difficulty in attempting to segment the service provider market into distinct geographic regions, and, more importantly, the usefulness of such segmentation to evaluation efforts.[167]

For non-participants, the MCA Team used the overall sample target of 140 completions (70 each upstate/downstate) for the non-participant comparison group on the assumption of an infinite population. To confirm the geographic focus of non-participating service providers among the two regions, the survey team asked each respondent to indicate in which region the majority of its customers were located. As with the participating service providers, the non-participant sampling efforts revealed the difficulty in categorizing firms as primarily serving either the upstate or downstate region. Table C-15 summarizes the results of this question and the disposition of the completed surveys.

[167]For firms claiming to serve both regions equally, the MCA Team retained their assigned geographic classifications. The resulting sample generally confirmed the geographic distribution of service providers as derived from the EFP project tracking database. In one case, a service provider classified as an upstate firm by the MCA Team responded that the majority of its work was in fact downstate.

Table C-15. Disposition of Non-Participating Service Provider Surveys

Originally Assigned Geography	Geography per Survey Response (CB4)				Re categorized Completions
	Don't Know	Majority Not Downstate	Majority Downstate	Grand Total	
Downstate	2	5	60	67	74
Upstate	0	37	12	49	42
Grand Total	**2**	**42**	**72**	**116**	**116**

Source: MCA Team analysis

As discussed previously, the survey team also set approximate goals for dividing the non-participant sample among three general types of energy efficiency service providers. Ignoring upstate/downstate segmentation, Table C-16 summarizes the final disposition of the non-participant sample based on those three sub-segments.

Table C-16. Sub-segment Disposition of Non-Participating Service Provider Surveys

Sub Segment	Target Sample Size	Final Completions	Variation from Target	Share of Sample
Lighting Contractors/ Energy Conservation Products	56	56	0	48%
HVAC Contractors	28	21	(7)	18%
Engineers/Consultants	56	39	(17)	34%
Total	**140**	**116**	**(24)**	**100%**

Source: APPRISE and MCA Team analysis

As shown, the survey team remained within its sub-segment ceiling for lighting contractors, but encountered difficulties in achieving sample targets for HVAC contractors and engineers/consultants.

For HVAC contractors, this shortfall arose from a relatively low 10-percent response rate (compared to more than 20 percent for the other sub-segments).[168] According to APPRISE, other recent survey efforts have achieved 30 percent response rates from HVAC contractors, but only when they were offered a $25 incentive.

For the engineer/consultant sub-segment, the difficulty appears to have arisen from a low, 25-percent eligibility rate for respondents (compared to approximately 40 percent eligibility among other sub-segments).[169] According to APPRISE, that level of screening represents a substantial challenge for this population group. While these two sub-segments fell short of the rough goals set by the survey team, the

[168] APPRISE analysis
[169] APPRISE analysis

ceiling on the number of lighting consultants in the final sample will help protect against bias in the final sample.

REVISED ANALYSIS PLAN

Based on the results of data collection efforts, the MCA Team (in consultation with APPRISE) recommended and adopted minor revisions to the analysis plan for the service provider populations. As with the end user plan, these revisions take into account recent directions from NYSERDA and DPS. Specifically, they do the following:

- Lessens the emphasis on geographic segmentation (upstate versus downstate)
- Weights the non-participant survey results according to the relative size of eligible firms in the market (based on number of employees)

The remainder of this section details the approach as it relates to each of the participant and non-participant service provider samples.

Participating Service Providers

As discussed previously, attempts to categorize energy efficiency service providers as serving only the upstate or downstate region creates risk for misleading analysis. Based on the frequency of participating firms that have completed numerous projects in both regions, as well as the proportion of non-participating firms serving both regions equally, trying to uncover distinctions in how firms perceive and approach the market from a geographic perspective is challenging. As a result, the MCA Team recommends analyzing the participating service provider data collectively at the statewide level only. This approach meets the originally approved 90/7 absolute confidence/precision levels outlined in the Final MCA Work Plan. As a random sample from the participant population, the sample is self-weighting and does not require additional weighting prior to analysis.

Non-Participating Service Providers

As with the participant population, the MCA Team disregarded the geographic segmentation of the non-participant service provider population. Using estimates of the non-participant populations provided by APPRISE Inc. (see next section), Table C-17 shows illustrative statistics for the final non-participant sample. As shown, the achieved sample size of 116 provides close to 90/10 absolute confidence/precision at the statewide level.

Table C-17. Sample Statistics for Non-Participating Service Providers

Segment	Estimated Population (# of eligible firms)	Final Completions	Strata Relative Precision @ 90% CI	Weight	Overall Rel Precision @ 90% CI
Non-Participants (Number of Employees)					
Ten or fewer	4,106	96	8.4%	0.82	
More than 10 but less than 50	1,648	16	21.8%	1.98	
50 or more	269	4	53.3%	1.30	
Total[1]	**6,012**	**116**			**10.6%**

Notes: For non-participants, the MCA Team assumed a coefficient of variation of 0.5 without finite population correction. The MCA Team worked with APPRISE to estimate non-participant populations based on sample frames and eligibility results from the sampling effort.
Source: MCA Team analysis

Sample Weighting

The MCA Team weighted the non-participant data in an effort to better reflect the eligible service provider market. As part of its sample frame development, APPRISE collected data for firms in each of four business categories that aligned with the types of firms found in the EFP database.[170] This data included the number of staff each firm employs in the state. The Team weighted responses from firms in each size range against the relative share of overall employment represented by each range in the broader market. The results of this analysis appear in Table C-18.

Table C-18. Share of Total Employment by Firm-Size Range

Segment	Estimated Non participant Population (# of firms)[1]	Estimated Share of Non participant Population	Final Completed Surveys	Share of Non participant Completions	Weighting Factor
Non-Participants (Number of Employees)					
Ten or fewer	4,106	68.2%	96	82.8%	0.82
More than 10 but less than 50	1648	27.4%	16	13.8%	1.98
50 or more	269	4.5%	4	3.4%	1.30
Total	**6,023**	**100%**	**116**	**100%**	

Note: Non-participant estimates provided by APPRISE Inc.
Source: MCA Team Analysis

[170] The NAICS codes the team queried include 54131 (Architectural Services); 54133 (Engineering Services); 23821 (Electrical Contractors and Other Wiring Installation Contractors); and 23822 (Plumbing, Heating, and Air Conditioning Contractors). This data does not distinguish between firms that serve the residential market and those that serve the commercial and institutional markets associated with the EFP.

The shares of total employment from Table C-18 inform the relative weights in Table C-17.

Appendix D. Example Survey Instruments

NYSERDA - Existing Facilities Program MCA
EFP_MCASurvey_Participating_Host_Customers
Final for CATI Programming
August 23, 2011

[ASK TO SPEAK WITH CONTACT_NAME] WHEN PERSON COMES TO THE PHONE OR IF YOU GET GATEKEEPER AND THEY ASK TO EXPLAIN THE PURPOSE OF THE CALL, READ:
Hello, my name is _____ and I am calling on behalf of Navigant Consulting. We are conducting a study sponsored by NYSERDA, the New York State Energy Research and Development Authority, about your organization's perceptions of energy efficiency and NYSERDA's related programs. We are seeking to understand the factors that lead organizations like yours to choose energy efficient options and how NYSERDA's programs have affected those decisions.
According to NYSERDA's records, your company has received at least one NYSERDA rebate for the installation of energy efficiency equipment within the past few years. Specifically, we have records of a ___ _____**[INSERT MEASURE_CATEGORY**] project completed at _____ **[INSERT CUSTOMER_NAME; PROGRAMMER NOTE: SHOW CUSTOMERSTREET1 ON SCREEN; INTERVIEWER READ ADDRESS IF NECESSARY]** in _____**[INSERT SEASON AND YEAR].** It's important that I talk to the facilities manager, energy manager, or another person who is **most familiar** with this project.

SCR1. Are you that person?

1. YES [**GO TO INSTURCTIONS BEFORE SCR3]**

2. NO - Could you please give me the name and phone number of the person I should speak to, or someone who would know the proper person to speak to?

NAME: _____ PHONE: _____

3. DON'T REMEMBER PROJECT **[GO TO INSTRUCTIONS BEFORE SCR2]**

96. REFUSED - - *Thank you very much for your time. Goodbye.* **[TERMINATE]**

97. DON'T KNOW **[PROBE TO ESTABLISH IF PERSON HAS ENOUGH FAMILIARITY WITH PROJECT TO COMPLETE SURVEY]**

[ASK SCR2 IF SCR1=3 OR 97 AND MULT_PROJ =1;
IF MULT_PROJ=0, THANK AND TERMINATE]
SCR2. According to NYSERDA's records, your company has received NYSERDA incentives for other projects or facilities. Is there another efficiency project with which you are more familiar that we could discuss?

1. YES (SPECIFY_____)
[INTERVIEWER SHOULD RECORD PROJECT DETAILS (LOCATION, TYPE, YEAR) AND SAY "THANK YOU FOR YOUR TIME. WE MAY BE CONTACTING YOU AGAIN TO DISCUSS THIS PROJECT SOON. GOODBYE]
2. NO – *Thank you very much for your time. Goodbye.* **[TERMINATE]**
96. REFUSED– *Thank you very much for your time. Goodbye* **[TERMINATE]**
97. DON'T KNOW – *Thank you very much for your time. Goodbye.* **[TERMINATE]**

[ASK SCR3 IF SCR1=1 YES]

SCR3. I'd like to ask you some questions. This will take about 20 minutes and will greatly help NYSERDA tailor its energy efficiency programs to better serve New York energy consumers. Your responses will be completely confidential. Can we start?

1. YES
2. NO - When is a good time to callback?
_____)
96. REFUSED - Thank you very much for your time. Goodbye.

[INTERVIEWER NOTE: IF THE 'NO" FEELS LIKE A REFUSAL - STATE THE FOLLOWING]
NYSERDA is trying to determine how to improve its energy efficiency programs, and as an organization NYSERDA believes that feedback from energy customers is an important part of making these improvements. Feedback from you/your organization would greatly help in this effort. With this in mind, may we continue?

Organization Background

First, I have a few background questions about your company.

OB1. How would you describe the type of [business/organization] this is? **[IF SECTOR = COLLEGE OR HOSPITAL, SAY "ORGANIZATION"; IF SECTOR= BIG BOX OR OFFICE, SAY** 1 **"BUSINESS"; DO NOT READ CHOICES]** 1

1. HOSPITAL OR HEALTH CARE ORGANIZATION
2. RETAILER
3. FINANCIAL INSTITUTION (E.G., BANK, INSURANCE, ETC.)
4. PROFESSIONAL SERVICES FIRM (E.G., CONSULTING FIRM, ENGINEERING FIRM, ETC.)
5. COLLEGE OR UNIVERSITY
6. REAL ESTATE DEVELOPER OR PROPERTY MANAGEMENT FIRM
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

OB2. How long have you been with the organization? Would you say…**[READ]**

1. Less than 1 year
2. 1 year to less than 3 years
3. 3 years to less than 5 years
4. 5 years or more

96. REFUSED
97. DON'T KNOW

OB3. What is your current title in the organization? Are you the…**[READ]**

1. Energy Manager
2. Facilities Manager
3. Chief Operating Officer (COO) or Vice President of Operations
4. President, CEO, or CFO
5. Vice President
6. Maintenance Manager
7. PROPERTY MANAGER
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

Project Facility Background Questions

Now I have a few questions about the facility affected by the project I mentioned.

PF1. For the **[MEASURE_CATEGORY]** project at **[CUSTOMER_NAME]**, what type of building did that project primarily affect? **[DO NOT READ CHOICES. CODE ALL THAT APPLY]**

1. WAREHOUSE OR STORAGE FACILITY
2. MAINTENANCE BUILDING
3. BANK
4. OFFICE BUILDING
5. PARKING GARAGE
6. CLASSROOMS
7. DORMITORIES
8. CAFETERIA/DINING FACILITY
9. LABORATORIES
10. LIBRARY OR MUSEUM
11. MIXED USE BUILDING
12. GYMNASIUM/SWIMMING POOL/RECREATIONAL FACILITY
13. GROCERY STORE/SUPERMARKET
14. RETAIL STORE
15. HOSPITAL OR OTHER HEALTH TREATMENT
16. OTHER LIVING QUARTERS (E.G., NURSING HOME)
95. OTHER (SPECIFY_____)
96. REFUSED
97. DON'T KNOW

PF2. What is that building's approximate square footage? Is it…**[READ]**

1. Less than 2,000 square feet
2. 2,001 to less than 5,000 square feet
3. 5,000 to less than 10,000 square feet
4. 10,000 to less than 20,000 square feet
5. 20,000 to less than 50,000 square feet

6. 50,000 to less than 100,000 square feet
7. 100,000 square feet or more
96. REFUSED
97. DON'T KNOW

PF3. Do you own or lease this space?

1. LEASE/RENT
2. OWN
95. OTHER (VOL)
96. REFUSED
97. DON'T KNOW

[ASK PF4 IF PF3=1; ELSE SKIP TO PF5]

PF4. Do you pay your energy bill directly to your utility, or is it included in your lease payments?

1. DIRECTLY TO UTILITY
2. INCLUDED IN LEASE PAYMENT
95. OTHER (SPECIFY_____)
96. REFUSED
97. DON'T KNOW

For the next two questions, I'd like you to think only about **electrical** energy use in the facility we have been discussing. For now, please ignore any equipment that uses natural gas.

PF5. I'd like to know what types of equipment in that facility are responsible for the greatest amount of **electricity** use. For each of the following equipment categories, please indicate if it is a major user of electricity, a minor user of electricity, or not a use of electricity in the facility.

a) Lighting, including lamps, ballasts and controls
b) Heating, Ventilation, or Air Conditioning equipment and controls
c) Process equipment or machinery
d) Motors, variable speed drives, or pumps
e) Compressed air systems
f) Refrigeration and cold storage equipment
g) Water heating equipment
h) Office electronics (e.g., computers, servers, copiers, printers)
i) Other specialized equipment (e.g., hospital equipment, laboratory equipment)

1. MAJOR USER
2. MINOR USER
3. NOT A USER
96. REFUSED
97. DON'T KNOW

[ASK PF6 FOR EACH PF5=1 "MAJOR USER", ELSE SKIP TO PS1]

PF6. When do you tend to replace **[INSERT ITEM FROM PF5**] equipment? Would you say you replace it…**[READ LIST, CODE ALL THAT APPLY]**

1. To upgrade to more efficient equipment
2. Because specific incentives or rebates are offered

3. During major renovations, or
4. Only when it breaks or burns out
96. REFUSED
97. DON'T KNOW

Project-specific Questions

Now I'd like to ask some specific questions about the project itself.

PS1. In what year did your organization complete the **[MEASURE_CATEGORY]** project at **[CUSTOMER_NAME]** with NYSERDA?

1. 2008
2. 2009
3. 2010
4. 2011
95. OTHER (SPECIFY_____)
96. REFUSED
97. DON'T KNOW

PS2. I'd like to ask about the factors that your organization considered when deciding whether to move forward with this particular project. For each of the following factors, please tell me if it was a major factor, a minor factor, or not a factor in your consideration of this project. First, **[INSERT ITEM]**, was this a major, minor or not a factor?

a) Needed to repair or replace existing equipment or systems
b) Wanted to upgrade to more energy efficiency equipment
c) It was part of a larger construction or remodeling project
d) Availability of incentives from NYSERDA
e) Corporate sustainability or environmental priorities
f) Financial considerations
g) Improving the comfort or productivity of your employees
h) **[IF SECTOR = HOSPITAL]** Improving the experience of your patients
i) **[IF SECTOR = COLLEGE]** Improving the experience of your students
j) **[IF SECTOR = BIG BOX OR OFFICE]** Improving the experience of your customers
k) **[IF INDICATOR = DOWNSTATE]** New York City's recent building benchmarking requirement

1. MAJOR FACTOR
2. MINOR FACTOR
3. NOT A FACTOR
96. REFUSED
97. DON'T KNOW

[IF MORE THAN ONE ITEM IN PS2=1 'MAJOR FACTOR', ASK PS3, ELSE SKIP TO PS4; PROGRAMMER: IF ONLY ONE ITEM IN PS2=1 'MAJOR', AUTOFILL FOR PS3]

PS3. Which of these major factors would you say was **the most important** factor your organization considered when deciding to move forward with this project? **[PROGRAMMER: SHOW LIST OF ITEMS FROM PS2 THAT WERE CODED MAJOR; ACCEPT ONLY ONE ANSWER.]**

1. Needed to repair or replace existing equipment or systems

2. Wanted to upgrade to more energy efficiency equipment
3. It was part of a larger construction or remodeling project
4. Availability of incentives from NYSERDA
5. Corporate sustainability or environmental priorities
6. Financial considerations
7. Improving the comfort or productivity of your employees
8. Improving the experience of your patients
9. Improving the experience of your students
10. Improving the experience of your customers
11. New York City's recent building benchmarking requirement
96. REFUSED
97. DON'T KNOW

[ASK IF PS3=6; ELSE SKIP TO PS7]

PS4. For each of the following **financial** factors, please tell me if it was a major factor, a minor factor, or not a factor in your consideration of the **[MEASURE_CATEGORY]** project at **[CUSTOMER_NAME].** First, was **[INSERT ITEM]** a major, minor, or not a factor?

a) Reducing operating costs
b) Increasing productivity
c) Availability of internal funding or capital budget
d) Availability of other outside funding
e) Meeting company financial requirements such as rate of return on investment or payback period

1. MAJOR FACTOR
2. MINOR FACTOR
3. NOT A FACTOR
96. REFUSED
97. DON'T KNOW

PS5. Is the project meeting the financial metrics you established for it?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK IF PS5=NO; ELSE SKIP TO PS7]

PS6. What do you think has prevented the project from achieving expected financial results?

1. [RECORD VERBATIM]
96. REFUSED
97. DON'T KNOW

PS7. Now I'm going to read a list of potential funding sources for energy efficiency projects. For each one, please tell me if it was a very important source of funding, a somewhat important source, or not

an important source of funding for the project we have been discussing. First, **[INSERT ITEM]**; was this a very important, somewhat important, or not an important source of funding?

a) Capital budget/Cash
b) Loans
c) Tax credits
d) Performance contract
e) NYSERDA incentives
f) Utility incentives
g) Energy Efficiency Conservation Block Grant (EECBG)

1. VERY IMPORTANT
2. SOMEWHAT IMPORTANT
3. NOT AN IMPORTANT SOURCE

96. REFUSED
97. DON'T KNOW

[ASK PS8 IF MORE THAN ONE ITEM IN PS7=1 VERY IMPORTANT, ELSE SKIP TO PS9; PROGRAMMER: IF ONLY ONE ITEM IN PS7=1 VERY IMPORTANT, AUTOFILL FOR PS8]

PS8. Which of these VERY important sources of funding was the **most important** in securing approval to implement the project? **[PROGRAMMER: SHOW ITEMS FROM PS7 THAT WERE ANWERED 1 - VERY IMPORTANT; ACCEPT ONLY ONE ANSWER.]**

1. Capital budget/Cash
2. Loans
3. Tax credits
4. Performance contract
5. NYSERDA incentives
6. Utility incentives
7. Energy Efficiency Conservation Block Grant (EECBG)

96. REFUSED
97. DON'T KNOW

PS9. For this energy efficiency project, did you hire any outside companies during the identification, design, or installation of the project?

1. YES
2. NO

96. REFUSED
97. DON'T KNOW

[ASK IF PS9=1 YES; ELSE SKIP TO OD1]

PS10. Please indicate if you worked **directly** with any of the following types of companies during this project. If a company was a subcontractor to the firm you worked directly with, please answer "no" for the subcontracting company. Did you work directly with an…

a) Energy efficiency consulting firm
b) Engineering or design firm
c) Installation contractor (such as a lighting or HVAC contractor)

d) Equipment supplier
   1. YES
   2. NO
   96. REFUSED
   97. DON'T KNOW

[ASK FOR EACH PS10 a)-d)=1 YES; ELSE SKIP TO OD1]

PS11. I'm going to read a list of services that the **[INSERT COMPANY TYPE FROM PS10** might have provided for the project. To the best of your knowledge, please tell me whether or not that company performed each of the following services for this project. If the company hired a subcontractor to provide a particular service, please just tell me that First, did the [**INSERT COMPANY TYPE FROM PS10**] provide…[INSERT SERVICE]

1. Energy audit services
2. Project design and engineering
3. Coordination of NYSERDA incentives
4. Performance contracting
5. Other financing assistance
6. Equipment installation
7. Monitoring and verification
8. Operations and maintenance
   1. YES
   2. NO
   3. SUBCONTRACTOR
   96. REFUSED
   97. DON'T KNOW

Organizational Decision-Making Questions

Now I'd like to ask a few questions about how your organization thinks about energy efficiency projects overall, beyond the project we have been discussing.

OD1. Who in your organization makes the final decision to move forward with an energy efficiency project? **[DO NOT READ. PROBE TO CODE.]**

1. COMPANY OWNER/BOARD OF DIRECTORS/GOVERNING BODY
2. PRESIDENT/CHIEF EXECUTIVE OFFICER/CHIEF FINANCIAL OFFICER
3. CHIEF OPERATING OFFICER OR VICE PRESIDENT OF OPERATIONS
4. FACILITIES OR ENERGY MANAGER
5. BUILDING OWNER/PROPERTY MANAGEMENT FIRM
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

OD2. Who else needs to review or approve the decision to undertake the project? **[DO NOT READ. PROBE TO CODE.]**

1. COMPANY OWNER/BOARD OF DIRECTORS/GOVERNING BODY
2. PRESIDENT/CHIEF EXECUTIVE OFFICER/CHIEF FINANCIAL OFFICER

3. CHIEF OPERATING OFFICER OR VICE PRESIDENT OF OPERATIONS
4. FACILITIES OR ENERGY MANAGER
5. BUILDING OWNER/PROPERTY MANAGEMENT FIRM
94. NO ONE ELSE
95. OTHER (SPECIFY_____)
96. REFUSED
97. DON'T KNOW

OD3. I'm going to read you a list of potential barriers to your organization implementing energy efficiency projects or purchasing high efficiency equipment. For each one, please tell me if it is a major barrier, a minor barrier, or not a barrier. First, **[INSERT ITEM]**, is this a major, minor, or not a barrier?

a) Concerns about the performance or reliability of energy efficient equipment
b) Concerns about the upfront costs of energy efficient equipment
c) Uncertainty around projected energy savings
d) Lack of internal capital or funding
e) Lack of outside capital or funding
f) Concerns about the economy
g) Failure to meet your organization's financial requirements (such as return on investment or payback period)
h) Competition with other priorities within the organization
i) **[SKIP IF PF3=2]** Division of costs and benefits between the building owner and tenant
j) Lack of staff available to evaluate or oversee project
k) Concerns about the down-time needed to complete the project

1. MAJOR BARRIER
2. MINOR BARRIER
3. NOT A BARRIER
96. REFUSED
97. DON'T KNOW

[ASK OD4 IF MORE THAN ONE 'MAJOR' IN OD3A-OD3K, ELSE SKIP TO OD5; PROGRAMMER: IF ONLY ONE ITEM IN OD3=1 'MAJOR', AUTOFILL FOR OD4]

OD4. Which of these major barriers would you say is the **greatest barrie**r to energy efficiency investments for your organization? **[PROGRAMMER: SHOW ALL ITEMS FROM OD3 THAT WERE ANSWERED 'MAJOR'; ACCEPT ONLY ONE ANSWER.]**

1. Concerns about the performance or reliability of energy efficient equipment
2. Concerns about the upfront costs of energy efficient equipment
3. Uncertainty around projected energy savings
4. Lack of internal capital or funding
5. Lack of outside capital or funding
6. Concerns about the economy
7. Failure to meet your organization's financial requirements (such as return on investment or payback period)
8. Competition with other priorities within the organization

9. Division of costs and benefits between the building owner and tenant
10. Lack of staff available to evaluate or oversee project
11. Concerns about the down-time needed to complete the project
96. REFUSED
97. DON'T KNOW

OD5. Since the economic downturn began in 2008, would you say your organization's investment in energy efficiency has increased, decreased, or stayed the same?

1. INCREASED
2. DECREASED
3. STAYED THE SAME
96. REFUSED
97. DON'T KNOW

OD6. For your organization, how important is it for service providers to offer financing options to help pay for energy efficiency projects? Would you say very important, somewhat important, not too important, or not important at all?

1. VERY IMPORTANT
2. SOMEWHAT IMPORTANT
3. NOT TOO IMPORTANT
4. NOT IMPORTANT AT ALL
96. REFUSED
97. DON'T KNOW

Existing Facilities Program Experience

Thank you for your help so far. I have one more set of questions about NYSERDA's Existing Facilities Program, which provided the incentive for the project we were discussing earlier.

EF1. I'm going to read a list of possible influences that might have encouraged you to participate in NYSERDA's Existing Facilities Program. For each, please indicate if it was a major influence, a minor influence, or not an influence in your organization's decision to pursue a NYSERDA Existing Facilities Program incentive. First, **[INSERT ITEM]**, was this a major, minor, or not an influence?

a) Contact with NYSERDA staff or outreach contractors
b) Information on NYSERDA's website
c) Previous experience with NYSERDA programs
d) Alignment of NYSERDA's incentives with the type of equipment required for your project
e) The dollar value of the NYSERDA incentive
f) NYSERDA's requirement for measurement and verification of energy savings
g) Discussions with a consultant or contractor working on your project
h) Discussions from an equipment manufacturer or vendor
i) Information from a trade association to which your organization belongs

1. MAJOR INFLUENCE
2. MINOR INFLUENCE

3. NOT AN INFLUENCE
96. REFUSED
97. DON'T KNOW

EF2. Now I'd like you to tell me how much you agree or disagree with each of the following statements about your experience with the Existing Facilities Program. First, [INSERT ITEM] do you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree with this statement.

a) I could understand the application requirements and process
b) I was *not* satisfied with my communications with program staff
c) When I needed help, NYSERDA or its representatives helped me
d) The inspection of my equipment *did not* go smoothly
e) The M&V activities to measure and verify project savings *did* go smoothly
f) I was *not* satisfied with the time from when I submitted the application to when I received the incentive check

1. STRONGLY AGREE
2. AGREE
3. NEITHER AGREE NOR DISAGREE
4. DISAGREE
5. STRONGLY DISAGREE
96. REFUSED
97. DON'T KNOW
99. NOT APPLICABLE

[ASK IF EF2 e) = 4 OR 5 (DISAGREE OR STRONGLY DISAGREE), ELSE SKIP TO EF4]

EF3. Would you please tell me what aspect of the M&V activities did not go smoothly.

1. [RECORD VERBATIM]
96. REFUSED
97. DON'T KNOW

EF4. Now I would like to understand which aspects of the NYSERDA program your organization considered to be of value for this project. I'm going to read a list of statements describing potential benefits of participating in the Existing Facilities Program. For each one, please tell me if it was a primary benefit, a secondary benefit, or not a benefit of participating. First, **[INSERT ITEM],** was this a primary, secondary, or not a benefit?

a) The financial incentive NYSERDA provided
b) NYSERDA was a trustworthy and independent source of information about energy efficiency options
c) NYSERDA staff and its contractors were available to provide support for our project
d) NYSERDA helped ensure we implemented a quality project

1. PRIMARY BENEFIT
2. SECONDARY BENEFIT
3. NOT A BENEFIT
96. REFUSED
97. DON'T KNOW

EF5. Are there any other **primary** benefits of the program that I did not mention?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK EF6 IF EF5=1 YES; ELSE SKIP TO EF7]

EF6. What are those benefits?

1. [RECORD VERBATIM]
96. REFUSED
97. DON'T KNOW

EF7. As you may know, the Existing Facilities Program offers energy efficient equipment incentives for both prequalified measures and for performance-based measures. How confident are you that you understand the differences between these two approaches to applying for incentives? Would you say you are very confident, somewhat confident, not too confident, or not confident at all?

1. VERY CONFIDENT
2. SOMEWHAT CONFIDENT
3. NOT TOO CONFIDENT
4. NOT CONFIDENT AT ALL
96. REFUSED
97. DON'T KNOW

EF8. To the best of your knowledge, does your utility company offer incentives for efficient equipment identical to the equipment you installed under your NYSERDA Existing Facilities Program incentive?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK IF EF8**=1 YES; ELSE SKIP TO EF12]**

EF9. Did you contact your utility company, or access its website, to learn about its incentive offerings?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

EF10. How much confusion do you think there is in the marketplace about the difference between NYSERDA's Existing Facilities Program and your utility company's incentive program? Would you say there is considerable confusion, a little confusion, or not much confusion?

1. CONSIDERABLE CONFUSION
2. A LITTLE CONFUSION
3. NOT MUCH CONFUSION
96. REFUSED

97. DON'T KNOW

[ASK EF11 IF EF10= 1 OR 2; ELSE SKIP]

EF11. Could you briefly explain what you think is confusing to the marketplace?

2. GENERAL CONFUSION FROM THERE BEING MULTIPLE PROGRAMS
3. LACK OF AWARENESS ON PROGRAM DIFFERENCES
4. UNCERTAINTY ABOUT WHICH INCENTIVE OR PROGRAM TO USE
5. LACK OF FAMILIARITY WITH NYSERDA
6. ELIGIBILITY AND APPLICATION REQUIREMENTS
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

EF12. Does your facility use natural gas?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK EF13 IF EF12=1 YES; ELSE SKIP]

EF13. Before today, were you aware that the Existing Facilities Program offers incentives for efficient gas equipment, as well as efficient electric equipment?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

EF14. What changes, if any, do you recommend that NYSERDA's Existing Facility Program make to better serve the market in the future?

2. INCREASE INCENTIVES
3. SHORTEN TURNAROUND BETWEEN APPLICATION, WORK, AND INCENTIVE RECEIPT
4. SIMPLIFY OR IMPROVE APPLICATION PROCESS OR MATERIALS
5. IMPROVE PROGRAM MARKETING/OUTREACH
6. SIMPLIFY OR IMPROVE PROJECT APPROVAL AND MEASUREMENT AND VERIFICATION PROCESS
7. CHANGES TO INCENTIVE STRUCTURE OR ELIGIBILITY
94. NO CHANGES
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

Closing

Those are all the questions I have today. I'd like to thank you again for your time and participation. The information you provided is very useful for this program evaluation.

NAVIGANT

NYSERDA – Existing Facilities Program MCA
EFP_MCA Survey_Non-Participating_Host_Customers
Final Version
November 15, 2011

College Introduction

[READ IF SECTOR = COLLEGE]

Hello. **[ASK TO SPEAK WITH FACILITIES MANAGER / DIRECTOR OF FACILITIES/DIRECTOR OF BUILDINGS AND GROUNDS. RECORD NAME AND PHONE NUMBER.]**

My name is _____ and I am calling on behalf of Navigant Consulting. We are conducting a study sponsored by the New York State Energy Research and Development Authority, also known as NYSERDA, about energy efficiency and related incentive programs available in New York State. We are seeking to understand the factors that higher education institutions like yours consider when making decisions about energy use and efficiency.

Hospital Introduction

[READ IF SECTOR = HOSPITAL]

Hello. **[ASK TO SPEAK WITH FACILITIES MANAGER / DIRECTOR OF FACILITIES/ DIRECTOR OF BUILDINGS AND GROUNDS. RECORD NAME AND PHONE NUMBER.]**

My name is _____ and I am calling on behalf of Navigant Consulting. We are conducting a study sponsored by the New York State Energy Research and Development Authority, also known as NYSERDA, about energy efficiency and related incentive programs available in New York State. We are seeking to understand the factors that hospitals and health care facilities like yours consider when making decisions about energy use and efficiency.

Office Introduction for Tenants and Owner-Occupiers

[READ IF SECTOR = OFFICE AND OFFBTYPE = TENANT OR OWNER OCCUPIER]
Hello. My name is _____ and I am calling on behalf of Navigant Consulting. We are conducting a study sponsored by the New York State Energy Research and Development Authority, also known as NYSERDA, about energy efficiency and related incentive programs available in New York State. We are seeking to understand the factors that organizations like yours consider when making decisions about energy use and efficiency.

Office Introduction for Property Managers/Developers

[READ IF SECTOR = OFFICE AND OFFBTYPE = PROPERTY MANAGER/DEVELOPER]
Hello. My name is _____ and I am calling on behalf of Navigant Consulting. We are conducting a study sponsored by the New York State Energy Research and Development Authority, also known

as NYSERDA, about energy efficiency and related incentive programs available in New York State. We are seeking to understand the factors that property management organizations like yours consider when making decisions about energy use and efficiency in the properties you own or manage.

General Retail Introduction

[READ IF SECTOR = RETAIL AND CALL IS TO STORE FROM SAMPLE]

Hello. **[IF NO CONTACT NAME, ASK TO SPEAK WITH THE STORE MANAGER.]**

My name is _____ and I am calling on behalf of Navigant Consulting. We are conducting a study sponsored by the New York State Energy Research and Development Authority, also known as NYSERDA, about energy efficiency and related incentive programs available in New York State. We are seeking to understand the factors that retail stores like yours consider when making decisions about energy use and efficiency.

Corporate-Level Retail Introduction

[READ IF SECTOR = RETAIL AND CALL IS TO CORPORATE-LEVEL CONTACT]

Hello. **[ASK TO SPEAK WITH CONTACT LISTED.]**

My name is _____ and I am calling on behalf of Navigant Consulting. We are conducting a study sponsored by the New York State Energy Research and Development Authority, also known as NYSERDA, about energy efficiency and related incentive programs available in New York State. We are seeking to understand the factors that larger retail stores like yours consider when making decisions about energy use and efficiency.

General Screeners

[INSERTS FOR SC1]

- IF SECTOR = **COLLEGE**, USE "COLLEGES, UNIVERSITIES, AND INSTITUTIONS OF HIGHER EDUCATION"
- IF SECTOR = **HOSPITAL**, USE "HOSPITALS AND HEALTH CARE FACILITIES"
- IF SECTOR = **RETAIL**, USE "RETAIL STORES"
- IF SECTOR = **OFFICE** AND OFFBTYPE **= TENANT OR OWNER OCCUPIER**, USE "OFFICES OR OFFICE BUILDINGS"
- IF SECTOR = **OFFICE** AND OFFBTYPE = **PROPERTY MANAGER/DEVELOPER**, USE "OFFICE BUILDING PROPERTY MANAGERS AND REAL ESTATE DEVELOPERS"

SC1: As part of this study, we are contacting a sample of [INSERT] in New York State. Can you confirm that I've reached such an organization?

1. YES
2. NO **[THANK AND TERMINATE]**

96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW **[THANK AND TERMINATE]**

SC2: Are you the appropriate person to discuss issues regarding energy-related capital improvements for this organization?

1. YES **[GO TO INSTRUCTIONS BEFORE SC3]**
2. NO - *Who at your organization can best speak about energy-related capital improvements?*
   [RECORD THE NAME, TITLE, AND PHONE NUMBER OF THE NEW CONTACT PERSON. THEN FOLLOW UP WITH HIM OR HER.]

96. REFUSED **[THANK AND TERMINATE]**
97. DON'T KNOW - *If you oversee facility operations and are involved in the decision-making process for energy-related improvement projects, we would like to speak to you.*

[READ IF NECESSARY: ***AS AN INDEPENDENT RESEARCH FIRM, WE DO NOT INTEND TO REPORT YOUR RESPONSES IN ANY WAY THAT WOULD REVEAL YOUR IDENTITY OR THE IDENTITY OF YOUR ORGANIZATION. IF YOU HAVE QUESTIONS, YOU CAN CONTACT NYSERDA'S PROJECT MANAGER FOR EVALUATION, TODD FRENCH AT 518-862-1090, EXT. 3212, OR BY EMAIL AT GTF@NYSERDA.ORG*** **]**

[ASK SC3 IF SECTOR=HOSPITAL OR SECTOR=COLLEGE; ELSE SKIP TO SC4]

SC3: Part of our study focuses specifically on [Health care/Educational] facilities that meet certain characteristics. Would you describe your organization as…**[READ]**

1. Occupying a portion of a building from which you rent or lease space, or
2. Occupying an entire building or several buildings?
3. REFUSED **[THANK AND TERMINATE]**
4. DON'T KNOW **[THANK AND TERMINATE]**

[IF SC3= 1, THANK AND TERMINATE - *I'm afraid that is not the type of facility we are looking for. Thank you for your time.*]

SC4: Great! I'd like to ask you some questions. This will take about 20 minutes and will greatly help NYSERDA tailor its energy efficiency programs to better serve New York energy consumers. Your responses will be completely confidential. Can we start?

1. YES
2. NO - *When is a good time to callback*? **[RECORD CALLBACK TIME]**

96. REFUSED - *Thank you very much for your time. Goodbye.* **[TERMINATE]**

[INTERVIEWER NOTE- ***IF THE RESPONDENT SEEMS RELUCTANT, STATE THE FOLLOWING: "NYSERDA IS TRYING TO DETERMINE HOW TO IMPROVE ITS ENERGY EFFICIENCY PROGRAMS, AND AS AN ORGANIZATION NYSERDA BELIEVES THAT FEEDBACK FROM ENERGY CUSTOMERS IS AN IMPORTANT PART OF MAKING THESE IMPROVEMENTS. FEEDBACK FROM YOU/YOUR ORGANIZATION WOULD GREATLY HELP IN THIS EFFORT. WITH THIS IN MIND, MAY WE CONTINUE?"]***

Participation Screeners

When responding to questions please use your best judgment or give your best estimates. If you don't know how to respond, just say so.

PS1. To the best of your knowledge, has your organization participated in any NYSERDA or **New York Energy $mart℠** programs in the past three years? **[READ IF NECESSARY: NYSERDA stands for New York State Energy Research and Development Authority]**

8. YES
9. NO **[SKIP TO INSTRUCTIONS BEFORE OFF1]**
96. REFUSED **[SKIP TO INSTRUCTIONS BEFORE OFF1]**
97. DON'T KNOW **[SKIP TO INSTRUCTIONS BEFORE OFF1]**

PS2. Which NYSERDA Programs has your organization participated in? **[DO NOT READ. MARK ALL THAT APPLY]**

1. FLEX TECH (FLEXIBLE TECHNICAL ASSISTANCE)
2. NEW CONSTRUCTION PROGRAM (NCP)
3. EXISTING FACILITIES PROGRAM (EFP) **[THANK AND TERMINATE]**
4. INDUSTRIAL PROCESS EFFICIENCY (IPE)
5. ENHANCED COMMERCIAL & INDUSTRIAL PERFORMANCE PROGRAM (ECIPP)
6. BUSINESS PARTNERS
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

PS3. To the best of your knowledge, has your organization received an incentive from NYSERDA's *Existing Facilities Program* in the past three years?

1. YES **[THANK AND TERMINATE]**
2. NO
96. DON'T KNOW
97. REFUSED

Property Manager Geographic Classification

[ASK OFF1 IF OFFBTYPE=PROPERTY MANAGER/DEVELOPER, ELSE SKIP TO OB1]

OFF1. Of the office building properties that your organization manages in New York State, would you say that the majority are in downstate New York (the 5 boroughs of New York City plus the Westchester area), or in upstate New York?

1. DOWNSTATE
2. UPSTATE
96. REFUSED
97. DON'T KNOW

Organization Background

OB1. First, I have a few background questions about your organization and its facilities. How long have you been with the organization? Would you say…**[READ]**

1. Less than 1 year
2. 1 year to less than 3 years
3. 3 years to less than 5 years
4. 5 years or more

96. REFUSED
97. DON'T KNOW

OB2. What is your current title in the organization? Are you the...**[READ]**

1. Energy Manager
2. Facilities Manager
3. Chief Operating Officer (COO) or VP Operations
4. President, CEO, or CFO
5. Vice President
6. Maintenance Manager
7. DIRECTOR OR VP OF FACILITIES
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

OB3. How many individual buildings or facilities do you oversee? Would you say…**[READ]**
[IF CLARIFICATION REQUESTED, READ: BY OVERSEE, WE MEAN THAT YOU ARE RESPONSIBLE FOR OPERATIONS AT THE BUILDING OR FACILITY OR YOU ARE INVOLVED IN CAPITAL IMPROVEMENT DECISION-MAKING FOR THAT BUILDING OF FACILITY]

1. 1 building
2. 2 to 4 buildings
3. 5 to 10 buildings
4. More than 10 buildings
5. LESS THAN 1 BUILDING (VOL)
96. REFUSED
97. DON'T KNOW

OB4. Please describe the different types of facilities that you oversee or are directly involved with making capital improvements decisions for. **[DO NOT READ CHOICES. CODE ALL THAT APPLY]**

1. WAREHOUSE OR STORAGE FACILITY
2. MAINTENANCE BUILDING
3. BANK
4. OFFICE BUILDING
5. PARKING GARAGE
6. CLASSROOMS
7. DORMITORIES
8. CAFETERIA/DINING FACILITY
9. LABORATORIES
10. LIBRARY OR MUSEUM
11. MIXED USE BUILDING
12. GYMNASIUM/SWIMMING POOL/RECREATIONAL FACILITY
13. GROCERY STORE/SUPERMARKET

14. RETAIL STORE
15. HOSPITAL OR OTHER HEALTH TREATMENT
16. OTHER LIVING QUARTERS (E.G., NURSING HOME)
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

OB5. Are there other facilities in your organization that are someone else's responsibility to oversee?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[IF OFFBTYPE=PROPERTY MANAGER/DEVELOPER, SKIP TO INSTRUCTIONS BEFORE OB8]

OB6. Do you own or lease the majority of the buildings in your organization?

1. LEASE/RENT
2. OWN **[SKIP TO OB8]**
95. OTHER (VOL) **[SKIP TO INSTRUCTIONS BEFORE OFF1]**
96. REFUSED **[SKIP TO INSTRUCTIONS BEFORE OFF1]**
97. DON'T KNOW **[SKIP TO INSTRUCTIONS BEFORE OFF1]**

OB7. Do you pay your energy bill directly to your utility, or is it included in your lease payments?

1. DIRECTLY TO UTILITY
2. INCLUDED IN LEASE PAYMENT
95. OTHER (SPECIFY _____)
96. DON'T KNOW
97. REFUSE

For the next two questions, I'd like you to think only about **electrical** energy use in your facilities. Please ignore any equipment that uses natural gas.

OB8. I'd like to know what types of equipment in your **[IF OB3=1 OR 5, SAY "FACILITY"; ELSE SAY "FACILITIES"]** are responsible for the greatest amount of **electricity** use. For each of the following equipment categories, please indicate if it is a major user of electricity, a minor user of electricity, or not a user of electricity in your **[IF OB3=1 OR 5, SAY "FACILITY"; ELSE SAY "FACILITIES"]**.

A. Lighting, including lamps, ballasts and controls
B. Heating, Ventilation, or Air Conditioning equipment and controls
C. Process equipment or machinery
D. Motors, variable speed drives, or pumps
E. Compressed air systems
F. Refrigeration and cold storage equipment
G. Water heating equipment
H. Office electronics (e.g., computers, servers, copiers, printers)
I. Other specialized equipment (e.g., hospital equipment, laboratory equipment)
    1. MAJOR USER
    2. MINOR USER
    3. NOT A USER

96. REFUSED
97. DON'T KNOW

[ASK OB9 FOR EACH OB8a-i = 1 "MAJOR USER", ELSE SKIP TO OB10]

OB9. When do you tend to replace **[INSERT ITEM FROM OB8]** equipment? Would you say you replace it…**[READ LIST, CODE ALL THAT APPLY]**

1. To upgrade to more efficient equipment
2. Because specific incentives or rebates are offered
3. During major renovations, or
4. Only when it breaks or burns out
96. REFUSED
97. DON'T KNOW

OB10. In the past three years, have you completed any energy efficiency projects or installed any high-efficiency equipment in the **[IF OB3=1 OR 5, SAY "FACILITY"; ELSE SAY "FACILITIES"]** you oversee?

1. YES
2. NO **[SKIP TO OB12]**
96. REFUSED **[SKIP TO OB12]**
97. DON'T KNOW **[SKIP TO OB12]**

OB11. I'd like to better understand the types of energy efficiency projects or high-efficiency equipment you installed in **[IF SECTOR=OFFICE, SAY "YOUR OFFICE OR OFFICE FACILITES"; ELSE SAY "THESE FACILITIES"]**. From the following list, please indicate if that project or projects included equipment from each category. Did your projects include…

A. Lighting, including lamps, ballasts and controls
B. Heating, Ventilation, or Air Conditioning equipment and controls
C. Process equipment or machinery
D. Motors, variable speed drives, or pumps
E. Compressed air systems
F. Refrigeration and cold storage equipment
G. Water heating equipment
H. Office electronics (e.g., computers, servers, copiers, printers)
I. Other specialized equipment (e.g., hospital equipment, laboratory equipment)
J. Building/Energy Management Systems
K. Retro-commissioning or Building Energy Optimization (BEOP)
    1. YES
    2. NO
    96. REFUSED
    97. DON'T KNOW

OB12. Looking forward over the next three years, which types of energy efficiency improvements or equipment replacements do you think could provide your organization with the greatest energy

savings? For each of the following potential improvements, please tell me if it has major potential for energy savings, minor potential for energy savings, or no potential for energy savings.

A. Lighting, including lamps, ballasts and controls
B. Heating, Ventilation, or Air Conditioning equipment and controls
C. Process equipment or machinery
D. Motors, variable speed drives, or pumps
E. Compressed air systems
F. Refrigeration and cold storage equipment
G. Water heating equipment
H. Office electronics (e.g., computers, servers, copiers, printers)
I. Other specialized equipment (e.g., hospital equipment, laboratory equipment)
J. Building/Energy Management Systems
K. Retro-commissioning or Building Energy Optimization (BEOP)

1. MAJOR POTENTIAL
2. MINOR POTENTIAL
3. NO POTENTIAL

96. REFUSED
97. DON'T KNOW

OB13. From the list I just read, is your organization currently considering implementing any of these types of energy efficiency improvement projects or installing any high-efficiency equipment in the facilities you oversee in the next two to three years?

1. YES
2. NO **[ELSE SKIP TO OD1]**
96. REFUSED **[ELSE SKIP TO OD1]**
97. DON'T KNOW **[ELSE SKIP TO OD1]**

OB14. In which energy efficient categories are you considering implementing energy efficiency projects or installing high-efficiency equipment? From the following list, please indicate if the projects you are considering include equipment from each category. Do your potential efficiency retrofit projects include…

A. Lighting, including lamps, ballasts and controls
B. Heating, Ventilation, or Air Conditioning equipment and controls
C. Process equipment or machinery
D. Motors, variable speed drives, or pumps
E. Compressed air systems
F. Refrigeration and cold storage equipment
G. Water heating equipment
H. Office electronics (e.g., computers, servers, copiers, printers)
I. Other specialized equipment (e.g., hospital equipment, laboratory equipment)
J. Building/Energy Management Systems
K. Retro-commissioning or Building Energy Optimization (BEOP)

1. YES
2. NO

96. REFUSED
97. DON'T KNOW

Organizational Decision-Making

Now I'd like to ask a few questions about how your organization thinks about **capital improvement** projects in general.

OD1. I'm going to read you a list of sources that may provide ideas for capital improvements within your organization and I'd like you to tell me for each one, if it is a primary, secondary, or not a source of ideas for capital improvement projects in your organization. First… [INSERT ITEMS]: ROTATE ITEMS [READ IF NECESSARY: Is this a primary, secondary, or not a source of ideas for capital improvement projects in your organization?]

A. Senior management of the organization
B. Facilities manager
C. Outside consultants, audits, or reports
D. Suppliers or contractors

1. PRIMARY SOURCE
2. SECONDARY SOURCE
3. NOT A SOURCE
96. REFUSED
97. DON'T KNOW

[ASK OD2 IF NO OD1a-d = 1 "PRIMARY"; ELSE SKIP to OD3]

OD2. Who **is** a primary source of ideas for capital improvements in your organization? **[READ IF NECESSARY: YOU INDICATED THAT NONE OF THE SOURCES I LISTED WAS A PRIMARY SOURCE OF IDEAS FOR CAPITAL IMPROVEMENTS.]**

1. [RECORD VERBATIM]
2. NO ONE
96. REFUSED
97. DON'T KNOW

OD3. Who in your organization makes the final decision to move forward with a capital improvements project? [**DO NOT READ. PROBE TO CODE.]**

1. COMPANY OWNER/BOARD OF DIRECTORS/GOVERNING BODY
2. PRESIDENT/CHIEF EXECUTIVE OFFICER/CHIEF FINANCIAL OFFICER
3. CHIEF OPERATING OFFICER OR VICE PRESIDENT OF OPERATIONS
4. FACILITIES OR ENERGY MANAGER
5. BUILDING OWNER/PROPERTY MANAGEMENT FIRM
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

OD4. Who else needs to review or approve the decision to undertake the project? **[DO NOT READ. PROBE TO CODE.]**

1. COMPANY OWNER/BOARD OF DIRECTORS/GOVERNING BODY
2. PRESIDENT/CHIEF EXECUTIVE OFFICER/CHIEF FINANCIAL OFFICER
3. CHIEF OPERATING OFFICER OR VICE PRESIDENT OF OPERATIONS

4. FACILITIES OR ENERGY MANAGER
5. BUILDING OWNER/PROPERTY MANAGEMENT FIRM
94. NO ONE ELSE
95. OTHER (SPECIFY_____)
96. REFUSED
97. DON'T KNOW

Now I'd like to talk about capital investments in **energy efficiency projects** specifically.

OD5. In general, how important are energy efficiency opportunities to your organization when considering capital improvement projects? Would you say they are very important, somewhat important, not very important or not at all important?

1. VERY IMPORTANT
2. SOMEWHAT IMPORTANT
3. NOT VERY IMPORTANT
4. NOT AT ALL IMPORTANT
96. REFUSED
97. DON'T KNOW

OD6. Would you say the importance of energy efficiency opportunities to **your organization** has increased, decreased, or stayed the same the past three years?

1. INCREASED
2. DECREASED
3. STAYED THE SAME
96. REFUSED
97. DON'T KNOW

OD7. What about your peers in New York State? Would you say the importance of energy efficiency opportunities to **other organizations like yours** has increased, decreased, or stayed the same the past three years?

1. INCREASED
2. DECREASED
3. STAYED THE SAME
96. REFUSED
97. DON'T KNOW

OD8. Now I'd like to ask about the factors that your organization considers when deciding whether to move forward with an **energy efficiency** project. For each of the following factors, please rate it as a major factor, a minor factor, or not a factor in your consideration of the project. First, **[INSERT ITEM]**, was this a major, minor, or not a factor?

A. Needed to repair or replace existing equipment or systems
B. Wanted to upgrade to more energy efficiency equipment
C. It was part of a larger construction or remodeling project
D. Availability of incentives from NYSERDA or a utility company
E. Organizational sustainability or environmental priorities
F. Financial considerations

G. Improving the comfort or productivity of your employees
H. **[IF SECTOR = HOSPITAL]** Improving the comfort or experience of your patients
I. **[IF SECTOR = COLLEGE]** Improving the comfort or experience of your students
J. **[IF SECTOR = RETAIL OR OFFICE]** Improving the comfort or experience of your customers
K. **[IF INDICATOR=DOWNSTATE OR OFFBTYPE=PROPERTY MANAGER/DEVELOPER]** New York City's recent building benchmarking requirement

1. MAJOR FACTOR
2. MINOR FACTOR
3. NOT A FACTOR
96. REFUSED
97. DON'T KNOW

[IF MORE THAN ONE ITEM IN OD8=1 'MAJOR FACTOR', ASK OD9, ELSE SKIP TO INSTRUCTIONS BEFORE OD12; PROGRAMMER: IF ONLY ONE ITEM IN OD8=1 'MAJOR', AUTOFILL ANSWER FOR OD9]

OD9. Which of these major factors would you say is **the most important** factor your organization considers when deciding to move forward with an energy efficiency project? **[PROGRAMMER: SHOW LIST OF ITEMS FROM OD8 THAT WERE CODED MAJOR; ACCEPT ONLY ONE ANSWER].**

1. Needed to repair or replace existing equipment or systems
2. Wanted to upgrade to more energy efficiency equipment
3. It was part of a larger construction or remodeling project
4. Availability of incentives from NYSERDA or a utility company
5. Corporate sustainability or environmental priorities
6. Financial considerations
7. Improving the comfort or productivity of your employees
8. Improving the comfort or experience of your patients
9. Improving the comfort or experience of your students
10. Improving the comfort or experience of your customers
11. New York City's recent building benchmarking requirement
96. REFUSED
97. DON'T KNOW

[ASK OD10 IF OD9=6, ELSE SKIP TO INSTRUCTIONS BEFORE OD12]

OD10. For each of the following **financial** factors, please tell me if it is a major factor, a minor factor, or not a factor in your consideration of an energy efficiency project. First, was **[INSERT ITEM]** a major, minor, or not a factor?

A. Reducing operating costs
B. Increasing productivity
C. Availability of internal funding or capital budget
D. Availability of other outside funding
E. Meeting company financial requirements such as rate of return on investment or payback period

1. MAJOR FACTOR
2. MINOR FACTOR
3. NOT A FACTOR
96. REFUSED
97. DON'T KNOW

[ASK OD11 IF OD10E=1 MAJOR FACTOR, ELSE SKIP TO OD12]

OD11. In general, what is the payback threshold your organization uses before deciding to proceed with a major capital investment?

1. [RECORD MONTHS]
2. [RECORD YEARS]
96. REFUSED
97. DON'T KNOW

[ASK OD12 IF OB13=1 (CONSIDERING EE PROJECT); ELSE SKIP TO OD14]

OD12. Now I'm going to read a list of potential funding sources for the energy efficiency projects your organization is currently considering. For each, please indicate if it represents a very important source of funding, a somewhat important source of funding, or not an important source of funding for that project or projects. First, **[INSERT ITEM]**, is this a very important, somewhat important, or not important source of funding?

A. Capital budget/Cash
B. Loans
C. Tax credits
D. Performance contract
E. NYSERDA incentives
F. Utility incentives
G. Energy Efficiency Conservation Block Grant (EECBG)

1. VERY IMPORTANT
2. SOMEWHAT IMPORTANT
3. NOT IMPORTANT
96. REFUSED
97. DON'T KNOW

[IF MORE THAN ONE ITEM IN OD12=1 'VERY IMPORTANT', ASK OD13, ELSE SKIP TO OD14; PROGRAMMER: IF ONLY ONE ITEM IN OD12=1, AUTOFILL ANSWER FOR OD13]

OD13. Which of these VERY important sources of funding would you say is **most important** in securing approval to implement a project? **[PROGRAMMER: SHOW LIST OF ITEMS FROM OD12 THAT WERE CODED 1; ACCEPT ONLY ONE ANSWER].**

1. Capital budget/cash
2. Loans
3. Tax credits
4. Performance contract
5. NYSERDA incentives
6. Utility incentives
7. Energy Efficiency Conservation Block Grant (EECBG)

96. REFUSED
97. DON'T KNOW

OD14. For your organization, how important is it for energy efficiency service providers to offer financing options to help pay for energy efficiency projects? Would you say…**[READ]**

1. Very important,
2. Somewhat important,
3. Somewhat unimportant, or
4. Not important at all
96. REFUSED
97. DON'T KNOW

OD15. I'm going to read you a list of potential barriers to your organization implementing energy efficiency projects or purchasing high efficiency equipment. For each one, please tell me if it is a major barrier, a minor barrier, or not a barrier. First, **[INSERT ITEM]**, is this a major, minor, or not a barrier?

A. Concerns about the performance or reliability of energy efficient equipment
B. Concerns about the upfront costs of energy efficient equipment
C. Uncertainty around projected energy savings
D. Lack of internal capital or funding
E. Lack of outside capital or funding
F. Concerns about the economy
G. Failure to meet your organization's financial requirements (such as return on investment or payback period)
H. Competition with other priorities within the organization
I. **[SKIP IF OB6=2 "OWN"]** Division of costs and benefits between the building owner and tenant
J. Lack of staff available to evaluate or oversee project
K. Concerns about the down-time needed to complete the project

1. MAJOR BARRIER
2. MINOR BARRIER
3. NOT A BARRIER
96. REFUSED
97. DON'T KNOW

[IF MORE THAN ONE ITEM IN OD15=1 'MAJOR BARRIER', ASK OD16, ELSE SKIP TO OD17; PROGRAMMER: IF ONLY ONE ITEM IN OD15=1, AUTOFILL ANSWER FOR OD16]

OD16. Which of these major barriers would you say is the **greatest barrie**r to energy efficiency investments for your organization? **[PROGRAMMER: SHOW LIST OF ITEMS FROM OD15 THAT WERE CODED MAJOR; ACCEPT ONLY ONE ANSWER].**

1. Concerns about the performance or reliability of energy efficient equipment
2. Concerns about the upfront costs of energy efficient equipment
3. Uncertainty around projected energy savings
4. Lack of internal capital or funding

5. Lack of outside capital or funding
6. Concerns about the economy
7. Failure to meet your organization's financial requirements (such as return on investment or payback period)
8. Competition with other priorities within the organization
9. Division of costs and benefits between the building owner and tenant
10. Lack of staff available to evaluate or oversee project
11. Concerns about the down-time needed to complete the project
96. REFUSED
97. DON'T KNOW

OD17. Since the economic downturn began in 2008, would you say your organization's investment in energy efficiency has increased, decreased, or stayed the same?

1. INCREASED
2. DECREASED
3. STAYED THE SAME
96. REFUSED
97. DON'T KNOW

OD18. I'm curious about your organization's perceptions regarding the availability of **qualified** energy efficiency service providers and contractors in the market. Would you say there are **many** well-qualified companies, **a few** well-qualified firms, or not enough well-qualified companies providing energy efficiency products and services?

1. MANY
2. A FEW
3. NOT ENOUGH
96. REFUSED
97. DON'T KNOW

Existing Facilities Program Experience

Thank you for your help so far. I have one more set of questions.

EF1. Before today, had you heard of NYSERDA's Existing Facilities Program, also called EFP, which provides incentives for qualifying energy efficiency equipment?

1. YES
2. NO **[SKIP TO EF7]**
96. REFUSED **[SKIP TO EF7]**
97. DON'T KNOW **[SKIP TO EF7]**

EF2. NYSERDA's Existing Facilities Program offers energy efficient equipment incentives for both prequalified measures and for performance-based measures. How confident are you that you

understand the differences between these two approaches to applying for incentives? Would you say you are…**[READ]**

1. Very confident
2. Somewhat confident
3. Not very confident
4. Not confident at all
96. REFUSED
97. DON'T KNOW

EF3. Have you or your staff visited NYSERDA's Existing Facilities Program website?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

EF4. Have you or your staff contacted any of NYSERDA's program representatives?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

EF5. I'm curious why your organization has not applied for incentives from the NYSERDA Existing Facilities Program. I'm going to read you a list of possible reasons and for each one please tell me if it is a primary reason, a secondary reason, or not a reason why your organization has not applied for a NYSERDA EFP incentive.

A. You were not aware of the program
B. You didn't think about the program
C. You have not installed any qualifying energy efficient equipment
D. You were unsure whether installed equipment qualified
E. You thought the incentives were insufficient
F. You thought the program requirements were unattractive
G. **[ASK IF EF3=1 OR EF4=1]** You had an unsatisfactory experience learning about the program from the website or program representatives

1. PRIMARY REASON
2. SECONDARY REASON
3. NOT A REASON
96. REFUSED
97. DON'T KNOW

EF6. What improvements, if any, could NYSERDA make to its Existing Facilities Program to better serve your needs?

2. SIMPLIFY OR IMPROVE APPLICATION PROCESS OR MATERIALS
3. IMPROVE PROGRAM MARKETING/OUTREACH

4. SIMPLIFY OR IMPROVE PROJECT APPROVAL AND MEASUREMENT AND VERIFICATION PROCESS
5. CHANGES TO INCENTIVE STRUCTURE OR ELIGIBILITY
    94. NO CHANGES
    95. OTHER (SPECIFY_____)
96. REFUSED
97. DON'T KNOW

EF7. To the best of your knowledge, does the utility company or companies serving your **[IF OB3=1 OR 5, SAY "FACILITY"; ELSE SAY "FACILITIES"]** offer incentives for efficient equipment?

1. YES
2. NO **[SKIP TO EF13]**
96. REFUSED **[SKIP TO EF13]**
97. DON'T KNOW **[SKIP TO EF13]**

EF8. Did you contact your utility company, or access its website, to learn about its incentive offerings?

1. YES
2. NO
3. THE UTILITY COMPANY CONTACTED ME
96. REFUSED
97. DON'T KNOW

EF9. Have you applied to that utility's incentive program for any energy efficient projects or equipment?

1. YES **[SKIP TO INSTRUCTIONS BEFORE EF11]**
2. NO
96. REFUSED **[SKIP TO INSTRUCTIONS BEFORE EF11]**
97. DON'T KNOW **[SKIP TO INSTRUCTIONS BEFORE EF11]**

EF10. Do you plan to apply to that utility's incentive program for energy efficient projects or equipment purchases?

1. YES
2. NO
3. MAYBE
96. REFUSED
97. DON'T KNOW

[ASK EF11 IF BOTH EF1=1 AND EF7=1, ELSE SKIP TO EF13]

EF11. How much confusion do you think there is in the marketplace about the difference between NYSERDA's Existing Facilities Program and your utility company's incentive program? Would you say there is considerable confusion, a little confusion, or not much confusion?

1. CONSIDERABLE CONFUSION
2. A LITTLE CONFUSION
3. NOT MUCH CONFUSION **[SKIP TO EF13]**

96. REFUSED **[SKIP TO EF13]**
97. DON'T KNOW **[SKIP TO EF13]**

EF12. Could you briefly explain what is confusing to the marketplace?

2. GENERAL CONFUSION FROM THERE BEING MULTIPLE PROGRAMS
3. LACK OF AWARENESS ON PROGRAM DIFFERENCES
4. UNCERTAINTY ABOUT WHICH INCENTIVE OR PROGRAM TO USE
5. LACK OF FAMILIARITY WITH NYSERDA
6. ELIGIBILITY AND APPLICATION REQUIREMENTS
95. OTHER (SPECIFY_____)
96. REFUSED
97. DON'T KNOW

EF13. **[IF OB3=1 OR 5, SAY "DOES YOUR FACILITY"; ELSE SAY "DO ANY OF YOUR FACILITIES"]** use natural gas?

1. YES
2. NO **[SKIP TO CLOSING]**
96. REFUSED **[SKIP TO CLOSING]**
97. DON'T KNOW **[SKIP TO CLOSING]**

EF14. Before today, were you aware that NYSERDA's Existing Facilities Program offers incentives for efficient gas equipment, as well as efficient electric equipment?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

Closing

Ok. Those are all the questions I have today. I'd like to thank you again for your time and participation.

NAVIGANT

NYSERDA – Existing Facilities Program MCA
EFP_MCASurvey_Participating_Host_Contractors
Final Version
August 8, 2011

[ASK TO SPEAK WITH CONTACT_1_NAME, OR IF THIS PERSON IS UNAVAILABLE AND THERE IS INFORMATION, ASK FOR CONTACT_2_NAME], THEN READ:
Hello, my name is _____, and I am calling on behalf of Navigant Consulting. We are conducting a study sponsored by NYSERDA, the New York State Energy Research and Development Authority, to better understand the current market for energy efficiency retrofits in New York's commercial sector. We are interested in gathering your input as one of the firms offering energy efficiency services. The survey is intended to inform NYSERDA's energy efficiency incentive programs, and any responses you provide will be kept confidential.

According to NYSERDA's records, your company has participated in at least one energy efficiency retrofit project within the past few years that received an incentive through NYSERDA's Existing Facilities Program. Specifically, their records show that you were involved in a project for **[CUSTOMER NAME]**. It's important that I talk to someone in your company who worked on this or other projects that received an incentive through NYSERDA's Existing Facilities program.

SCR1. Are you that person?
1. YES **[GO TO SCR2]**
2. NO - *Could you please give me the name and phone number of the person I should speak to, or someone who would know the proper person to speak to, who would be well-qualified to ask about the factors that influence customers' decisions about pursuing energy efficiency projects?*

NAME: _____ PHONE: _____
96. REFUSED – *Thank you very much for your time. Goodbye.* **[TERMINATE]**
97. DON'T KNOW – *If you have been active in your business at least 5 years, you likely are someone whose opinions we would value – may we continue?*

SCR2. I'd like to ask you some questions. This will take about 20 minutes and will greatly help NYSERDA tailor its commercial sector energy efficiency programs to better serve New York energy consumers. Your responses will be completely confidential. Can we start?
1. YES
2. NO – *when is a good time to callback?* _____
96. REFUSED - *Thank you very much for your time. Goodbye*. **[TERMINATE]**

[INTERVIEWER NOTE: IF THE 'NO" FEELS LIKE A REFUSAL, SAY "NYSERDA IS TRYING TO DETERMINE HOW TO IMPROVE ITS ENERGY EFFICIENCY PROGRAMS, AND AS AN ORGANIZATION NYSERDA BELIEVES THAT FEEDBACK FROM ENERGY CONTRACTORS IS AN IMPORTANT PART OF MAKING THESE IMPROVEMENTS. FEEDBACK FROM YOU/YOUR ORGANIZATION WOULD GREATLY HELP IN THIS EFFORT. WITH THIS IN MIND, MAY WE CONTINUE?"]

Company Background

Please note that we will be focusing on the commercial and institutional sectors; industrial and manufacturing customers are not included in this survey.

First, I have a few background questions about your company.

OB1. I'd like to understand your company's role in providing energy efficiency solutions to customers. For each of the following services, please tell me if your company directly offers the service or not. If you primarily subcontract with or partner with another firm to offer a particular service, please just tell me that as well. Does your company offer… **[READ]**

a. Energy audits
b. Project design and engineering
c. Coordination of NYSERDA incentives
d. Performance contracting
e. Other financing assistance
f. Equipment installation
g. Monitoring and verification
h. Operations and maintenance

1. YES
2. NO
3. SUBCONTRACT
4. PARTNER
96. REFUSED
97. DON'T KNOW

OB2. Approximately how many full time employees does your company employ at all of its locations in New York State? Would you say… **[READ]**

1. Ten or fewer
2. More than ten but less than 50
3. 50 or more

96. REFUSED
97. DON'T KNOW

OB3. For how many years has your company been doing business in the state of New York? Would you say… **[READ]**

1. Two years or less
2. More than two but less than five years
3. Five years or more

96. REFUSED
97. DON'T KNOW

OB4. Do you primarily serve **downstate** New York (the 5 boroughs of New York City plus the Westchester area) or **upstate** New York?

1. DOWNSTATE
2. UPSTATE
3. BOTH (VOL)

98. REFUSED
99. DON'T KNOW

OB5. Does your company offer any services that are unrelated to energy efficiency?

1. YES
2. NO

96. REFUSED
97. DON'T KNOW

[ASK CB6 IF OB5=1 YES; ELSE SKIP TO OB8]

OB6. For how many years has your company been providing *energy efficiency services* in New York? Would you say… **[READ]**

1. Two years or less
2. More than two but less than five years
3. Five years or more

96. REFUSED
97. DON'T KNOW

OB7. Approximately what percentage of your in-state revenue is related to energy efficiency projects versus other activities? Would you say… **[READ]**

1. Less than 25%
2. 25 % to less than 50%
3. 50% to less than 75%
4. 75% or more

96. REFUSED
97. DON'T KNOW

OB8. Does your company work with gas equipment, or is your focus electric-only?

1. ELECTRIC-ONLY
2. GAS-ONLY
3. BOTH

96. REFUSED
97. DON'T KNOW

OB9. What is your title in the company? Are you the… **[READ]**

1. Project manager
2. Project engineer
3. CEO/CFO/President
4. Vice President
5. Owner

6. Business development or sales person
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

OB10. For how many years have you been with the company? Would you say… **[READ]**
1. Two years or less
2. More than two but less than five years
3. Five years or more
96. REFUSED
97. DON'T KNOW

Approach to EE Market

Next, I'd like to ask some questions about the types of energy efficiency projects your company works on and about your interactions with customers.

EE1. In the past three years, has your company begun offering any services related to energy efficiency retrofits that you did not previously provide?
1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK EE2 IF EE1=1 YES; ELSE SKIP TO EE4]

EE2. What new services have you begun offering? **[DO NOT READ. CODE ALL THAT APPLY]**
1. ENERGY AUDITS
2. PROJECT DESIGN AND ENGINEERING
3. COORDINATION OF NYSERDA INCENTIVES
4. PERFORMANCE CONTRACTING
5. OTHER FINANCING ASSISTANCE
6. EQUIPMENT INSTALLATION
7. MONITORING AND VERIFICATION
8. OPERATIONS AND MAINTENANCE
9. COMMISSIONING OR RETRO-COMMISSIONING SERVICES
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

EE3. What led you to offer these services? **[DO NOT READ. CHECK ALL THAT APPLY]**
1. WE ACQUIRED ANOTHER FIRM THAT OFFERED THESE SERVICES
2. WE WERE ACQUIRED BY ANOTHER FIRM THAT OFFERED THESE SERVICES
3. CUSTOMER DEMAND
4. WANTED TO OFFER A MORE COMPLETE SUITE OF SERVICES TO OUR CUSTOMERS
95. OTHER (SPECIFY _____)
96. REFUSED

97. DON'T KNOW

EE4. In the past three years, has your company ***stopped*** offering any services related to energy efficiency retrofits that you previously provided?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK EE5 IF EE4=YES; ELSE SKIP TO EE7]

EE5. What services have you stopped offering? **[DO NOT READ. CODE ALL THAT APPLY]**

1. ENERGY AUDITS
2. PROJECT DESIGN AND ENGINEERING
3. COORDINATION OF NYSERDA INCENTIVES
4. PERFORMANCE CONTRACTING
5. OTHER FINANCING ASSISTANCE
6. EQUIPMENT INSTALLATION
7. MONITORING AND VERIFICATION
8. OPERATIONS AND MAINTENANCE
9. COMMISSIONING OR RETRO-COMMISSIONING SERVICES
95. OTHER (SPECIFY_____)
96. REFUSED
97. DON'T KNOW

EE6. What led you to stop offering these services? **[DO NOT READ. CHECK ALL THAT APPLY]**

1. MARKET OPPORTUNITY DISSOLVED
2. WE WERE LOSING MONEY ON IT
3. IT WAS TOO COMPLICATED
4. WE WANTED TO FOCUS ON OUR CORE COMPETENCIES
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

EE7. Do you focus your energy efficiency retrofit business on specific customer market sectors or buildings types?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK EE8 IF EE7=1 YES; ELSE SKIP TO EE9]

EE8. What sectors or building types do you focus on? **[DO NOT READ. CHECK ALL THAT APPLY]**

1. COLLEGES AND UNIVERSITIES
2. HOSPITALS AND HEALTH CARE FACILITIES
3. OFFICE BUILDINGS/COMMERCIAL REAL ESTATE/TENANT IMPROVEMENTS
4. LARGE RETAIL/BIG BOX STORES
5. STATE AND LOCAL GOVERNMENT
6. K-12 OR SECONDARY SCHOOLS

7. HOSPITALITY
8. INDUSTRIAL AND MANUFACTURING
9. MUNICIPAL WATER AND WASTEWATER FACILITIES
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

EE9. Do you focus your energy efficiency retrofit business on specific types of equipment?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK EE10 IF EE9=1 YES; ELSE SKIP TO EE11]

EE10. I'm going to read you a list of equipment categories. For each one, please tell me if it is a major focus, a minor focus, or not a focus for your company? First, **[INSERT ITEM],** is this a major factor, minor factor, or not a factor?

a) Lighting, including lamps, ballasts and controls
b) Heating, Ventilation, or Air Conditioning equipment and controls
c) Process equipment or machinery
d) Motors, variable speed drives, or pumps
e) Compressed air systems
f) Refrigeration and cold storage equipment
g) Building Management Systems

1. MAJOR FOCUS
2. MINOR FOCUS
3. NOT A FOCUS
96. REFUSED
97. DON'T KNOW

EE11. How does your firm market energy efficiency retrofit services to potential customers? **[SELECT ALL THAT APPLY, DO NOT READ]**

1. MARKET USING NYSERDA NAME
2. MARKET SERVICES TO EXISTING CUSTOMERS/CLIENTS
3. DON'T MARKET, RESPOND TO CUSTOMER/CLIENT INQUIRIES
4. MARKET BASED ON EXPECTED BENEFITS
5. WORD OF MOUTH
6. REFERRALS
7. ORGANIZED NETWORKING (CONFERENCES, TRADE SHOWS)
8. WEBSITE, MATERIALS
9. DIRECT MARKETING/IN PERSON MARKETING
95. OTHER (SPECIFY_____)
96. REFUSED
97. DON'T KNOW

Market Drivers and Barriers

Now I'd like to ask you a few questions about what you perceive as ***your customers'*** primary motivations and challenges when considering energy efficiency options.

MD1. First, I'd like to ask about the factors you see influencing your customers' decisions to implement energy efficiency retrofits or purchase energy efficient equipment. For each of the following factors, please tell me if it is a major factor, a minor factor, or not a factor in your customers' consideration of a retrofit project. First, **[INSERT ITEM]**, is this a major, minor or not a factor?

a) Needed to repair or replace existing equipment or systems
b) Wanted to upgrade to more energy efficiency equipment
c) It was part of a larger construction or remodeling project
d) Availability of incentives from NYSERDA
e) Corporate sustainability or environmental priorities
f) Financial considerations
g) Improving the comfort or productivity of their employees
h) Improving the experience of their customers (patients, students, etc.)
i) **[IF INDICATOR= DOWNSTATE]** New York City's recent building benchmarking requirement

1. MAJOR FACTOR
2. MINOR FACTOR
3. NOT A FACTOR
96. REFUSED
97. DON'T KNOW

[IF MORE THAN ONE ITEM IN MD1=1 'MAJOR FACTOR', ASK MD2, ELSE SKIP TO MD3; PROGRAMMER: IF ONLY ONE ITEM IN MD1=1'MAJOR', AUTOFILL FOR MD2]

MD2. Which of these major factors would you say is **the most important** factor your customers considered when deciding to move forward with a retrofit project? **[SHOW LIST OF ITEMS FROM MD1 THAT WERE ANSWERED 'MAJOR'; ACCEPT ONLY ONE ANSWER.]**

1. Needed to repair or replace existing equipment or systems
2. Wanted to upgrade to more energy efficiency equipment
3. It was part of a larger construction or remodeling project
4. Availability of incentives from NYSERDA
5. Corporate sustainability or environmental priorities
6. Financial considerations
7. Improving the comfort or productivity of their employees
8. Improving the experience of their customers (patients, students, etc.)
9. **[IF INDICATOR= DOWNSTATE]** New York City's recent building benchmarking requirement

96. REFUSED
97. DON'T KNOW

[ASK MD3 IF MD2=6, ELSE SKIP TO MD4]

MD3. For each of the following **financial** factors, please tell me if it is a major factor, a minor factor, or not a factor in your customers' consideration of retrofit projects.

a) Reducing operating costs
b) Increasing productivity
c) Availability of internal funding or capital budget
d) Availability of other outside funding
e) Meeting company financial requirements such as rate of return on investment or payback period

1. MAJOR FACTOR
2. MINOR FACTOR
3. NOT A FACTOR
96. REFUSED
97. DON'T KNOW

MD4. Now I'd like to ask about **barriers** to retrofit projects for your customers. I'm going to read you a list of factors. For each one please tell me if you think it is a major barrier, minor barrier or not a barrier for your customers when they consider implementing energy efficiency projects or purchasing high efficiency equipment.

a) Concerns about the performance or reliability of energy efficient equipment
b) Concerns about the upfront costs of energy efficient equipment
c) Uncertainty around projected energy savings
d) Lack of internal capital or funding
e) Lack of outside capital or funding
f) Concerns about the economy
g) Failure to meet their organization's financial requirements (such as return on investment or payback period)
h) Competition with other priorities within the customer's organization
i) Division of costs and benefits between the building owner and tenant
j) Lack of staff available to evaluate or oversee project
k) Concerns about the down-time needed to complete the project

1. MAJOR BARRIER
2. MINOR BARRIER
3. NOT A BARRIER
96. REFUSED
97. DON'T KNOW

[IF MORE THAN ONE ITEM IN MD4=1 'MAJOR BARRIER', ASK MD5, ELSE SKIP TO PE1; PROGRAMMER: IF ONLY ONE ITEM IN MD4=1'MAJOR', AUTOFILL FOR MD5]

MD5. Which of these major factors would you say is the **greatest barrier** to energy efficiency investments for your customers? **[SHOW LIST OF MAJOR FACTORS FROM MD4; ACCEPT ONLY ONE ANSWER.]**

1. Concerns about the performance or reliability of energy efficient equipment

2. Concerns about the upfront costs of energy efficient equipment
3. Uncertainty around projected energy savings
4. Lack of internal capital or funding
5. Lack of outside capital or funding
6. Concerns about the economy
7. Failure to meet their organization's financial requirements (such as return on investment or payback period)
8. Competition with other priorities within the customer's organization
9. Division of costs and benefits between the building owner and tenant
10. Lack of staff available to evaluate or oversee project
11. Concerns about the down-time needed to complete the project
96. REFUSED
97. DON'T KNOW

Project Economics and Performance Contracting

These next few questions relate to how your customers pay for energy efficient projects and services.

PE1. I'm interested in the possible effects of the economic downturn on different customers' investment in energy efficiency retrofits. For each of the following market sectors, please indicate if customers' investment in energy efficiency retrofit projects has increased, decreased, or stayed the same since the beginning of the economic downturn in 2008. If you don't work with or are unfamiliar with a particular customer market segment, please respond "I don't know."

a) Colleges and Universities
b) Hospitals and Health Care Facilities
c) Office Buildings and Commercial Real Estate
d) Large Retail Chains, such as Big Box or Department Stores

1. INCREASED
2. DECREASED
3. STAYED THE SAME
96. REFUSED
97. DON'T KNOW

PE2. Does your company offer financing assistance to customers for energy efficiency retrofit projects, either directly or through a third-party organization?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK PE3 IF PE2=1; ELSE SKIP TO PE6]

PE3. On average, how important is this financial assistance to potential customers' willingness to implement energy efficiency projects or purchase energy efficient equipment? Would you say… **[READ]**

1) Very important.
2) Somewhat important,
3) Not too important,

4) Not important at all
5) DEPENDS ON CUSTOMER (VOL)
96) REFUSED
97) DON'T KNOW 1

PE4. I'm interested in what type of financing you offer. Do you… **[READ]**

a) Offer performance contracting or ESCO services?
b) Use an internal fund to provide loans to customers?
c) Partner with a bank or other third-party to provide loans to customers?
d) Other _____

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK PE5 IF PE4a=1 YES; ELSE SKIP TO PE6]

PE5. I'd like to ask a little more about performance contracting. For each of the following market sectors please tell me if customers' willingness to enter into a performance contract for a retrofit project has increased, decreased, or stayed the same over the past three years. If you don't work with or are unfamiliar with a particular customer sector, please just tell me that.

a) Colleges and Universities
b) Hospitals and Health Care Facilities
c) Office Buildings/Commercial Real Estate
d) Large Retail Chains, such as Big Box or Department Stores

1. INCREASED
2. DECREASED
3. STAYED THE SAME
96. REFUSED
97. DON'T KNOW

PE6. How often do you guarantee a certain level of energy savings to your customers? Would you say… **[READ]**

1. Always
2. Often
3. Sometimes
4. Rarely
5. Never
96. REFUSED
97. DON'T KNOW

Existing Facilities Program and Project Experience

This next set of questions relates specifically to NYSERDA's Existing Facilities Program, also known as EFP, for commercial and institutional sector energy users.

EF1. The Existing Facilities Program offers energy efficient equipment incentives for both prequalified measures and for performance-based measures. How confident are you that you

understand the differences between these two approaches to applying for incentives? Would you say you are… **[READ]**

1. Very confident
2. Somewhat confident
3. Not too confident
4. Not confident at all

96 REFUSED
97 DON'T KNOW 1

EF2. Do you include information about NYSERDA's EFP program in your marketing materials and outreach efforts?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

EF3. I'm interested in how the availability of incentives from NYSERDA's Existing Facilities Program has affected your business. Would you say that the availability of these incentives has… **[READ]**

1. Had a positive effect on your business
2. Had a negative effect on your business
3. Not greatly affected your business
96. REFUSED
97. DON'T KNOW

EF4. How important is the availability of **NYSERDA incentives** in ***your customers' decisions*** to implement energy efficiency measures? Would you say… **[READ]**

1. Very important
2. Somewhat important
3. Not too important
4. Not important at all
96. REFUSED
97. DON'T KNOW

EF5. Now I'd like to ask about the degree to which the **energy efficiency retrofit** projects your company completes take advantage of various incentives. For each of the following types of incentives, please tell me approximately what percent of retrofit projects that your company has completed in New York State in the past three years used that type of incentive:

a) NYSERDA ***Prequalified*** Incentives
b) NYSERDA ***Performance-Based*** Incentives
c) Incentives from a utility company's energy efficiency program 1
d) No incentive

1. LESS THAN 25%
2. 25 % TO LESS THAN 50%
3. 50% TO LESS THAN 75%
4. 75% OR MORE

96. REFUSED
97. DON'T KNOW

[ASK EF6 IF EF5d = 3 OR 4; ELSE SKIP TO EF8]

EF6. I'm going to read you a list of possible reasons why energy efficiency retrofit projects might not use an incentive. For each one, please tell me if it is a primary reason, a secondary reason, or not a reason why your company's energy efficiency retrofit projects might not use an incentive.

a) You were unsure whether the installed equipment qualified
b) You thought the incentives were insufficient
c) You thought the program requirements were unattractive
d) You applied for incentives, but the projects did not meet the requirements
e) Your customers did not wish to use NYSERDA or utility company funds

1. PRIMARY REASON
2. SECONDARY REASON
3. NOT A REASON
96. REFUSED
97. DON'T KNOW

[ASK EF7 IF EF6c = 1 OR 2; ELSE SKIP TO EF8]

EF7. What specific program requirements do you find to be unattractive?

1. [RECORD VERBATIM]
96. REFUSED
97. DON'T KNOW

EF8. Have any of the utility companies that serve your customers in New York State contacted you about their incentive programs for commercial customers?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

EF9. How much confusion do you think there is in the marketplace about the difference between NYSERDA's Existing Facilities Program and utility companies' incentive programs? Would you say there is considerable confusion, a little confusion, or not much confusion?

1. CONSIDERABLE CONFUSION
2. A LITTLE CONFUSION
3. NOT MUCH CONFUSION
96. REFUSED
97. DON'T KNOW

[ASK EF10 IF EF9 = 1 OR 2; ELSE SKIP TO EF11]

EF10. Could you briefly explain what is confusing to the marketplace?

2. GENERAL CONFUSION FROM THERE BEING MULTIPLE PROGRAMS
3. LACK OF AWARENESS ON PROGRAM DIFFERENCES
4. UNCERTAINTY ABOUT WHICH INCENTIVE OR PROGRAM TO USE
5. LACK OF FAMILIARITY WITH NYSERDA

6. ELIGIBILITY AND APPLICATION REQUIREMENTS
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

[ASK EF11 IF OB8 = 2 OR 3; ELSE SKIP TO EF12]

EF11. Before today, were you aware that the Existing Facilities Program offers incentives for efficient gas equipment, as well as efficient electric equipment?

1. YES
2. NO
3. NOT RELEVANT TO RESPONDENT (THEY DON'T SELL GAS EQUIPMENT)
96. REFUSED
97. DON'T KNOW

EF12. Next, I'd like you to tell me how much you agree or disagree with each of the following statements about your experiences with various parts of NYSERDA's Existing Facilities Program. **[INSERT STATEMENT].** Do you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree with this statement.

a) I could understand the application requirements and process
b) I *was not* satisfied with my communications with program staff
c) When I needed help, NYSERDA or its representatives helped me
d) NYSERDA inspections *have not* gone smoothly
e) The M&V activities to measure and verify project savings have gone smoothly
f) I *was not* satisfied with the time from when the application was submitted to when the incentive check was received

1. STRONGLY AGREE
2. AGREE
3. NEITHER AGREE NOR DISAGREE
4. DISAGREE
5. STRONGLY DISAGREE
96. REFUSED
97. DON'T KNOW
99. NOT APPLICABLE

[ASK EF13 IF EF12e = 4 OR 5 (DISAGREE OR STRONGLY DISAGREE), ELSE SKIP TO EF14]

EF13. Please explain what aspect of the M&V activities did not go smoothly.

1. [RECORD VERBATIM]
96. REFUSED
97. DON'T KNOW

EF14. Now I would like to understand which aspects of the NYSERDA program your organization considers to be of value. I'm going to read a list of statements describing potential benefits of participating in the Existing Facilities Program. For each one, please tell me if it was a primary benefit, a secondary benefit, or not a benefit of participating.

a) The financial incentives NYSERDA provides

b) NYSERDA is a trustworthy and independent source of information about energy efficiency options
c) NYSERDA staff and its contractors are available to provide support for projects
d) NYSERDA helps ensure we implement quality projects
    1. PRIMARY BENEFIT
    2. SECONDARY BENEFIT
    3. NOT A BENEFIT
    96. REFUSED
    97. DON'T KNOW

EF15. Are there any other **primary** benefits of the program that I did not mention?
1. YES
2. NO
96. REFUSED
97. DON'T KNOW

[ASK EF16 IF EF15=1 YES; ELSE SKIP TO EF17]

EF16. What are those benefits?
1. [RECORD VERBATIM]
96. REFUSED
97. DON'T KNOW

EF17. For how many years have you been using Existing Facilities Program incentives, or those of its predecessor, the Enhanced Commercial and Industrial Performance Program (ECIPP), for your customers' projects? Would you say… [**READ]**
1. 2 years or less
2. More than 2 but less than 5 years
3. 5 years or more
96. REFUSED
97. DON'T KNOW

[ASK EF18 IF EF17 = 2 OR 3; ELSE SKIP TO INSTRUCTIONS PRIOR TO CC1]

EF18. In terms of completing the program applications, would you say they are … **[READ]**
1. Easier to complete than before
2. Harder to complete than before, or
3. About the same?
96. REFUSED
97. DON'T KNOW

EF19. Thinking about NYSERDA staff's interactions with firms like yours, would you say they have… **[READ]**
1. Improved over time
2. Worsened over time, or
3. Stayed about the same?
96. REFUSED

97. DON'T KNOW

[ASK EF20 IF EF19=2; ELSE SKIP TO EF21]

EF20. Could you please explain what about the interactions has worsened?

1. [RECORD VERBATIM]
96. DON'T KNOW
97. REFUSED

EF21. What is your perception of how NYSERDA currently values the participation of firms like yours? Would you say NYSERDA values your participation… **[READ]**

1. More than 2 years ago
2. Less than 2 years ago
3. About the same as 2 years ago
96. REFUSED
97. DON'T KNOW

[ASK EF22 IF EF21=2; ELSE SKIP TO INSTRUCTIONS BEFORE CC1]

EF22. Could you please explain why you perceive that NYSERDA values your participation less?

1. [RECORD VERBATIM]
96. REFUSED
97. DON'T KNOW

Closing

Thank you so much for your time today. Before we close, I have one final question.

CC1. What, if any, changes should NYSERDA's Existing Facility Program make to better serve the market in the future?

2. INCREASE INCENTIVES
3. SHORTEN TURNAROUND BETWEEN APPLICATION, WORK, AND INCENTIVE RECEIPT
4. SIMPLIFY OR IMPROVE APPLICATION PROCESS OR MATERIALS
5. SIMPLIFY OR IMPROVE PROJECT APPROVAL AND MEASUREMENT AND VERIFICATION PROCESS
6. CHANGES TO INCENTIVE STRUCTURE OR ELIGIBILITY
94. NO CHANGES
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

Those are all the questions I have today. I'd like to thank you again for your time and participation.

NAVIGANT

NYSERDA – Existing Facilities Program MCA
EFP_MCASurvey_NonParticipating_ServiceProviders
Final for Programming
November 16, 2011

Intro_1: Hello, my name is _____, and I am calling on behalf of Navigant Consulting. We are conducting a study sponsored by NYSERDA, the New York State Energy Research and Development Authority, to better understand the current market for energy efficiency retrofits in New York State's commercial and institutional sectors. We are interested in gathering your input as one of the firms offering energy efficiency products or services. The survey is intended to inform NYSERDA's energy efficiency incentive programs, and any responses you provide will be kept confidential.

Screener

SCR1. I would like to confirm that I have reached a company that provides services or equipment to building owners and occupants in New York State who wish to complete energy efficiency retrofit projects, such as lighting or heating and cooling equipment upgrades. Is that correct?

1. YES
2. NO – *Thank you for your time. For this study, we are speaking with firms that provide energy retrofit services or equipment in New York State. Have a nice day.* **[TERMINATE]**
96. REFUSED – *Thank you for your time.* **[TERMINATE]**
97. DON'T KNOW – *Is there another person I can speak with who would be familiar with the kinds of services or equipment your company offers?* **[RECORD NAME AND CONTACT INFORMATION]**

SCR2. Does your company provide energy retrofit services or equipment to commercial or institutional customers?

1. YES
2. NO – *Thank you for your time. For this study, we are focusing only on the commercial and institutional sectors. Have a nice day.* **[TERMINATE]**
96. REFUSED – *Thank you for your time.* **[TERMINATE]**
97. DON'T KNOW – *Is there another person I can speak with who would be familiar with the customers your company serves?* **[RECORD NAME AND CONTACT INFORMATION]**

SCR3. It's important that I talk to someone in your company who is familiar with the factors influencing your commercial and institutional sector customers' decisions to pursue energy efficiency retrofits. Are you that person?

1. YES
2. NO - *Could you please give me the name and phone number of the person I should speak to, or someone who would know the proper person to speak to, who would be well-qualified to ask about the factors that influence customers' decisions about pursuing energy efficiency projects?* **[RECORD NAME AND CONTACT INFORMATION]**
96. REFUSED – *Thank you very much for your time. Goodbye* **[TERMINATE]**
97. DON'T KNOW - *If you have been active in your business at least 5 years, you likely are someone whose opinions we would value – may we continue?* **[IF YES, CODE AS 1; IF NO, CODE AS 2]**

SCR4. I'd like to ask you some questions. This will take about 20-25 minutes and will greatly help NYSERDA tailor its commercial sector energy efficiency programs to better serve New York energy consumers. Your responses will be completely confidential. Can we start?

1. YES
2. NO – *When is a good time to call back?*
96. REFUSED - *Thank you very much for your time. Goodbye.* **[TERMINATE]**

[INTERVIEWER NOTE: IF THE 'NO" FEELS LIKE A REFUSAL - STATE THE FOLLOWING: "NYSERDA IS TRYING TO DETERMINE HOW TO IMPROVE ITS EXISTING FACILITIES PROGRAM AND SEEKING INPUT FROM SERVICE PROVIDERS AND OTHER TRADE ALLIES IS AN IMPORTANT PART OF MAKING THESE IMPROVEMENTS. WITH THIS IN MIND, IT WOULD BE A BIG HELP IF WE COULD GET INPUT FROM YOUR ORGANIZATION. MAY WE CONTINUE?"]

Participation Screeners

PS1. To the best of your knowledge, has your company participated in any NYSERDA or **New York Energy $mart[SM]** programs in the past three years? **[READ IF NECESSARY: NYSERDA is the New York State Energy Research and Development Authority]**

a. YES
b. NO **[SKIP TO CB1]**
98. REFUSED **[SKIP TO CB1]**
99. DON'T KNOW **[SKIP TO CB1]**

PS2. Which NYSERDA Programs has your organization participated in? **[DO NOT READ. MARK ALL THAT APPLY.]**

1. FLEX TECH (FLEXIBLE TECHNICAL ASSISTANCE)
2. NEW CONSTRUCTION PROGRAM (NCP)
3. EXISTING FACILITIES PROGRAM (EFP)
4. INDUSTRIAL PROCESS EFFICIENCY (IPE)
5. ENHANCED COMMERCIAL & INDUSTRIAL PERFORMANCE PROGRAM (ECIPP)
6. BUSINESS PARTNERS
95. OTHER (SPECIFY_____)
96. REFUSED
97. DON'T KNOW

[IF PS2=03 EXISTING FACILITIES PROGRAM, SAY "FOR THIS STUDY, WE ARE TRYING TO SPEAK WITH FIRMS THAT HAVE NOT PARTICIPATED IN THE EXISTING FACILITIES PROGRAM. THANK YOU FOR YOUR TIME AND HAVE A GOOD DAY" THEN TERMINATE].

PS3. To the best of your knowledge, has your organization completed any energy efficiency retrofit projects in the past three years that received an incentive from NYSERDA's Existing Facilities Program?

10. YES **[SAY "FOR THIS STUDY, WE ARE TRYING TO SPEAK WITH FIRMS THAT HAVE NOT PARTICIPATED IN THE EXISTING FACILITIES PROGRAM. THANK YOU FOR YOUR TIME AND HAVE A GOOD DAY", THEN TERMINATE] -**
11. NO
98. REFUSED
99. DON'T KNOW

Company Background

Please note that we will be focusing on the commercial and institutional sectors; any projects for industrial, manufacturing, or residential customers are not included in this survey.

First, I have a few background questions about your company.

OB1. I'd like to understand your company's role in providing energy efficiency solutions to customers. For each of the following services, please tell me if your company directly offers the service or not. If you primarily subcontract with or partner with another firm to offer a particular service, please just tell me that as well. Does your company offer… **[READ]**

a. Energy audits
b. Project design and engineering
c. Coordination of NYSERDA incentives
d. Performance contracting
e. Other financing assistance
f. Equipment installation
g. Monitoring and verification
h. Operations and maintenance

5. YES
6. NO
7. SUBCONTRACT
8. PARTNER
98. REFUSED
99. DON'T KNOW

OB2. Approximately how many full time employees does your company employ at all of its locations in New York State? Would you say… **[READ]**

1. Ten or fewer
2. More than ten but less than 50
3. 50 or more
4. Or None
96. REFUSED
97. DON'T KNOW

OB3. For how many years has your company been doing business and working on projects in the state of New York? Would you say… **[READ]**

1. Two years or less
2. More than two but less than five years
3. Five years or more
98. REFUSED

99. DON'T KNOW

OB4. Of the retrofit work that your company completes in *New York State*, do you perform more than half of that work in downstate New York (the 5 boroughs of New York City plus the Westchester area)?

1. YES
2. NO
98. REFUSED
99. DON'T KNOW

OB5. Does your company offer any services that are unrelated to energy efficiency?

1. YES
2. NO **[SKIP TO CB8]**
98. REFUSED **[SKIP TO CB8]**
99. DON'T KNOW **[SKIP TO CB8]**

OB6. For how many years has your company been providing *energy efficiency services* in New York? Would you say… **[READ]**

1. Two years or less
2. More than two but less than five years
3. Five years or more
98. REFUSED
99. DON'T KNOW

OB7. Approximately what percentage of your in-state revenue is related to energy efficiency projects versus other activities? Would you say… **[READ]**

1. Less than 25%
2. 25 % to less than 50%
3. 50% to less than 75%
4. 75% or more
98. REFUSED
99. DON'T KNOW

OB8. Does your company work with gas equipment, or is your focus electric-only?

1. ELECTRIC-ONLY
2. GAS-ONLY
3. BOTH
98. REFUSED
99. DON'T KNOW

OB9. What is your title in the company? Are you the… **[READ]**

1. Project manager
2. Project engineer
3. CEO/CFO/President
4. Vice President

5. Owner
6. Business development or sales person
96. OTHER (SPECIFY_____)
98. REFUSED
99. DON'T KNOW

OB10. For how many years have you been with the company? Would you say… **[READ]**
1. Two years or less
2. More than two but less than five years
3. Five years or more
98. REFUSED
99. DON'T KNOW

Approach to EE Market

Next, I'd like to ask some questions about the types of energy efficiency projects your company works on and about your interactions with customers.

EE1. In the past three years, has your company begun offering any services related to energy efficiency retrofits that you did not previously provide?
1. YES
2. NO **[SKIP TO EE4]**
96. REFUSED **[SKIP TO EE4]**
97. DON'T KNOW **[SKIP TO EE4]**

EE2. What new services have you begun offering? **[DO NOT READ. CODE ALL THAT APPLY]**
1. ENERGY AUDITS
2. PROJECT DESIGN AND ENGINEERING
3. COORDINATION OF NYSERDA INCENTIVES
4. PERFORMANCE CONTRACTING
5. OTHER FINANCING ASSISTANCE
6. EQUIPMENT INSTALLATION
7. MONITORING AND VERIFICATION
8. OPERATIONS AND MAINTENANCE
9. COMMISSIONING OR RETRO-COMMISSIONING SERVICES
98. OTHER (SPECIFY _____)
99. REFUSED
100. DON'T KNOW 1

EE3. What led you to offer these services? **[DO NOT READ. CHECK ALL THAT APPLY]**
1. WE ACQUIRED ANOTHER FIRM THAT OFFERED THESE SERVICES
2. WE WERE ACQUIRED BY ANOTHER FIRM THAT OFFERED THESE SERVICES
3. CUSTOMER DEMAND
4. WANTED TO OFFER A MORE COMPLETE SUITE OF SERVICES TO OUR CUSTOMERS
98. OTHER (SPECIFY _____)
99. REFUSED

100. DON'T KNOW

EE4. In the past three years, has your company ***stopped*** offering any services related to energy efficiency retrofits that you previously provided?

1. YES
2. NO **[SKIP TO EE7]**
98. REFUSED **[SKIP TO EE7]**
99. DON'T KNOW **[SKIP TO EE7]**

EE5. What services have you stopped offering? **[DO NOT READ. CODE ALL THAT APPLY]**

1. ENERGY AUDITS
2. PROJECT DESIGN AND ENGINEERING
3. COORDINATION OF NYSERDA INCENTIVES
4. PERFORMANCE CONTRACTING
5. OTHER FINANCING ASSISTANCE
6. EQUIPMENT INSTALLATION
7. MONITORING AND VERIFICATION
8. OPERATIONS AND MAINTENANCE
9. COMMISSIONING OR RETRO-COMMISSIONING SERVICES
98. OTHER (SPECIFY _____)
99. REFUSED
100. DON'T KNOW

EE6. What led you to stop offering these services? **[DO NOT READ. CHECK ALL THAT APPLY]**

1. MARKET OPPORTUNITY DISSOLVED
2. WE WERE LOSING MONEY ON IT
3. IT WAS TOO COMPLICATED
4. WE WANTED TO FOCUS ON OUR CORE COMPETENCIES
98. OTHER (SPECIFY_____)
99. REFUSED
100. DON'T KNOW

EE7. Do you focus your energy efficiency retrofit business on specific customer market sectors or buildings types?

1. YES
2. NO **[SKIP TO EE9]**
96. REFUSED **[SKIP TO EE9]**
97. DON'T KNOW **[SKIP TO EE9]**

EE8. What sectors or building types do you focus on? **[DO NOT READ. CHECK ALL THAT APPLY]**

1. COLLEGES AND UNIVERSITIES
2. HOSPITALS AND HEALTH CARE FACILITIES
3. OFFICE BUILDINGS/COMMERCIAL REAL ESTATE/TENANT IMPROVEMENTS
4. LARGE RETAIL/BIG BOX STORES
5. STATE AND LOCAL GOVERNMENT
6. K-12 OR SECONDARY SCHOOLS
7. HOSPITALITY
8. INDUSTRIAL AND MANUFACTURING
9. MUNICIPAL WATER AND WASTEWATER FACILITIES
98. OTHER (SPECIFY_____)
99. REFUSED
100. DON'T KNOW

EE9. Do you focus your energy efficiency retrofit business on specific types of equipment?

1. YES
2. NO **[SKIP TO EE11]**
98. REFUSED**[SKIP TO EE11]**
97. DON'T KNOW **[SKIP TO EE11]**

EE10. I'm going to read you a list of equipment categories. For each one, please tell me if it is a major focus, a minor focus, or not a focus for your company?

a) Lighting, including lamps, ballasts and controls
b) Heating, Ventilation, or Air Conditioning equipment and controls
c) Process equipment or machinery
d) Motors, variable speed drives, or pumps
e) Compressed air systems
f) Refrigeration and cold storage equipment
g) Building Management Systems

1. MAJOR FOCUS
2. MINOR FOCUS
3. NOT A FOCUS
98. REFUSED
99. DON'T KNOW

EE11. How does your firm market energy efficiency retrofit services to potential customers? **[SELECT ALL THAT APPLY, DO NOT READ]**

1. MARKET USING NYSERDA NAME
2. MARKET SERVICES TO EXISTING CUSTOMERS/CLIENTS
3. DON'T MARKET, RESPOND TO CUSTOMER/CLIENT INQUIRIES
4. MARKET BASED ON EXPECTED BENEFITS
5. WORD OF MOUTH
6. REFERRALS
7. ORGANIZED NETWORKING (CONFERENCES, TRADE SHOWS)
8. WEBSITE, MATERIALS
9. DIRECT MARKETING/IN PERSON MARKETING
98. OTHER (SPECIFY_____)
99. REFUSED
100. DON'T KNOW 1

Market Drivers and Barriers

Now I'd like to ask you a few questions about what you perceive as ***your customers'*** primary motivations and challenges when considering energy efficiency options.

MD1. First, I'd like to ask about the factors you see influencing your customers' decisions to implement energy efficiency retrofits or purchase energy efficient equipment. For each of the following factors, please tell me if it is a major factor, a minor factor, or not a factor in your customers' consideration of a retrofit project. First, **[INSERT ITEM]**, is this a major, minor or not a factor?

a) Need to repair or replace existing equipment or systems
b) Want to upgrade to more energy efficiency equipment
c) It is part of a larger construction or remodeling project
d) Availability of incentives from NYSERDA
e) Corporate sustainability or environmental priorities
f) Financial considerations
g) Improving the comfort or productivity of their employees
h) Improving the experience of their customers (patients, students, etc.)
i) New York City's recent building benchmarking requirement

1. MAJOR FACTOR
2. MINOR FACTOR
3. NOT A FACTOR
98. REFUSED
99. DON'T KNOW

[IF MORE THAN ONE ITEM IN MD1=1 'MAJOR FACTOR', ASK MD2, ELSE SKIP TO INSTRUCTIONS BEFORE MD3; PROGRAMMER: IF ONLY ONE ITEM IN MD1=1'MAJOR', AUTOFILL FOR MD2]

MD2. Which of these major factors would you say is **the most important** factor your customers considered when deciding to move forward with a retrofit project? **[SHOW LIST OF ITEMS FROM MD1 THAT WERE ANSWERED 1 'MAJOR'; ACCEPT ONLY ONE ANSWER.]**

1. Need to repair or replace existing equipment or systems
2. Want to upgrade to more energy efficiency equipment
3. It is part of a larger construction or remodeling project
4. Availability of incentives from NYSERDA
5. Corporate sustainability or environmental priorities
6. Financial considerations
7. Improving the comfort or productivity of their employees
8. Improving the experience of their customers (patients, students, etc.)
9. New York City's recent building benchmarking requirement
98. REFUSED
99. DON'T KNOW

[ASK MD3 IF MD2=6, ELSE SKIP TO MD4]

MD3. For each of the following **financial** factors, please tell me if it is a major factor, a minor factor, or not a factor in your customers' consideration of retrofit projects.

a) Reducing operating costs
b) Increasing productivity
c) Availability of internal funding or capital budget
d) Availability of other outside funding
e) Meeting company financial requirements such as rate of return on investment or payback period

1. MAJOR FACTOR
2. MINOR FACTOR
3. NOT A FACTOR
98. REFUSED
99. DON'T KNOW

MD4. Now I'd like to ask about **barriers** to retrofit projects for your customers. I'm going to read you a list of factors. For each one please tell me if you think it is a major barrier, minor barrier or not a barrier for your customers when they consider implementing energy efficiency projects or purchasing high efficiency equipment. First, [INSERT ITEM], is this a major, minor, or not a barrier?

a) Concerns about the performance or reliability of energy efficient equipment
b) Concerns about the upfront costs of energy efficient equipment
c) Uncertainty around projected energy savings
d) Lack of internal capital or funding
e) Lack of outside capital or funding
f) Concerns about the economy
g) Failure to meet their organization's financial requirements (such as return on investment or payback period)

h) Competition with other priorities within the customer's organization
i) Division of costs and benefits between the building owner and tenant
j) Lack of staff available to evaluate or oversee project
k) Concerns about the down-time needed to complete the project
    1. MAJOR BARRIER
    2. MINOR BARRIER
    3. NOT A BARRIER
    98. REFUSED
    99. DON'T KNOW

[IF MORE THAN ONE ITEM IN MD4=1 'MAJOR BARRIER', ASK MD5, ELSE SKIP TO PE1; PROGRAMMER: IF ONLY ONE ITEM IN MD4=1'MAJOR', AUTOFILL FOR MD5]

MD5. Which of these major factors would you say is the **greatest barrier** to energy efficiency investments for your customers? **[SHOW LIST OF MAJOR FACTORS FROM MD4; ACCEPT ONLY ONE ANSWER.]**

1. Concerns about the performance or reliability of energy efficient equipment
2. Concerns about the upfront costs of energy efficient equipment
3. Uncertainty around projected energy savings
4. Lack of internal capital or funding
5. Lack of outside capital or funding
6. Concerns about the economy
7. Failure to meet their organization's financial requirements (such as return on investment or payback period)
8. Competition with other priorities within the customer's organization
9. Division of costs and benefits between the building owner and tenant
10. Lack of staff available to evaluate or oversee project
11. Concerns about the down-time needed to complete the project
98. REFUSED
99. DON'T KNOW

Project Economics and Performance Contracting

These next few questions relate to how your customers pay for energy efficient projects and services.

PE1. I'm interested in the effects of the economic downturn on different customers' willingness to invest in energy efficiency retrofits. For each of the following market sectors, please indicate if customers' investment in energy efficiency retrofit projects has increased, decreased, or stayed the same since the beginning of the economic downturn. If you don't work with or are unfamiliar with a particular customer market segment, please respond "I don't know."

a) Colleges and Universities
b) Hospitals and Health Care Facilities
c) Office Buildings and Commercial Real Estate
d) Large Retail Chains, such as Big Box or Department Stores
    1. INCREASED
    2. DECREASED
    3. STAYED THE SAME
    98. REFUSED

99. DON'T KNOW

PE2. Does your company offer financing assistance to customers for energy efficiency retrofit projects, either directly or through a third-party organization?

1. YES
2. NO **[SKIP TO PE6]**
98. REFUSED **[SKIP TO PE6]**
99. DON'T KNOW **[SKIP TO PE6]**

PE3. On average, how important is this financial assistance to potential customers' willingness to implement energy efficiency projects or purchase energy efficient equipment? Would you say… **[READ]**

1. Very important.
2. Somewhat important,
3. Not too important,
4. Not important at all
5. DEPENDS ON CUSTOMER (VOL)
97. REFUSED
98. DON'T KNOW

PE4. I'm interested in what type of financing you offer. Do you…**[READ]**

a) Offer performance contracting or ESCO services?
b) Use an internal fund to provide loans to customers?
c) Partner with a bank or other third-party to provide loans to customers?
d) Offer other financing? (SPECIFY _____)

1. YES
2. NO
98. REFUSED
99. DON'T KNOW

[ASK PE5 IF PE4a=1 YES; ELSE SKIP TO PE6]

PE5. I'd like to ask a little more about performance contracting. For each of the following market sectors please indicate, to the best of your knowledge, if customers' willingness to enter into a performance contract for a retrofit project has increased, decreased, or stayed the same over the past three years. If you don't work with or are unfamiliar with a particular customer sector, please respond "I don't know."

a) Colleges and Universities
b) Hospitals and Health Care Facilities
c) Office Buildings/Commercial Real Estate
d) Large Retail Chains, such as Big Box or Department Stores

1. INCREASED
2. DECREASED
3. STAYED THE SAME
98. REFUSED
99. DON'T KNOW

PE6. How often to you guarantee a certain level of energy savings to your customers? Would you say… **[READ]**

1. Always
2. Often
3. Only sometimes
4. Rarely
5. Never
98. REFUSED
99. DON'T KNOW

Existing Facilities Program and Project Experience

This next set of questions relates specifically to NYSERDA's Existing Facilities Program, also known as EFP, for commercial sector energy users.

EF1. Before today, had you heard of NYSERDA's Existing Facilities Program?

1. YES
2. NO **[ELSE SKIP TO EF7]**
98. REFUSED **[ELSE SKIP TO EF7]**
99. DON'T KNOW **[ELSE SKIP TO EF7]**

EF2. The Existing Facilities Program offers energy efficient equipment incentives for both prequalified measures and for performance-based measures. How confident are you that you understand the differences between these two approaches to applying for incentives? Would you say you are…**[READ]**

1. Very confident
2. Somewhat confident
3. Not very confident
4. Not confident at all
96. REFUSED
97. DON'T KNOW

EF3. Have you or your staff visited NYSERDA's Existing Facilities' program website?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

EF4. Have you or your staff contacted any of NYSERDA's program representatives?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

EF5. I'm curious why your company has not applied to the NYSERDA Existing Facilities program for customers' projects. I'm going to read you a list of possible reasons why you might not have applied for incentives. For each statement, please tell me if it is a primary reason, a secondary reason, or not a reason why your company has not applied to the Existing Facilities program. First, **[INSERT ITEM].** Is this a primary reason, secondary reason, or not a reason?

a) You have not installed qualifying energy efficient equipment
b) You were unsure whether installed equipment qualified
c) You thought the incentives were insufficient
d) You thought the program requirements were unattractive
e) You applied for incentives, but the projects did not meet the requirements
f) Your customers did not wish to use incentive funds
g) **[ASK ONLY IF EF3 OR EF4 = 1 YES]** Had an unsatisfactory experience learning about the program from the website or program representatives

1. PRIMARY REASON
2. SECONDARY REASON
3. NOT A REASON
98. REFUSED
99. DON'T KNOW

[ASK IF CB8 = 2 OR 3; ELSE SKIP TO EF7]

EF6. Before today, were you aware that the Existing Facilities Program offers incentives for efficient gas equipment, as well as efficient electric equipment?

1. YES
2. NO
3. NOT RELEVANT TO RESPONDENT (THEY DON'T SELL GAS EQUIPMENT)
98. REFUSED
99. DON'T KNOW

EF7. Before today, were you aware that **utility companies** in New York State offer incentives for qualifying energy efficient equipment?

1. YES
2. NO **[SKIP TO INSTRUCTIONS BEFORE CC1]**
96. REFUSED **[SKIP TO INSTRUCTIONS BEFORE CC1]**
97. DON'T KNOW **[SKIP TO INSTRUCTIONS BEFORE CC1]**

EF8. Have any of the utility companies that serve your customers contacted you about their incentive programs for commercial customers?

1. YES
2. NO
96. REFUSED
97. DON'T KNOW

EF9. Approximately what percentage of energy efficiency retrofit projects that your company completes in New York State use utility incentives for qualifying energy efficient equipment? Would you say… **[READ]**

1. Less than 25%

2. 25 % to less than 50%
3. 50% to less than 75% **[SKIP TO INSTRUCTIONS BEFORE EF11]**
4. 75% or more **[SKIP TO INSTRUCTIONS BEFORE EF11]**
96. REFUSED **[SKIP TO INSTRUCTIONS BEFORE EF11]**
97. DON'T KNOW **[SKIP TO INSTRUCTIONS BEFORE EF11]**

EF10. I'm curious why so few projects use an incentive. I'm going to read you a list of possible reasons. For each one, please tell me if it is a primary reason, a secondary reason, or not a reason why retrofit projects might fail to use an incentive. First, **[INSERT ITEM]**: is this a primary reason, secondary reason, or not a reason?

a) Your firm was not aware incentives were available
b) Have not installed qualifying energy efficient equipment
c) Were unsure whether installed equipment qualified
d) Thought the incentives were insufficient
e) Thought the program requirements were unattractive
f) You applied for incentives, but the projects did not meet the requirements
g) Your customers did not wish to use incentive funds

1. PRIMARY REASON
2. SECONDARY REASON
3. NOT A REASON
96. REFUSED
97. DON'T KNOW

[ASK EF11 IF EF1 AND EF7 = YES; ELSE SKIP TO CC1]

EF11. How much confusion do you think there is in the marketplace about the difference between NYSERDA's Existing Facilities Program and utility companies' incentive programs? Would you say there is considerable confusion, a little confusion, or not much confusion?

1. CONSIDERABLE CONFUSION
2. A LITTLE CONFUSION
3. NOT MUCH CONFUSION **[SKIP TO INSTRUCTIONS BEFORE CC1]**
96. REFUSED **[SKIP TO INSTRUCTIONS BEFORE CC1]**
97. DON'T KNOW **[SKIP TO INSTRUCTIONS BEFORE CC1]**

EF12. Could you briefly explain what is confusing to the marketplace?

1. GENERAL CONFUSION FROM THERE BEING MULTIPLE PROGRAMS
2. LACK OF AWARENESS ON PROGRAM DIFFERENCES
3. UNCERTAINTY ABOUT WHICH INCENTIVE OR PROGRAM TO USE
4. LACK OF FAMILIARITY WITH NYSERDA
5. ELIGIBILITY AND APPLICATION REQUIREMENTS
95. OTHER (SPECIFY _____)
98. REFUSED
99. DON'T KNOW

Closing

Thank you so much for your time today.

[ASK CC1 IF EF1=YES (HAVE HEARD OF EFP). ELSE SKIP TO CLOSING]

CC1. Before we close, I have one final question. What, if any, changes should NYSERDA's Existing Facility Program make to better serve the market in the future?

1. INCREASED INCENTIVES
2. SHORTEN TURNAROUND BETWEEN APPLICATION, WORK, AND INCENTIVE RECEIPT
3. SIMPLIFY OR IMPROVE APPLICATION PROCESS OR MATERIALS
4. SIMPLIFY OR IMPROVE PROJECT APPROVAL AND MEASUREMENT AND VERIFICATION PROCESS
5. CHANGES TO INCENTIVE STRUCTURE AND ELIGIBILITY
6. IMPROVE PROGRAM MARKETING AND OUTREACH

94. NO CHANGES
95. OTHER (SPECIFY _____)
96. REFUSED
97. DON'T KNOW

[READ TO ALL] Those are all the questions I have today. I'd like to thank you again for your time and participation. Have a nice day.

Appendix E. Detailed C&I Building Market Data

Table E-1. Establishments in 2009 in New York

Market Sector (NAICS classification)	Number of Establishments	% of Total Number of Establishments	% Upstate	% Downstate[171]
Retail Trade	75,778	15%	53%	47%
Professional, Scientific, and Technical Services	58,051	12%	49%	51%
Health Care and Social Assistance	55,022	11%	54%	46%
Other Services (except Public Administration)	52,709	11%	50%	50%
Construction	45,902	9%	65%	35%
Accommodation and Food Services	45,858	9%	53%	47%
Wholesale Trade	33,391	7%	45%	55%
Real Estate and Rental and Leasing	31,494	6%	34%	66%
Finance and Insurance	29,005	6%	51%	49%
Administrative and Support and Waste Management and Remediation Services	24,913	5%	59%	41%
Transportation and Warehousing	11,913	2%	54%	46%
Arts, Entertainment, and Recreation	11,211	2%	46%	54%
Information	11,040	2%	42%	58%
Educational Services	6,987	1%	46%	54%
Management of Companies and Enterprises	2,787	1%	49%	51%
Industries Not Classified	934	<1%	36%	64%
Utilities	608	<1%	81%	19%
Agriculture, Forestry, Fishing, and Hunting	584	<1%	88%	13%
Mining, Quarrying, and Oil and Gas Extraction	357	<1%	93%	7%

Note: Data is statewide (includes Nassau and Suffolk Counties), as historical data was not separable at the county level. This table does not include data from the "Manufacturing" sector.
Source: U.S. Census Bureau, County Business Patterns, New York, 2009.

[171] The downstate region includes the following counties: Bronx, Kings, New York, Queens, Richmond, and Westchester.

Table E-2. Area of Commercial and Institutional Buildings in New York

Market Sector	Square Feet (in thousands)	% of Total Area	% Upstate	% Downstate
Office and Bank	750,356	23%	43%	57%
Stores and Restaurants	615,918	19%	65%	35%
Schools, Libraries, Labs	484,333	15%	63%	37%
Warehouses	347,820	11%	56%	44%
Hospitals and Other Health	228,071	7%	58%	42%
Parking Garage and Auto Service	188,925	6%	54%	46%
Amusement	164,340	5%	58%	42%
Religious	163,203	5%	61%	39%
Hotel/Motel	100,546	3%	53%	47%
Government Service	90,072	3%	65%	35%
Miscellaneous Nonresidential	72,631	2%	51%	49%
Total	3,206,214		56%	44%

Note: Excludes Nassau and Suffolk Counties
Source: McGraw-Hill Construction Building Stock Square Feet, 2008.

Table E-3. LEED-Certified Projects in New York (2000–September 23, 2011)

LEED Rating System	Percentage of Projects
LEED New Construction	43%
LEED Commercial Interiors	34%
LEED Existing Buildings	15%
LEED Core and Shell	4%
LEED Retail	4%
LEED for Schools	<1%

Notes: Data is statewide. Includes projects from 2000 to September 23, 2011.
Source: U.S. Green Building Council, Public LEED Project Directory, Latest as of September 23, 2011.

E.1 Leadership in Energy and Environmental Design Rating System Descriptions[172]

The LEED for New Construction Rating System is designed to guide and distinguish high-performance commercial and institutional projects, including office buildings, high-rise residential buildings, government buildings, recreational facilities, manufacturing plants and laboratories.

LEED for Commercial Interiors is the green benchmark for the tenant improvement market. It is the recognized system for certifying high-performance green interiors that are healthy, productive places to

[172] U.S. Green Building Council, "Rating Systems," accessed October 4, 2011, http://www.usgbc.org/DisplayPage.aspx?CMSPageID=222.

work; are less costly to operate and maintain, and have a reduced environmental footprint. LEED for Commercial Interiors gives the power to make sustainable choices to tenants and designers, who do not always have control over whole-building operations.

The LEED for Existing Buildings Rating System helps building owners and operators measure operations, improvements, and maintenance on a consistent scale, with the goal of maximizing operational efficiency while minimizing environmental impacts. LEED for Existing Buildings addresses whole-building cleaning and maintenance issues (including chemical use), recycling programs, exterior maintenance programs, and systems upgrades. It can be applied both to existing buildings seeking LEED certification for the first time and to projects previously certified under LEED for New Construction, Schools, or Core & Shell.

LEED for Core & Shell is a green building rating system for designers, builders, developers, and new building owners who want to address sustainable design for new core and shell construction. Core and shell covers base building elements such as structure, envelope, and the HVAC system. LEED for Core and Shell is designed to be complementary to the LEED for Commercial Interiors rating system, as both rating systems establish green building criteria for developers, owners, and tenants.

LEED for Retail is comprised of two unique rating systems, LEED 2009 for Retail: New Construction and Major Renovations and the LEED 2009 for Retail: Commercial Interiors Rating Systems. LEED for Retail is designed to guide and distinguish high-performance retail projects, including banks, restaurants, apparel, electronics, big box, and everything in between.

The LEED for Schools Rating System recognizes the unique nature of the design and construction of K-12 schools. Based on the LEED for New Construction rating system, it addresses issues such as classroom acoustics, master planning, mold prevention, and environmental site assessment. By addressing the uniqueness of school spaces and children's health issues, LEED for Schools provides a unique, comprehensive tool for schools that wish to build green, with measurable results.