FLEXTECH PROGRAM
MARKET CHARACTERIZATION AND ASSESSMENT

Final Report

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EXECUTIVE SUMMARY

BACKGROUND AND EVALUATION OBJECTIVES

This report presents the results of the Market Characterization and Assessment (MCA) evaluation of the **New York Energy $mart**[SM] FlexTech Program. As specified in the NYSERDA Energy Public Benefits Program Evaluation Plan,[1] the primary objectives of the MCA evaluation effort are: (1) to develop a comprehensive understanding of current and emerging markets (*e.g.*, market structure and market actors); (2) to provide baseline and background information required by NYSERDA to define and deliver programs to target markets; and (3) to track changes in markets over time with a specific focus on market indicators that are likely to be impacted by program offerings. When accomplished, these objectives support the ultimate goals of the MCA evaluation effort which are: (1) to conduct credible and transparent evaluations of the **New York Energy $mart**[SM] Program portfolio and individual program offerings and (2) to provide NYSERDA program staff and managers as well as the System Benefits Charge (SBC) Advisory Group, the New York State Public Service Commission (PSC), Department of Public Service (DPS) staff, and other stakeholders with timely and unbiased information regarding the implementation of **New York Energy $mart**[SM] program offerings.

The MCA Team applied these overarching research objectives and goals to the current evaluation and placed a specific focus on the market and context within which the FlexTech Program operates. The work effort was designed to ensure consistency with prior program evaluation activities conducted by NYSERDA, including the last MCA evaluation of the program which was conducted in 2007,[2] in order to build upon prior research findings. The MCA evaluation results can be used to assess progress towards meeting the PSC's public policy goals under which NYSERDA operates as well as the institutional goals NYSERDA has established to move markets towards improved energy efficiency. In addition, the evaluation results can be used by NYSERDA program staff and managers to adjust program offerings as needed to ensure continual improvement of the programs and generate maximum market interest and uptake of existing program offerings.

The remainder of this section briefly describes the FlexTech Program including participation patterns through December 31, 2009, summarizes the research approach used by the MCA Team to conduct the evaluation, and presents key research findings and suggestions generated during the evaluation.

PROGRAM DESCRIPTION[3]

The FlexTech Program provides non-residential customers in New York State with objective and customized information to help them make informed energy decisions. The program's goal is to increase the productivity and economic competitiveness of participating facilities by identifying and encouraging the implementation of cost-effective energy efficiency measures, carbon reduction measures, peak-load curtailment, and combined heat & power (CHP) and renewable generation projects. Cost-shared assistance is provided for detailed studies from energy engineers and consultants. Customers may select

[1] NYSERDA, *Energy Public Benefits Program Evaluation Plan*, December 2007.

[2] During the former evaluation cycle instituted by NYSERDA, which concluded May 31, 2007, market characterization and assessment activities were conducted by the Market Characterization, Market Assessment, and Causality (MCAC) evaluation contractor. The previous MCA evaluation of the FlexTech Program was primarily focused on causality/attribution issues, which are now addressed by NYSERDA's impact evaluation contractor team and no longer within the scope of the current MCA work effort.

[3] The program description is paraphrased from the Program Opportunity Notice (PON) 1746.

their own technical service provider[4] or choose from NYSERDA's FlexTech Consultant list, which includes firms under NYSERDA contract who have been competitively selected to provide a statewide geographic distribution of needed technical services.

PROGRAM PARTICIPATION TO DATE[5]

As of December 31, 2010, approximately 6,900 customers had received assistance through the FlexTech Program. Approximately 6,700 FlexTech studies had been completed and customers had co-funded nearly $37 million in FlexTech project activity. The program reported 284 participating trade allies (ESCOs and engineering firms) and more than 1,200 GWh of cumulative annual net energy savings. Participating projects (*i.e.*, studies) were distributed across the various utility areas and building sectors present in New York, and program applicants represent a diverse mix of end-use customers and technical service providers active within the state. Additional details regarding these and other program participation metrics are presented in subsequent sections of this report.

RESEARCH APPROACH

The research approach used by the MCA Team to conduct the evaluation of the FlexTech Program consisted of the following activities:

- Participating in planning meetings with NYSERDA evaluation staff, FlexTech Program staff, and APPRISE
- Review of programmatic documentation including PON 1197, RFP 1209, extracts from the FlexTech Program tracking database, and program-reported quarterly status reports
- Reviewing secondary data sources including previous evaluations of the program as well as evaluations of similar programs operating in other jurisdictions
- Updating the FlexTech Program logic model to identify specific researchable issues, market barriers, outcome measurement indicators, and baseline/progress tracking needs appropriate for MCA attention and to develop prioritized lists of measurement indicators and researchable issues to be addressed in the current evaluation
- Coordinating with other NYSERDA evaluation contractors to maximize the efficiency of data collection, research, and reporting efforts
- Conducting primary data collection via surveys and interviews with the following market actor groups:
    - Participating and non-participating end-use customers
    - Participating and non-participating technical service providers

This approach examined a variety of primary and secondary data sources to generate information on a number of topics including: program accomplishments and market share in terms of project activity and interaction with key market actor groups; changes in technical service provider and end-use customer awareness and understanding of efficiency practices promoted by the program; and participant motivations and decision-making criteria for incorporating energy efficiency improvements into their

[4] Potential service providers include, but are not limited to: energy service companies (ESCOs), energy consultants, and engineering companies.

[5] Unless otherwise noted, information in this section was obtained from from the report titled *New York's System Benefits Charge Programs Evaluation and Status Report, Year Ending December 31, 2010, Final Report, March 2011*.

business planning and operations cycles. The research approach was driven primarily by elements and theories presented in the FlexTech Program logic model, and key research findings generated by the evaluation are related to the outputs and outcomes anticipated by the program logic model in subsequent sections of this report.

MARKET CHARACTERIZATION – FINDINGS

The objectives of market characterization are: (1) to develop a comprehensive understanding of current and emerging markets, market structures, and market actors, and (2) to provide baseline and background information to enable NYSERDA to define, deliver, and evaluate programs for these target markets (Section 3). Selected findings from the market characterization effort include the following:[6]

- New York has approximately 520,000 commercial and industrial establishments and nearly 4 billion square feet of commercial and industrial building area. Approximately 40% of the total establishments and building area are located in the downstate region with the remainder of establishments and building area spread throughout the state.
- The market sectors active in New York buildings are diverse. By number of establishments, the largest market sector is retail trade (15%) followed by professional, scientific, and technical services (11%), and health care and social assistance (10%). The view is slightly different when looking at market sectors by building area. Nearly 20% of existing building area is occupied by offices or banks, while 16% of building area is occupied by stores or restaurants. Manufacturing accounts for approximately 15% of the total building area in New York.
- Electricity sales to the commercial sector in New York have increased by 21% between 1995 and 2009 while electricity sales to the industrial sector have decreased by 47% during this same time period. The price of electricity in New York has increased by 35% in the commercial sector and 55% in the industrial sector during these years.
- As of December 31, 2009, 1,622 studies had been completed through the FlexTech Program. Four-hundred seventy-two of those studies were completed between May 1, 2006 and December 31, 2009. An additional 711 studies were in-process as of year-end 2009, meaning that they were in the application phase or working with a technical service provider to complete an energy analysis.
- Approximately three-quarters of all completed FlexTech studies are located in upstate New York with the remainder of completed studies located downstate. In the upstate region, there appears to be more program activity around Albany and Buffalo than around Syracuse and Rochester.
- The market sectors with the highest number of completed studies between May 1, 2006 and December 31, 2009 include industrial/manufacturing, office and bank buildings, local government, education- colleges and universities, health care, agriculture and forestry, and education- elementary and secondary schools. These market sectors comprise nearly 80% of the completed FlexTech studies by number.
- NYSERDA FlexTech consultants tend to be located near major city centers including New York City, Buffalo, Rochester, Syracuse, and Albany. In addition, a few NYSERDA FlexTech consultants are located outside of New York.[7] Participation data suggests that consultants

[6] Unless otherwise noted, Nassau and Suffolk counties, which are located on Long Island, have been removed from the analyses conducted for this report due to the fact that customer accounts located on Long Island receive power from the Long Island Power Authority (LIPA) which is not part of the SBC program.

[7] These out-of-state consultants may also have offices in New York.

participating in the FlexTech Program are reaching outside of their home city or region or using branch offices to market and complete studies across the state.

- An increasing number of customers participating in the FlexTech Program are using their own technical service providers. Sixty-one percent of customers with completed studies since program inception used a NYSERDA FlexTech consultant compared to 39% of customers who used their own consultant. By comparison, 55% of customers with completed studies since May 2006 used a NYSERDA FlexTech consultant compared to 45% of customers who used their own consultant.

MARKET ASSESSMENT – FINDINGS

The objective of market assessment is to track changes in markets over time with a specific focus on market indicators that are likely to be impacted by program offerings (Section 4). Selected findings from the market assessment effort include the following:

- A substantial majority of participating and non-participating end-use customers are making capital improvements despite the recent economic recession. The two most commonly cited major criteria for either group of end-use customers in deciding to move forward with capital improvement projects are concerns about the safety of employees and/or customers and financial considerations. Energy efficiency is the third most commonly cited major decision-making criterion.

- Energy efficiency opportunities are important to participant and non-participant end-use customers and a large majority of each group perceives a significant increase in this level of importance in the last five years. Not surprisingly, participating end-use customers are significantly more likely than non-participants to have made capital investments in energy efficiency products and services during this timeframe; however, three quarters of non-participating end-use customers report that they have made capital investments in energy efficiency products and services in the past five years.

- Customers state that financial concerns, including the up-front cost of energy efficient equipment, lack of capital, and economic uncertainty, are the largest barriers to incorporating energy efficiency into capital improvement projects. Issues related to lack of knowledge, experience, or information regarding energy efficient products and services represent less significant barriers for end-use customers. Technical service providers report similar findings in terms of barriers faced by customer organizations.

- Familiarity with energy efficient products and services is increasing for substantial majorities of participating and non-participating end-use customers. The reasons given for this increased familiarity include increased demand for reduced costs so the customer organizations search out energy efficient products/services, more information regarding energy efficiency circulating in the industry, and increased focus on energy efficiency in the customer organizations. Technical service providers also believe that energy efficiency is important to their customers and that it has become more so over the past five years.

- The common perception among end-use customers, both participating and non-participating, is that there has been an increase in the number of energy efficiency product and service contractors active in the marketplace, driven mostly by increased market opportunity. Fewer end-use customers, but still a majority, see an increase in the capabilities of these providers. Participating and non-participating technical service providers have similar views of the market.

- Nearly 90% of non-participating end-use customers were aware of NYSERDA and nearly 40% were aware of the FlexTech Program. Among non-participating end-use customers who regularly conduct energy feasibility studies, roughly half (49%) were aware of the FlexTech Program.

- Nearly two-thirds of participating technical service providers believe that the FlexTech Program is a major influence on customer interest in energy feasibility studies. A majority of participating technical service providers indicate that, when offered, their customers accept and conduct an energy feasibility study. In contrast, more than half of non-participating technical service providers say that their customers only sometimes conduct energy feasibility studies when offered.
- About half of participating technical service providers have completed half or more of their studies through the FlexTech Program and approximately (30%) have completed less than 25% through the program. A large majority of participating contractors (86%) have completed at least some energy feasibility studies outside FlexTech.

RELATIONSHIP TO SELECT RESEARCHABLE ISSUES

Results generated during the market characterization and market assessment efforts can be related back to relevant researchable issues presented in the program logic model to validate the reasonableness of program design and help inform program staff and stakeholders of program progress achieved to date as well as potential areas for program refinement. The results of the current study indicate that the FlexTech Program, operating in concert with other NYSERDA programs, is positively influencing the market for energy efficiency in New York by contributing to the growth of a more robust market infrastructure (*e.g.*, an increased number of technical service providers, statewide coverage in terms of provision of technical assistance services, diffusion of knowledge and information into the marketplace) and increasing customer awareness of and confidence in energy efficiency project opportunities. Additional market opportunities for the program remain, however, including exploring options to build upon existing customer awareness of the program, particularly among the subset of non-participant end-use customers who regularly conduct energy feasibility studies, and promoting program outputs (*i.e.*, study results and technical assistance) as a potential remedy for the financial issues customers perceive as the largest barriers to incorporating energy efficiency into capital improvement projects. Given customers' current strong interest in energy efficiency and the increasing level of importance being placed on energy efficiency in many customer organizations, the market appears receptive to the goals and strategies promoted by the program.

Section 1:

INTRODUCTION

The New York State Energy Research and Development Authority (NYSERDA) is a public benefit corporation established in 1975. It administers System Benefits Charge (SBC) funds and the **New York Energy $mart**[SM] Program under an agreement with the New York State Public Service Commission (PSC). NYSERDA also oversees and coordinates evaluation of the effort on behalf of the SBC Advisory Group that, pursuant to PSC order, is the independent evaluator of the programs. NYSERDA began operating the **New York Energy $mart**[SM] Programs in July 1998. The programs are funded by an electric distribution SBC paid by customers of Central Hudson Gas and Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, National Grid, Orange and Rockland Utilities, and Rochester Gas & Electric Corporation.[8] The FlexTech Program is one of many **New York Energy $mart**[SM] programs.

NYSERDA contracted with a team under the direction of Navigant Consulting (formerly Summit Blue Consulting) to conduct Market Characterization and Assessment (MCA) evaluations for the **New York Energy $mart**[SM] Program. This report documents the 2010 MCA evaluation of the FlexTech Program, which last received an MCA evaluation in 2007.[9] The core MCA Team, which consists of staff from Navigant Consulting and GDS Associates, worked closely with NYSERDA staff and APPRISE, NYSERDA's Data Collection Contractor Team, to conduct the research, analysis, and reporting activities contained in this report.

1.1 PROGRAM DESCRIPTION[10]

The FlexTech Program provides non-residential customers in New York State with objective and customized information to help them make informed energy decisions. The program's goal is to increase the productivity and economic competitiveness of participating facilities by identifying and encouraging the implementation of cost-effective energy efficiency measures, carbon reduction measures, peak-load curtailment, and combined heat & power (CHP) and renewable generation projects. Cost-shared assistance is provided for detailed studies from energy engineers and consultants. Customers may select their own technical service provider[11] or choose from NYSERDA's FlexTech Consultant list, which includes firms under NYSERDA contract who have been competitively selected to provide a statewide geographic distribution of needed technical services.

Eligible applicants may propose energy studies[12] in energy efficiency project categories that include, but are not limited to:

- General Energy Feasibility Studies and Technical Support

[8] This report uses the following acronyms as substitutes for full utility names: **CHG&E** – Central Hudson Gas and Electric, Inc.; **Con Edison** – Consolidated Edison Company of New York, Inc.; **NGrid** – National Grid; **NYSEG** – New York State Electric and Gas Corporation; **O&R** – Orange and Rockland Utilities, Inc.; and **RG&E** – Rochester Gas and Electric Corporation.

[9] During the former evaluation cycle instituted by NYSERDA, which concluded May 31, 2007, market characterization and assessment activities were conducted by the Market Characterization, Market Assessment, and Causality (MCAC) evaluation contractor. Thus, the last MCA evaluation of the FlexTech Program also included a causality component which is now handled by NYSERDA's impact evaluation contractor team and is no longer within the scope of the current MCA work effort.

[10] The program description is paraphrased from the Program Opportunity Notice (PON) 1746. More detailed information about the FlexTech Program can be found in the PON as well as the program website (http://www.nyserda.org/programs/flextech.asp).

[11] Potential service providers include, but are not limited to: ESCOs, energy consultants, and engineering companies.

[12] The various types of energy studies offered through the FlexTech Program are called "energy feasibility studies" in this report.

- Peak-Load Reduction and Load Management
- Industrial and Process Efficiency Analysis
- Data Centers
- Energy Procurement
- Energy Efficiency Retro-commissioning
- Long-Term Energy and Carbon Management

All FlexTech studies must include cost-sharing in the form of matching cash support from the program applicant. An independent third-party technical service provider is required for all studies. For most applications, NYSERDA will contribute fifty percent (50%) of the eligible study costs, up to the lesser of either $1,000,000 or ten percent (10%) of the applicant's annual energy costs, based on an approved Scope of Work. For peak load curtailment plan assistance, NYSERDA will provide $2/kW of the facility's peak summer demand,[13] up to $8,000 directly to the service provider.

1.2 PROGRAM LOGIC AND RESEARCHABLE ISSUES

The FlexTech *Program Logic Model Report*[14] provides the following information relevant to the program:

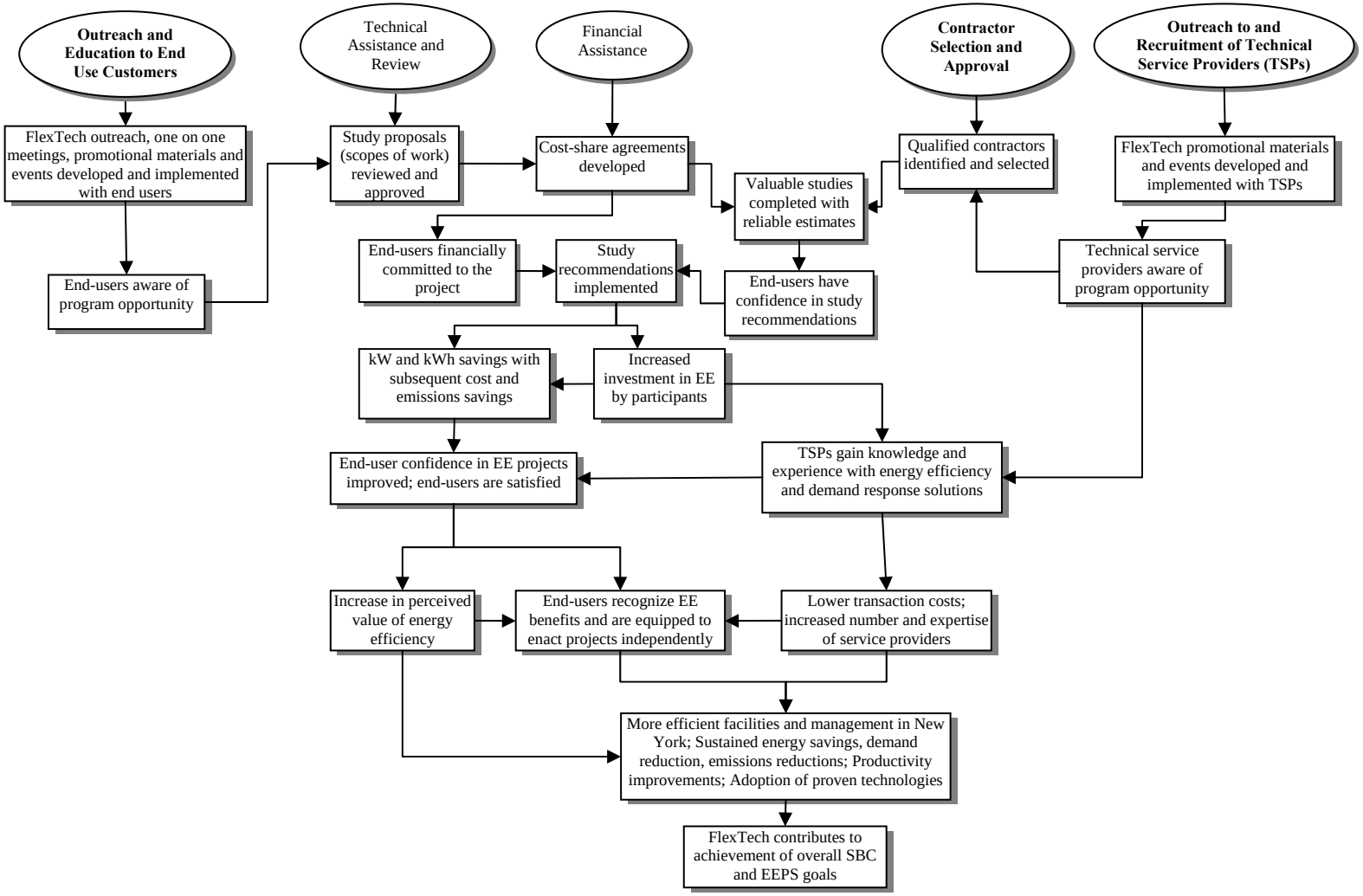
- A high level summary of the market context within which the FlexTech Program operates, including the other NYSERDA, utility, and New York Independent System Operator (NYISO) programs it works with to accomplish the overarching **New York Energy $mart**[SM] goals
- Key program-specific elements, including the ultimate goals of the program, market barriers, targeted market actors, program activities, inputs, anticipated outputs/outcomes, and potential external influences
- A table listing the key outputs and outcomes, including identification of relevant measurement indicators and potential data collection approaches, and development of a monitoring and evaluation plan
- A list of potential researchable issues for consideration within evaluation planning.

As noted in the FlexTech *Program Logic Model Report*, the activities used to achieve the goals established for the program can be divided into those used to obtain near-term energy savings and demand reduction and those that aid in developing a sustained change in market behavior in New York. These activities work hand-in-hand to generate both immediate and longer-term impacts. Figure 1-1 diagrams the FlexTech Program logic and illustrates how the various areas of program activity are aimed at producing goal-oriented outcomes over the next five years.

[13] For the purposes of the program, summer is defined as May through October.

[14] NYSERDA, *FlexTech Program Logic Model Report Update, Final*, March 24, 2010.

Figure 1-1. FlexTech Logic Model



Source: NYSERDA, *FlexTech Program Logic Model Report Update, Final*, March 24, 2010

The FlexTech *Program Logic Model Report* was designed to help guide NYSERDA's program-specific evaluation activities; thus, an initial activity undertaken by the MCA Team was to review and update the *Program Logic Model Report* to ensure the document accurately reflected the current program design and state of the market. A central element of the review was to research the designs and implementation schedules of complementary energy efficiency programs being administered by utilities and other parties to identify potential leveraging opportunities wherein NYSERDA and the other program administrators may be able to collaborate to achieve broader and deeper program impacts. The results of this effort were presented to NYSERDA evaluation and program staff as well as other NYSERDA evaluation contractors to finalize the prioritized list of measurement indicators and researchable issues and develop a research agenda geared toward overcoming any existing gaps in staff's knowledge of current market conditions and opportunities. The final prioritized lists of measurement indicators and researchable issues were then translated into discrete research tasks that generated findings that could be related back to the outputs and outcomes anticipated by the program logic model. These results are described in subsequent sections of this report.

1.3 PROGRAM PARTICIPATION TO DATE[15]

As of December 31, 2010, approximately 6,900 customers had received assistance through the FlexTech Program. Approximately 6,700 FlexTech studies had been completed and customers had co-funded nearly $37 million in FlexTech project activity. The program reported 284 participating trade allies (ESCOs and engineering firms) and more than 1,200 GWh of cumulative annual net energy savings. Participating projects (*i.e.*, studies) were distributed across the various utility areas and building sectors present in New York, and program applicants represent a diverse mix of end-use customers and technical service providers active within the state. Additional details regarding these and other program participation metrics are presented in subsequent sections of this report.

1.4 EVALUATION GOALS

As specified in the NYSERDA Energy Public Benefits Program Evaluation Plan,[16] the primary objectives of the MCA evaluation effort are: (1) to develop a comprehensive understanding of current and emerging markets (*e.g.*, market structure and market actors); (2) to provide baseline and background information required by NYSERDA to define and deliver programs to target markets; and (3) to track changes in markets over time with a specific focus on market indicators that are likely to be impacted by program offerings. When accomplished, these objectives support the ultimate goals of the MCA evaluation effort which are: (1) to conduct credible and transparent evaluations of the **New York Energy $mart**[SM] Program portfolio and individual program offerings, and (2) to provide NYSERDA program staff and managers as well as the System Benefits Charge (SBC) Advisory Group, the New York State Public Service Commission (PSC), Department of Public Service (DPS) staff, and other stakeholders with timely and unbiased information regarding the implementation of **New York Energy $mart**[SM] program offerings.

The MCA Team applied these overarching research objectives and goals to the current evaluation and placed a specific focus on the market and context within which the FlexTech Program operates. The work effort was designed to ensure consistency with prior program evaluation activities conducted by NYSERDA, including the last MCA evaluation of the program which was conducted in 2007, in order to build upon prior research findings. The MCA evaluation results can be used to assess progress towards

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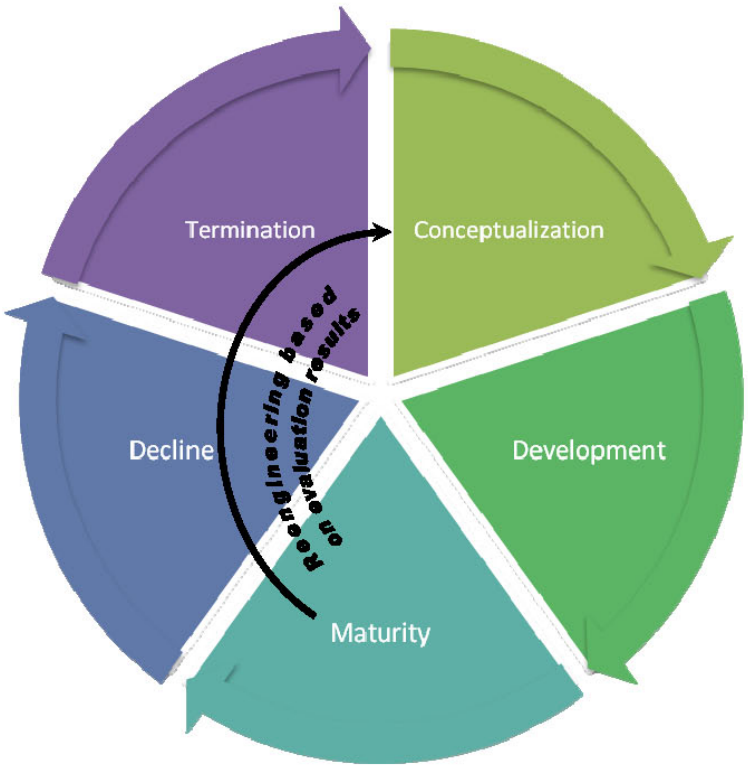
[15] Unless otherwise noted, information in this section was obtained from from the report titled *New York's System Benefits Charge Programs Evaluation and Status Report, Year Ending December 31, 2010, Final Report, March 2011*.

[16] NYSERDA, *Energy Public Benefits Program Evaluation Plan*, December 2007.

meeting the PSC's public policy goals under which NYSERDA operates as well as the institutional goals NYSERDA has established to move markets towards improved energy efficiency. In addition, the evaluation results can be used by NYSERDA program staff and managers to adjust program offerings as needed to ensure continual improvement of the programs and generate maximum market interest and uptake of existing program offerings.

This latter point is especially important when considering a program such as FlexTech, which is a mature and multi-faceted program addressing a complex and technically-sophisticated market segment. All programs have a natural life-cycle and opportunities exist throughout the life-cycle to generate increased impacts per unit of resource input (*i.e.*, program funding, staff time, etc).[17] As programs move into and through the maturity stage, they are typically operating at peak efficiency and generating strong impacts per unit of resource investment. However, while in the maturity stage, the impacts associated with suggested program improvements are often incremental and not exponential in nature, meaning that program managers must carefully consider program revisions to ensure continued return on investment as measured in terms of impacts per resource unit invested and to avoid progressing into the program decline stage, when market penetrations for targeted measures reach levels where the incremental cost for additional impacts increase greatly (*i.e.*, the market has been transformed).The MCA evaluation effort, along with the other evaluation efforts undertaken by NYSERDA, seeks to assess program performance in light of current market needs in order to provide NYSERDA staff and program managers with the data and information necessary to reengineer programs to maintain relevance and effectiveness and prevent program decline (Figure 1-2).

Figure 1-2.Program Life-Cycle for Long-Term Program Success



[17] Bowling, Chester, *Using Program Life Cycle Can Increase Your Return on Time Invested*, Journal of Extension, June 2001 Volume 39 Number 3.

1.5 REPORT FORMAT

The remainder of this report is organized in the following manner:

- Section 2 discusses the primary and secondary data sources used to evaluate the FlexTech Program, sample selection, and data collection implementation processes.
- Section 3 presents results from the market characterization effort including characteristics of the market eligible to participate in the FlexTech Program as well as program accomplishments and market share.
- Section 4 examines key market assessment indicators and researchable issues developed for the program including changes over time.
- Section 5 presents findings derived from the MCA evaluation.

Section 2:

PRIMARY AND SECONDARY DATA SOURCES AND METHODS

This section discusses the primary and secondary data sources and methods used by the MCA Team to evaluate the FlexTech Program. Section 2.1 discusses the key secondary data sources used in the evaluation and Section 2.2 describes the mechanics of each primary data collection effort related to the Program including sample development, confidence intervals, and overall response rates.

As discussed in greater detail in the remainder of this section, the primary and secondary data sources were components of a comprehensive research approach that consisted of the following activities:

- Planning meetings with NYSERDA evaluation staff, FlexTech Program staff, and APPRISE
- Review of programmatic documentation including PON 1197, RFP 1209, extracts from the FlexTech Program tracking database, and program-reported quarterly status reports
- Review of secondary data sources including previous evaluations of the FlexTech Program as well as evaluations of similar programs operating in other jurisdictions
- Review of the FlexTech Program logic model to identify specific researchable issues, market barriers, outcome measurement indicators, and baseline/progress tracking needs appropriate for MCA attention and to develop prioritized lists of measurement indicators and researchable issues to be addressed in the current evaluation
- Coordination with other NYSERDA evaluation contractors to maximize the efficiency of data collection, research, and reporting efforts
- Primary data collection via surveys with the following market actor groups:
    - Participating and non-participating end-use customers
    - Participating and non-participating technical service providers

2.1 SECONDARY DATA SOURCES

The MCA Team used the results of earlier research efforts conducted by NYSERDA to help inform the current study and report longitudinal findings. These sources include:

- Summit Blue Consulting and Quantec, *Technical Assistance Program Market Characterization, Market Assessment, and Causality Evaluation, Final Report*, May 2007
- NYSERDA, *Technical Assistance Program – Program Logic Model Report*, November, 2006
- Nexant, *Technical Assistance Program, M&V Evaluation, Final Report*, June 2005
- Freeman &Associates and Research Into Action, *Technical Assistance (TA) Program, Process Evaluation, Final Report*, June 2004
- Optimal Energy, American Council for an Energy-Efficient Economy, Vermont Energy Investment Corporation, and Christine T. Donovan Associates, *Energy Efficiency and Renewable Energy Resource Development Potential in New York State*, August 2003
- Energy Nexus Group, Onsite Energy Corporation, and Pace Energy Project, *Combined Heat and Power Market Potential for New York State*, October 2002

The MCA Team also reviewed evaluations of similar programs operating in other jurisdictions to incorporate knowledge and insights gained from other regions and provide context for more thoughtful analytic methods and findings. Primary sources include:

- Proceedings from recent industry conferences organized by the Association of Energy Services Professionals, the International Energy Program Evaluation Conference, and the American Council for an Energy-Efficient Economy, among others
- Johnson Controls and the International Facility Management Association, 2009 Energy Efficiency Indicator, IFMA Summary Report, 2009
- Itron, et al., *Evaluation of the 2004-2005 Nonresidential Audit and PG&E Local Program*, September 2008

Finally, the MCA Team used data from McGraw-Hill Construction F.W. Dodge, the U.S. Energy Information Administration's Commercial Building Energy Consumption Survey (CBECS), the U.S. Census, and the New York State Data Center to assist with market characterization efforts. The information gleaned from secondary data sources is presented in subsequent sections of this report.

2.2 PRIMARY DATA COLLECTION

Primary data related to the prioritized measurement indicators and researchable issues of interest to the current evaluation was collected from end-use customers and technical service providers that had participated in the FlexTech Program as well as from non-participant comparison groups. The data collection efforts were administered as telephone surveys using instruments designed by the MCA Team and APPRISE in close collaboration with NYSERDA evaluation and program staff and DPS staff.[18] The implementation effort was managed by APPRISE and the surveys were conducted by OpinionAmerica using a computer-assisted telephone interview (CATI) survey instrument. The final survey instruments are presented in Appendix A.

Sampled contacts were notified of the data collection effort by advance letters sent from NYSERDA. Interviewers called project contacts between 9:00 am and 5:00 pm on weekdays. If the interviewer reached the project contact's voice mail, the interviewer would leave a message on the first attempt. After the first attempt, the interviewer would leave a message every other day. Attempts were made with each project contact at least once per day at different times of day during the field period. Once the target number of interviews for a stratum was completed, interviewing was discontinued for that stratum.

Final survey data was checked for consistency with the CATI survey instrument and then combined with relevant sample frame data. A number of data file formats were developed, including SAS, SPSS, Stata, and Excel. All data files were labeled with variable labels and value labels.

Table 2-1 summarizes the primary data collection efforts conducted for the MCA evaluation of the FlexTech Program. Each survey effort is discussed in detail following the table.[19]

[18] Other evaluation contractor teams were able to suggest additions to the instruments to collect data relevant to separate studies; the MCA Team endeavored to accommodate such requests balancing the additional question sets against the need to minimize time impacts on survey respondents.

[19] Information regarding the primary data collection efforts was summarized from the respective methodology and implementation reports provided by APPRISE.

Table 2-1.Primary Data Collection for the FlexTech Program

Market Actor	Population Size	Total Survey Completes Achieved	% of Original Survey Complete Goal Achieved	Confidence/ Precision[1]
Participating end-use customers	671	140	100%	90/6
Non-participating end-use customers	~10,500	140	100%	90/7
Participating technical service providers	207	70	100%	90/8
Non-participating technical service providers	2,367	140	100%	90/7

[1] The confidence and precision levels shown in the table are based on formulae for estimating proportions. The largest variance occurs when the proportion is 0.5; *i.e.*, one half of the respondents indicate they are in that group and one half state that they are not in that group. The calculation assumes the variance with this 50/50 split. It should be noted that each question in a survey will have a different confidence interval and precision depending upon the range of possible answers for multi-category questions or continuous variables and the dispersion of responses. While these confidence interval estimates for proportions are potentially misleading for questions that do not ask about a proportion, it has become relatively standard in evaluation research to report these levels since they allow for a comparison across survey efforts.

2.2.1 Participating End-use Customers

The Participating End-use Customer (PEUC) study population includes all End-Use Customers in New York State (excluding Long Island) who entered into the FlexTech Program between May 1, 2006 and December 31, 2009. The projects of interest were those funded either by the System Benefits Charge (SBC) or the Energy Efficiency Portfolio Standard (EEPS) funding.

PEUC Sample Frame

The PEUC sample frame was pulled from the NYSERDA Program database on October 14, 2010. PEUC organizations may have participated in the FlexTech Program for multiple projects, often over multiple sites or locations. For each organization, unique contacts were treated as separate sample cases. There were six contacts that represented more than one organization; in these cases, the most recent project's organization was kept in the frame. The final sample frame included 671 records, where each record indicated a unique organization name and contact name combination. If the contact was responsible for multiple projects, each project was included in the frame. The geographical distribution falls as indicated in Table 2-2, below.

Table 2-2. PEUC Sample Frame – Geographic Distribution

Region	Number
Upstate	410
Downstate	261
Total	671

PEUC Sample Selection

Initially, the sample was selected evenly across upstate and downstate New York. After monitoring response rates, an additional 16 cases were added to the sample to supplement the downstate sample.

PEUC Target Completes

The target number of completes was 140, with 70 completes in the upstate region and 70 completes in the downstate region.

PEUC Survey Administration

The study was fielded from December 28, 2010 to March 3, 2011. Calls were not made on the two federal holidays during this period – December 31, 2010 and January 17, 2011. Interviewers called potential respondents during daytime weekday hours, and were available on nights or weekends if the respondent wished to schedule a call-back for that time. Calls were rotated between the morning and afternoon on different days. If the interviewer reached the named contact's voicemail, he or she left a message on the first contact. After the first contact, the interviewer left a message every three days and attempted each number a minimum of eight times. The surveys averaged 26 minutes. A total of 140 surveys were completed, 70 upstate and 70 downstate.

PEUC Sample Disposition and Survey Response Rate

Table 2-3 shows the disposition of all sampled telephone numbers dialed for this survey and provides the contact, cooperation, and overall response rates. The response rate estimates the fraction of all eligible working numbers where a request for an interview was made. The cooperation rate is the percentage of contact numbers where consent for an interview was granted.[20] The contact rate for the study was 70%, the cooperation rate was 88%, and the overall response rate was 59%.

Table 2-3. PEUC Sample Disposition

		Number	Percent
TOTAL SAMPLE USED		316	100%
Excluded Sample	Not working/Unusable number	19	6%
Not Contacted	Max Attempts/Respondent never available	69	22%
	Answering Machine	0	0%
	Call back/Left 800 number	1	0.3%
Unknown Eligibility	No Answer/Busy	1	0.3%
	Screener not complete	6	2%
Excluded	Not eligible/Not qualified	19	6%
	Quota met/No additional sample needed	41	13%
Refused/Break-off	Refused	19	6%
	Break-off	1	0.3%
COMPLETED INTERVIEWS		140	44%
Contact rate[21] **(160/230=.696)**			69.6%
Cooperation rate[22] **(140/160=.875)**			87.5%
Response rate[23] **(140/236=.594)**			59.4%

Table 2-4 shows the eligibility status and the estimated eligibility rate (e) for the sample. The estimated eligibility rate is the proportion of eligible cases among all cases in the sample for which a definitive

[20] These disposition codes and rate formulae are consistent with the standards of the American Association for Public Opinion Research (AAPOR).

[21] Contact rate = (Completes+refusals+break-offs)/(Completes+refusals+break-offs+not contacted)

[22] Cooperation rate = (Completes)/(Completes+refusals+break-offs)

[23] Response rate = (Completes)/(Completes+refusals+break-offs+not contacted+(e*(unknown eligibility)). For this study, e=.841 (see Table 3).

determination of status was obtained. The estimated eligibility rate is used in the calculation of the overall response rate. Of the total 316 pieces of sample used for the study, 239 pieces of sample had a definitive eligibility status (38 were not eligible, and 201 were eligible). A sample piece was deemed ineligible if the named respondent or organization was not recognized or if the named respondent was not aware of NYSERDA or FlexTech (*e.g.*, the sample contained inaccurate or outdated contact information). There were 77 cases that were of unknown eligibility.[24] The estimated eligibility rate for this study is 201/239, or 0.841.

Table 2-4. PEUC Eligibility Status

	Number	Percent
Total Sample	**316**	**100%**
Known Eligibility	239	76%
Not Eligible	38	12%
Not working sample	19	6%
Not eligible respondent	19	6%
Eligible	201	64%
Unknown eligibility	77	24%
Estimated Eligibility rate (e)	201/239 = 0.841	

2.2.2 Non-participating End-use Customers

The Non-participating End-use Customer (NPEUC) study population includes all end-use customers in New York State that are eligible for the FlexTech Program but have not participated in the program to date. This population encompasses a wide variety of organizations than can be evaluated within the scope of the market evaluation.

NPEUC Sample Frame

The NPEUC sample frame was developed to match the market sectors that have historically been most active in the FlexTech Program as identified in the PEUC sample frame. The NPEUC market sector, source, coverage, and number of cases are characterized in Table 2-5.

[24] Cases of unknown eligibility include situations in which it is not clear whether an eligible contact exists. For telephone surveys, cases of unknown eligibility include telephone numbers that are always busy, numbers in which calls are never answered, vague answering machine messages that do not indicate whether the number corresponds to an eligible contact, and technical phone problems that prevent calls from being completed.

Table 2-5. NPEUC Sample Frame Details

Market Sector	Source	Sample Frame Coverage	Number
Education - Colleges & Universities	US Department of Education National Center for Education Statistics	The sample frame for Colleges and Universities includes all Title IV reporting colleges and universities in New York. Two year colleges and technical schools were removed from the sample	107
Education - Elementary & Secondary Schools	New York State Education Department (NYSED)	The sample frame for Elementary and Secondary Schools contains data for both Public and Private schools in New York.	6,356
Health Care	New York State Department of Health Division of Health Care Financing	The sample frame for the Health Care market sector includes general hospitals but does not include retirement homes or nursing homes for the elderly.	160
Industrial/Manufacturing	Manufacturing News, Inc.	The sample frame for Industrial Processing and Manufacturing companies includes all manufacturing companies in New York that fall in the Division D Manufacturing SIC Code. Companies with fewer than 50 employees were removed from the sample.	1,810
Local Government	Office of the State Comptroller	The sample frame for Local Government consists of all local government facilities, according to the Office of the State Comptroller in New York.	1,427
Office and Bank Building	Dunn & Bradstreet Database	The sample frame for Office and Bank Buildings consists of companies in New York that fall into the Commercial Real Estate or Real Property Lessors designation, according to their SIC codes. These SIC codes were identified as the main active companies in FlexTech within the Office and Bank Building market sector.	648

NPEUC Sample Selection

For each market sector, the sample was first selected evenly across upstate and downstate New York. After evaluating the initial survey response rates, additional sample was released to acquire the desired number of completes in each region. For all market sectors except Local Government, additional downstate cases were released to supplement the sample.

NPEUC Target Completes

The target number of completes was 140, with 70 upstate and 70 downstate. Because the NPEUC sample was designed to reflect the PEUC sample frame, the target number of completes per market sector was set to match the percentage of each respective sector in the PEUC sample frame. Half of the targeted completes were set to come from the Industrial, Manufacturing, and Processing sector and the Office and Bank Buildings sector. The other half would be distributed across Elementary and Secondary Schools, Colleges and Universities, Health Care, and Local Government respondents.

NPEUC Survey Administration

The study was launched on August 9, 2010. Because of the number of completes desired and the challenges associated with initial screening (*i.e.*, identifying the desired respondent type across the market sectors), release dates were staggered by sector. Schedulers called during daytime weekday hours, and interviewers were available on nights or weekends if the respondent wished to schedule a call-back for that time. Calls were rotated between the morning and afternoon on different days. If the scheduler reached the named contact's voicemail, he or she left a message on first contact. After the first contact, the scheduler left a message every three days and attempted each number a minimum of six times. The surveys averaged 23 minutes. The effort generated 140 completed surveys, 71 upstate and 69 downstate. The survey finished fielding on January 19, 2011.

NPEUC Sample Disposition and Survey Response Rate

Table 2-6 shows the disposition of all sampled telephone numbers dialed for this survey and provides the contact, cooperation, and overall response rates.[25] The contact rate for the study was 56%, the cooperation rate was 58%, and the overall response rate was 27%.

[25] These disposition codes and rate formulae are consistent with the standards of the American Association for Public Opinion Research (AAPOR).

Table 2-6. NPEUC Sample Disposition

		Number	Percent
TOTAL SAMPLE USED		652	100%
Excluded Sample	Not working/Unusable number	41	6%
Not Contacted	Max Attempts/Respondent never available	0	0%
	Answering Machine	133	20%
	Call back/Left 800 number	78	12%
Unknown Eligibility	No Answer/Busy	15	2%
	Records not yet called/Screener not complete	29	4%
Excluded	Not eligible/Not qualified	88	13%
	Quota met/No additional sample needed	0	0%
Refused/Break-off	Refused	103	16%
	Break-off	25	4%
COMPLETED INTERVIEWS		140	21%
Contact rate[26] **(268/479=.559)**			56%
Cooperation rate[27] **(140/243=.576)**			58%
Response rate[28] **(140/519=.270)**			27%

Table 2-7 shows the eligibility status and the estimated eligibility rate (e) for the sample. The estimated eligibility rate is the proportion of eligible cases among all cases in the sample for which a definitive determination of status was obtained. The estimated eligibility rate is used in the calculation of the overall response rate. Of the total 652 pieces of sample used for the study, 397 pieces of sample had a definitive eligibility status (129 were not eligible, and 268 were eligible) and 255 were of unknown eligibility. The estimated eligibility rate for this study is 268/397, or 0.675.

Table 2-7. NPEUC Eligibility Status

	Number	Percent
Total Sample	652	100%
Known eligibility	397	61%
Not eligible	129	20%
Not working sample	41	6%
Not eligible respondent	88	13%
Eligible	268	41%
Unknown eligibility	255	39%
Estimated Eligibility rate (e)	0.675	

2.2.3 Participating Technical Service Providers

The Participating Technical Service Provider (PTSP) study population includes all Technical Service Providers that conducted an energy feasibility study for the FlexTech Program between May 1, 2006 and

[26] Contact rate = (Completes+refusals+break-offs)/(Completes+refusals+break-offs+not contacted)

[27] Cooperation rate = (Completes)/(Completes+refusals+break-offs)

[28] Response rate = (Completes)/(Completes+refusals+break-offs+not contacted+(e*(unknown eligibility)). For this study, e=.92 (see Table 3).

December 31, 2009. These include both NYSERDA certified FlexTech consultants and independent contractors located in New York.

PTSP Sample Frame

The PTSP sample frame was pulled from the NYSERDA Program database on October 14, 2010. PTSPs may have conducted multiple FlexTech studies for the same organization at different locations as well as for different organizations. Because of the different projects and contact names at each service provider's firm, unique FlexTech studies served as the unit of measurement. The final sample contained 207 unique firms for 642[29] projects.

PTSP Sample Selection

The sample was selected to have a make-up of half upstate and half downstate firms, as well as half NYSERDA certified FlexTech contractors and half independent contractors. Because of the limited number of downstate-based NYSERDA certified FlexTech contractors, the sample slightly over-selected upstate NYSERDA contractors and downstate independent contractors, as denoted in .

Table 2-8. PTSP Sample Selection

SELECTED			
	NYSERDA	OTHER	TOTAL
Upstate	38	33	71
Downstate	31	38	69
Total	69	71	140

PTSP Target Completes

The target number of completes was 70. There were no specified quotas for contractor-type or geography.

PTSP Survey Administration

The study was fielded from December 28, 2010 to January 27, 2011. Calls were not made on the two federal holidays that fell within this period – December 31 and January 17. Interviewers called during daytime weekday hours and were available on nights and weekends if the respondent wished to schedule a call-back for that time. Calls were rotated between the morning and afternoon on different days. If the interviewer reached the named contact's voicemail, he or she left a message on first contact. After the first contact, the interviewer left a message every three days and attempted each number a minimum of eight times. The interviews averaged just under 25 minutes. Twenty-three of the 70 completed surveys came from 11 unique contracting firms. The completed interviews were distributed as indicated in Table 2-9.

Table 2-9. PTSP Survey Distribution

Completed Cases			
	NYSERDA	Other	Total
Upstate	20	20	40
Downstate	17	13	30
Total	37	33	70

PTSP Sample Disposition and Survey Response Rate

[29] Note: This number of projects differs from the Participating End-Use Customer number because the unit of measurement for the End-Use Customers survey was a combination of organization name and contact name.

Table 2-10 shows the disposition of all sampled telephone numbers dialed for this survey and provides the contact, cooperation, and overall response rates.[30] The contact rate for the study was 66%, the cooperation rate was 88%, and the overall response rate was 57%.

Table 2-10. PTSP Sample Disposition

		Number	Percent
TOTAL SAMPLE USED		**140**	**100%**
Excluded Sample	Not working/Unusable number	8	6%
Not Contacted	Max Attempts/Respondent never available	32	23%
	Answering Machine	3	2%
	Call back/Left 800 number	6	4%
Unknown Eligibility	No Answer/Busy	1	1%
	Screener not complete	2	1%
Excluded	Not eligible/Not qualified	8	6%
	Quota met/No additional sample needed	0	0%
Refused/Break-off	Refused	8	6%
	Break-off	2	1%
COMPLETED INTERVIEWS		70	50%
Contact rate[31] **(80/121=.661)**			66.1%
Cooperation rate[32] **(70/80=.875)**			87.5%
Response rate[33] **(70/124=.567)**			56.7%

Table 4 shows the eligibility status and the estimated eligibility rate (e) for the sample. The estimated eligibility rate is the proportion of eligible cases among all cases in the sample for which a definitive determination of status was obtained. The estimated eligibility rate is used in the calculation of the overall response rate. Of the total 140 pieces of sample used for the study, 96 pieces of sample had a definitive eligibility status (16 were not eligible, and 80 were eligible). Potential respondents were deemed ineligible if the named respondent or organization was unrecognized or if the dialed number reached a non-business (*e.g.*, if the contact information proved inaccurate). Forty-four (44) cases were of unknown eligibility. The estimated eligibility rate for this study is 80/96, or 0.833.

Table 2-11. PTSP Eligibility Status

	Number	Percent
Total Sample	140	100%
Known Eligibility	96	69%
Not Eligible	16	11%
Not working sample	8	6%
Not eligible respondent	8	6%

[30] These disposition codes and rate formulae are consistent with the standards of the American Association for Public Opinion Research (AAPOR).

[31] Contact rate = (Completes+refusals+break-offs)/(Completes+refusals+break-offs+not contacted)

[32] Cooperation rate = (Completes)/(Completes+refusals+break-offs)

[33] Response rate = (Completes)/(Completes+refusals+break-offs+not contacted+(e*(unknown eligibility)). For this study, e=.833 (see Table 4).

	Number	Percent
Eligible	80	57%
Unknown eligibility	44	31%
Estimated eligibility rate (e)	80/96 = 0.833	

2.2.4 Non-participating Technical Service Providers

The Non-participating Technical Service Provider (NPTSP) study population includes all Technical Service Providers in the New York area that are eligible to serve as consultants for the FlexTech Program but have not done so to date.

NPTSP Sample Frame

The NPTSP sample frame was developed to match the participating service providers as identified in the PTSP sample frame. APPRISE conducted reverse matching of the 67 PTSPs that served as FlexTech Consultants or subcontractors in order to identify the firms' respective Standard Industrial Classification (SIC) code. Table 2-12 shows the distribution of the 59 matches that were made.

Table 2-12. Reverse SIC Code Matching

SIC Code	Number	Percent	SIC Description
8711	31	53%	"Engineering Services"
Other	22	37%	These 22 cases matched 21 unique SIC codes
8742	6	10%	"Management Consulting Services"
Total	59	100%	

Slightly over half of the PTSPs fell under one SIC code – 8711: Engineering Services. Based on these matches, a purchase was made from the Dun and Bradstreet database to obtain a listing of engineering firms that fell under the Primary SIC code 8711 and were located in New York State, excluding Long Island. The final frame contained 2,367 pieces of sample.

NPTSP Sample Selection

The sample was stratified into three strata based on employee size, as indicated in Table 2-13.

Table 2-13. NPTSP Strata

Size of Firm	# of Employees	# of Firms	∑ of Employees	% of Employees
Small	1-5	1,820	3,607	15%
Medium	6-20	363	3,904	17%
Large	>20	184	15,906	68%
	Total	2,367	23,417	100%

Although large firms account for less than 10% of the total number of firms, the number of employees that are associated with large firms represent 68% of the total number of employees. Because of the percentage of employee-makeup for each firm size and the limited sample in the large stratum, the initial sample was selected to contain 50% large firms, 25% medium firms, and 25% small firms.

The initial sample was selected evenly across upstate and downstate New York. After evaluating the response rates, additional sample was released to acquire the desired number of completes. Due to the difficulty identifying appropriate respondents, as well as ineligible cases and non-working numbers, additional sample was selected to supplement each stratum.

NPTSP Target Completes

The target number of completed surveys was 140, with 70 upstate and 70 downstate. Because the non-participant sample was designed both to reflect the participant sample frame as well as the actual population, a goal was to maximize the number of completes that came from the large stratum.

NPTSP Survey Administration

The study was launched on November 11, 2010. Calls were not made on the five federal holidays within this period – November 25 and 26, December 24 and 31, and January 17. Interviewers called during daytime weekday hours and were available on nights and weekends if the respondent wished to schedule a call-back for that time. Calls were rotated between the morning and afternoon on different days. If the interviewer reached the named contact's voicemail, he or she left a message on first contact. After the first contact, the interviewer left a message every three days and attempted each number a minimum of eight times. The surveys averaged 18 minutes. Survey fielding closed on March 8, 2011 with 140 completed interviews, 70 upstate and 70 downstate.

NPTSP Sample Disposition and Survey Response Rate

Table 2-14 shows the disposition of all sampled telephone numbers dialed for this survey and provides the contact, cooperation, and overall response rates.[34] The contact rate for the study was 61%, the cooperation rate was 70%, and the overall response rate was 40%.

Table 2-14. NPTSP Sample Disposition

		Number	Percent
TOTAL SAMPLE USED		**912**	**100%**
Excluded Sample	Not working/Unusable number	152	17%
Not Contacted	Max Attempts/Respondent never available	119	13%
	Answering Machine	8	0.9%
	Call back/Left 800 number	0	0%
Unknown Eligibility	No Answer/Busy	18	2%
	Screener not complete	36	4%
Excluded	Not eligible/Not qualified (why?)	297	33%
	Quota met/No additional sample needed	83	9%
Refused/Break-off	Refused	59	6%
	Break-off	0	0%
COMPLETED INTERVIEWS		140	15%
Contact rate[35] **(199/326=.610)**			61.0%
Cooperation rate[36] **(140/199=.704)**			70.4%
Response rate[37] **(140/347=.404)**			40.4%

[34] These disposition codes and rate formulae are consistent with the standards of the American Association for Public Opinion Research (AAPOR).

[35] Contact rate = (Completes+refusals+break-offs)/(Completes+refusals+break-offs+not contacted)

[36] Cooperation rate = (Completes)/(Completes+refusals+break-offs)

[37] Response rate = (Completes)/(Completes+refusals+break-offs+not contacted+(e*(unknown eligibility)). For this study, e=.386 (see Table 4).

Table 2-15 shows the eligibility status and the estimated eligibility rate (e) for the sample. The estimated eligibility rate is the proportion of eligible cases among all cases in the sample for which a definitive determination of status was obtained. The estimated eligibility rate is used in the calculation of the overall response rate. Of the total 912 pieces of sample used for the study, 731 pieces of sample had a definitive eligibility status (449 were not eligible, and 282 were eligible). Potential respondents were deemed ineligible if the engineering firm had previously participated in FlexTech, if the firm only served residential customers, or if the firm did not conduct engineering work related to buildings (*e.g.*, Civil or software engineering). There were 181 cases with unknown eligibility. The estimated eligibility rate for this study is 282/731, or 0.386.

Table 2-15. NPTSP Eligibility Status

	Number	Percent
Total Sample	**912**	**100%**
Known Eligibility	731	80%
Not Eligible	449	49%
Not working sample	152	17%
Not eligible respondent	297	33%
Eligible	282	31%
Unknown eligibility	181	20%
Estimated eligibility rate (e)	282/731 = 0.386	

Section 3:

MARKET CHARACTERIZATION

This section presents characteristics of the market eligible to participate in the FlexTech Program and discusses program accomplishments to date. Program participation metrics were analyzed in relation to the market data to observe progress made to date in meeting program-established performance goals and to help identify opportunities to more effectively deploy program resources by focusing on key market segments.

NYSERDA recently commissioned a scoping study that sought to identify program and market opportunities and barriers in the New York City and Westchester County (*i.e.*, downstate) area and to outline possible studies that could shed light on those opportunities and barriers. The scoping study recommended that the MCA Team characterize the New York City and Westchester County area as part of its ongoing evaluation activities. Thus, where appropriate, the characterization results presented in this section are segmented by downstate vs. upstate regions with the downstate region defined as including the following counties:[38] Bronx, Kings, New York, Queens, Richmond, and Westchester. All other counties, with the exception of Nassau County and Suffolk County, are considered components of the upstate region.

The section is organized as follows:

- Section 3.1, *Introduction and Definitions*, contains background information regarding the FlexTech Program; the estimated potential for energy efficiency, renewable technologies, and combined heat and power in New York; other New York programs related to the FlexTech Program; and the relevant policy environment in New York. In addition, definitions of terms used throughout the report are included in this section.
- Section 3.2, *Characterization Approach*, documents the main research questions and the primary and secondary data sources used to conduct characterization activities.
- Section 3.3, *New York Existing Building Stock*, provides information regarding the existing building stock in New York segmented by market sector, geography, energy consumption, and energy use patterns.
- Section 3.4, *FlexTech Program Accomplishments*, provides information regarding the number of FlexTech studies completed to date by geographic region, year and market sector. The section also includes information on the geographic region and market sector of technical service providers participating in the program.
- Section 3.5, *FlexTech Program Penetration and Interactions*, provides information regarding the program's market penetration and interaction with existing technical service provider networks.
- Section 3.6, *Addition and Alteration Projects in New York*, provides information regarding addition and alteration project activity in New York segmented by market sector and geography.
- Section 3.7, *Customers Exempt from NYSERDA Programs*, discusses customer groups that are or have been ineligible to participate in NYSERDA's programs.

[38] Nassau and Suffolk counties, which are located on Long Island, are not included in the downstate region due to the fact that customer accounts located on Long Island receive power from the Long Island Power Authority (LIPA) which is not part of the SBC program. Unless noted otherwise, Nassau County and Suffolk County have been removed from the analyses conducted for this report.

3.1 INTRODUCTION AND DEFINITIONS

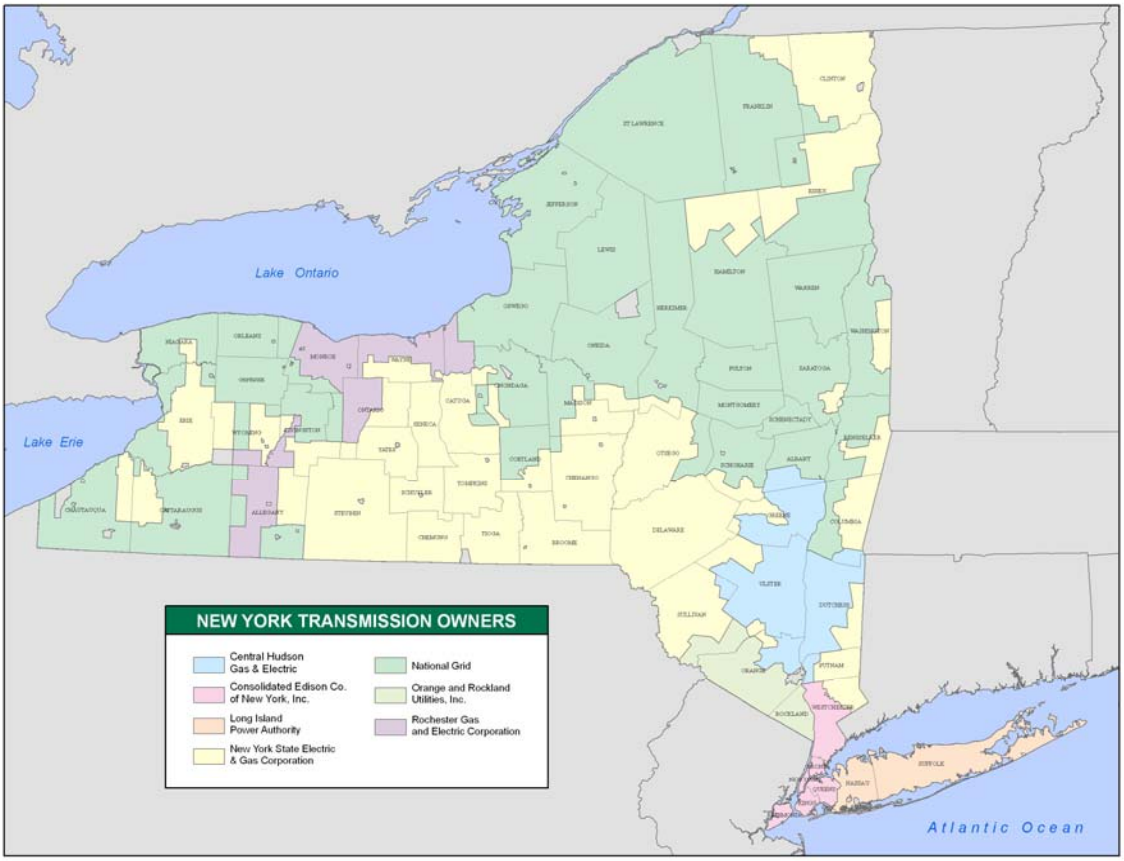
This section provides a general overview of the FlexTech Program, the potential for energy efficiency, renewable technologies, and combined heat and power in New York, related New York programs, and the state's policy environment.

3.1.1 FlexTech Background

The FlexTech Program provides commercial and industrial customers with objective and customized information to facilitate informed energy efficiency, procurement, productivity, and financing decisions. Cost sharing is provided for detailed studies and technical assistance from energy engineers and other experts. The program is designed to evaluate all energy sources while providing objective analysis of energy source trade-offs and switching options. Program participants receive a customized energy study targeted to their particular needs and objectives.

Eligible participants for the FlexTech Program include commercial, industrial, institutional, municipal, not-for-profits, and K-12 schools. Participants may use an independent technical service provider or may use providers that have been contracted by NYSERDA to provide services under the FlexTech Program. The FlexTech Program is currently offered statewide, with an increased focus on the Consolidated Edison and Orange and Rockland service territories due to load constraints and higher energy costs in those territories (see Figure 3-1). This geographically-focused application of the Program targets service providers who are knowledgeable about and actively engaged with customers and facilities in these areas. Smaller customers are currently eligible for walk-through energy audits, including a reimbursement of audit cost upon implementation of recommendations. NYSERDA anticipates that targeting of this market sector will be diminished as the utility-offered Fast Track Small Business Programs gain traction in the marketplace.

Figure 3-1. Utility Service Territories in New York



Source: NYSERDA Energy Analysis staff.

3.1.2 Potential for Energy Efficiency, Renewables, and Combined Heat and Power in New York

FlexTech studies recommend a range of measures including energy efficiency measures and the installation of renewable or combined heat and power technologies. Therefore, a high level overview of the potential for these technologies is included in this section.

According to a study completed for NYSERDA in 2003,[39] the economic potential for energy efficiency in the commercial and industrial sectors in New York is 38,169 annual GWh in 2012 and 37,993 annual GWh in 2022 assuming low avoided costs. The study also projected the economic potential for renewable energy technologies in New York to increase by 400% between 2012 and 2022. The estimates of economic potential for renewables (including biomass, hydropower, municipal solid waste, solar thermal, and windpower) are 11,769 annual GWh in 2012 and 58,894 annual GWh in 2022. There was technical potential for other renewable technologies like fuel cells and photovoltaics; however, these technologies were not found to be cost-effective in the either the low or high avoided cost scenarios.

[39] Optimal Energy, American Council for an Energy-Efficient Economy, Vermont Energy Investment Corporation, and Christine T. Donovan Associates. "Energy Efficiency and Renewable Energy Resource Development Potential in New York State." Prepared for NYSERDA. August 2003.

A separate study[40] estimated the market penetration estimates for combined heat and power (CHP) in New York. The study used a market-estimating model to define projected year-by-year market penetration. The model included two cases: a base case which assumed business as usual and an accelerated case which assumed advanced CHP technologies, reduction of stand-by charges, CHP initiatives, and an increase in customer awareness and adoption. For 2012, the study estimated 238 MW in the upstate region and 525 MW in the downstate region[41] for the base case. In the accelerated case for 2012, the study estimated 849 MW in the upstate region and 1,320 MW in the downstate region. The upstate region has a smaller total remaining potential for CHP systems; however, the upstate region has more potential for larger systems than downstate, meaning the potential can be captured with fewer but larger projects.

3.1.3 Related New York Programs

At present, the Public Service Commission has approved nearly 100 energy efficiency programs to be administered by utilities in the state as part of the Energy Efficiency Portfolio Standard (EEPS). Forty-five of the programs are electric energy efficiency programs and 44 are gas efficiency programs. [42]It is likely that many programs will be operating in New York that could potentially overlap with the FlexTech Program. In order to minimize the overlap, NYSERDA plans to focus its programmatic efforts on larger buildings, while the utilities will focus their programmatic efforts on the smaller buildings. Discussions with NYSERDA staff indicate that they prefer to target businesses with annual electric bills of at least $1 million.

3.1.4 Policy Environment

Important policies relevant to the FlexTech Program are discussed below. These policies are divided into those that affect all of New York and those that are only applicable to New York City.

New York State. On June 23, 2008, New York established an Energy Efficiency Portfolio Standard (EEPS).[43] This order adopted a goal of reducing electricity usage by 15% statewide by 2015. The EEPS confirms the state's commitment to energy efficiency. The state also has a Renewable Portfolio Standard (RPS) with a goal of generating 30% of the state's electricity through renewable sources by 2015; NYSERDA is responsible for administering the RPS and ensuring that the statewide targets are met.[44]

New York City. PlaNYC is a strategy to manage the city's growing needs with its limited available land. The Plan was announced on December 12, 2006. The Plan addresses three challenges through three corresponding sub-plans:

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[40] Energy Nexus Group, Onsite Energy Corporation, and Pace Energy Project. "Combined Heat and Power Market Potential for New York State." Prepared for NYSERDA. October 2002.

[41] The downstate region in this study is defined as the service areas of LIPA, Consolidated Edison, and Orange and Rockland. This definition is different than the downstate definition used throughout the rest of the report which is based on county.

[42] New York State. Public Service Commission. http://www3.dps.state.ny.us/W/PSCWeb.nsf/All/06F2FEE55575BD8A852576E4006F9AF7?OpenDocument (accessed March 2011).

[43] State of New York Public Service Commission. "Order Establishing Energy Efficiency Portfolio Standard and Approving Programs." Case 07-M-0548. June 23, 2008.

[44]For more information on the RPS and NYSERDA's role in administering it, see http://www.nyserda.org/rps/faq.asp.

Challenge	Sub-plan
Growth	OpeNYC
Aging infrastructure	MaintaiNYC
Increasingly precarious environment	GreeNYC

The Plan also focuses on five dimensions of the city's environment: land, water, transportation, energy, air and climate change.[45]

The Greener, Greater Buildings Plan is part of PlaNYC. New York City passed legislation as part of the six-point Greener, Greater Buildings Plan on December 9, 2009. One of the four bills passed requires private buildings over 50,000 square feet to conduct energy audits once every ten years and to undertake retro-commissioning measures.[46] All city-owned buildings over 50,000 square feet are required to complete energy retrofits with a simple payback of seven years or less. Energy efficiency audit reports will be required beginning in 2013; the year the first audit report is due is based on the last digit of a building's tax block number. This presents an intriguing market opportunity for NYSERDA wherein NYSERDA could target market the FlexTech Program to representatives of those buildings that are eligible to participate in NYSERDA's programs and required to complete an audit report in any given year.

The initial version of this bill required private building owners to make and pay for all improvements with simple payback terms of five years or less, based on cost of the installed equipment and energy bill savings. Many market actors were disappointed that this part of the bill was removed prior to the bill's passage.[47]

The three other bills passed under the Greener, Greater Buildings Plan call for the following actions:[48]

- Require energy use benchmarking on private buildings greater than 50,000 square feet and public buildings greater than 10,000 square feet.
- Create a New York City Energy Code that existing buildings will have to meet when they make renovations, regardless of the area of the building to be retrofit.
- Require commercial buildings over 50,000 square feet to upgrade their lighting and sub-meter tenant spaces over 10,000 square feet.

3.1.5 Definitions

Terms used throughout the section are defined below:

Downstate New York refers to the following counties: New York, Queens, Kings, Richmond, the Bronx, and Westchester.

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[45] For more information on PlaNYC, see http://www.nyc.gov/html/planyc2030.

[46] Introductory Number 967-A.

[47] Navarro, Mireya. "Bloomberg Drops an Effort to Cut Building Energy Use." *The New York Times*. December 4, 2009.

[48] Many of the bills require actions to be taken if buildings are greater than 50,000 square feet. This limit is based on the Department of Finance's definition of "covered building." A "covered building" is (i) a building that exceeds 50,000 gross square feet (4645 m^2), (ii) two or more buildings on the same tax lot that together exceed 100,000 gross square feet (9290 m^2), or (iii) two or more buildings held in the condominium form of ownership that are governed by the same board of managers and that together exceed 100,000 gross square feet (9290 m^2).

New York City includes the following counties: New York, Queens, Kings, Richmond, and the Bronx.

In-process studies are studies where the "currentstatus" field in the buildings portal database is not “cancelled,” “rejected,” “report approved,” “report to customer,” or “blank.”

Completed studies are studies where the "currentstatus" field is “report approved” or “report to customer.”

An *establishment* according to the U.S. Census Bureau 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.

Recommended energy savings are the energy savings likely to result from the recommended measures identified in the FlexTech audit report, as reported in the NYSERDA buildings portal database.

3.2 CHARACTERIZATION APPROACH

The MCA team explored six main research questions for the market characterization activities completed for the FlexTech Program:

- What is the existing building stock segmented by market sector, geography, energy use patterns, and energy consumption?
- What is the number of FlexTech studies completed by geographic region, year, and market sector?
- What is the firmographic information regarding customers and consultants participating and not participating in the FlexTech Program?
- What are the prevailing supply chains, business cycles, and technical service delivery channels?
- What is the market penetration and interaction with existing technical service provider networks?
- What are the addition and alteration projects in New York?

Market characterization results were generated from primary and secondary data sources. Key data sources used for this activity include:

- FlexTech Program data from the Buildings Portal downloaded on January 14, 2010. The buildings portal database includes information on customers that have applied to the FlexTech Program. It tracks the status of those projects (*e.g.*, completed, rejected). The database includes other fields such as project type, engineering firm, measures recommended, and the corresponding recommended kWh savings. It should be noted that the small audit program projects are aggregated in the database by year. The team modified the program data to reflect all program activity as of December 31, 2009.
- McGraw-Hill Construction Dodge databases
- U.S. Energy Information Administration’s Commercial Buildings Energy Consumption Survey (CBECS). CBECS is a national survey that collects information on U.S. commercial buildings including building characteristics, end-use consumption, and energy expenditures.
- U.S. Energy Information Administration’s Manufacturing Energy Consumption Survey (MECS). MECS is a national survey that collects information on U.S. manufacturing establishments

including energy consumption and expenditures, use of energy, energy and operations, and energy management.

- U.S. Census Bureau's County Business Patterns. County Business Patterns is a database containing the following information by county and by industry code (NAICS): number of paid employees, payroll, and the number of establishments
- Previous program evaluation reports prepared for NYSERDA and for similar programs operating in other jurisdictions
- NYS Office of Real Property Services for real property data accessed via the NYS GIS Clearinghouse
- Discussions with NYSERDA Energy $mart Community Coordinators

Where possible, market characterization results are segmented on an upstate-downstate regional basis to identify spatial variations in program and market opportunities and barriers.

As mentioned, the FlexTech Program data from the Buildings Portal database was used as a primary data source for the characterization. This data is reported on a project level. If an entity has multiple projects (*i.e.*, studies), each study would be represented in this characterization separately. If a single project contains multiple buildings, only one building location is represented in this characterization. The use of this data in the characterization carries a few caveats:[49]

- The data does not include an application date. Therefore, the MCA Team has used the RFP/PON number as an estimate for application year. It should be noted that this application year is only an estimate because RFP/PONs can span multiple years.
- The Buildings Portal reports sometimes contain multiple entries for one project due to the project containing multiple buildings, multiple measures, and/or multiple contact addresses/phone numbers. The MCA Team used only one of these entries per project, as discussed above. The database documentation does not indicate the reason for the multiple entries.
- Roll-up audit program and farm audit data have been removed because one entry contained multiple projects and there was no easy way to obtain project-specific data. This is in line with the fact that the MCA Team focused on larger projects, not the smaller audit program.
- The MCA Team removed all projects with an "ElectricUtility" field value of "LIPA" because LIPA customers are not eligible to participate in NYSERDA programs.

The market sectors used throughout the report are based on the source of the data, with one exception. For example, the U.S. Census County Business Patterns uses the North American Industry Classification System (NAICS); therefore, all figures that use this data will also use the NAICS market sectors. Figures based on other data sources use the market sectors as defined by the source of the data. The MCA Team did not attempt to create consistent market sectors across all data sources because the market sectors were varying and the Team wanted to show the data as transparently as possible. The one exception to this is in the FlexTech Program Penetrations and Interactions section. In order to estimate and compare program penetration by market sector, market sectors from different data sources were aligned as closely as possible and were combined in some instances.

[49] The MCA Team worked with FlexTech Program staff and NYSERDA Energy Analysis staff to develop the best understanding possible of the contents of the Buildings Portal database.

3.3 NEW YORK EXISTING BUILDING STOCK

New York has approximately 520,000 commercial and industrial establishments.[50] Establishments are spread across the state; however, a large percentage (41%) of the establishments is located in New York City, with 20% located in New York County alone. Other counties with a large number of establishments include Erie (4% of the total number of establishments), Monroe (3%), and Albany (2%). These counties are home to large population centers (Buffalo in Erie County, Rochester in Monroe County, and Albany in Albany County) so it is not surprising that they also have a large number of commercial and industrial establishments.

New York also has nearly 4 billion square feet of commercial and industrial building area.[51] Similar to the distribution of establishments, a large percentage of the building area is located in New York City (35%), with 12% located in New York County. The distribution of building area across the state is similar to that observed for number of establishments.

3.3.1 Market Sectors

The market sectors active within the New York buildings are diverse. By number of establishments, the largest market sector is retail trade (15%), followed by professional, scientific, and technical services (11%), and health care and social assistance (10%). The view is slightly different when looking at market sectors by building area. Nearly 20% of existing building area is occupied by offices or banks, while 16% of building area is occupied by stores or restaurants. Manufacturing accounts for approximately 15% of the total building area in New York.

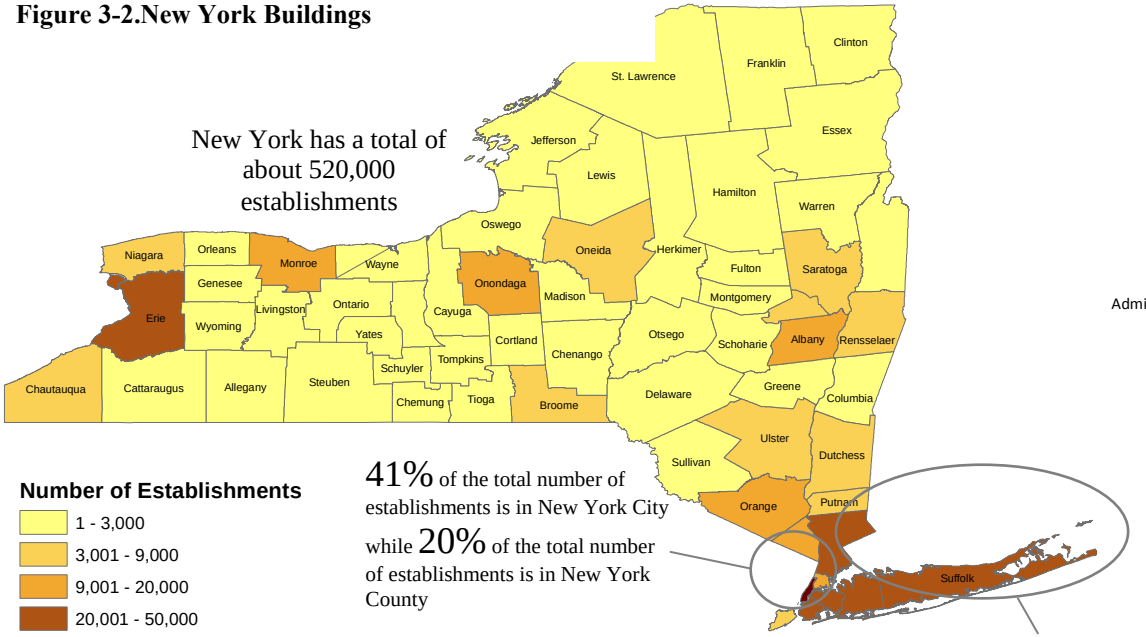
It should be noted that the market sector descriptions are different for the data on number of establishments and the data on building area. This difference is due to the different data sources providing this data. The MCA Team chose not to convert the sectors to make them consistent, but rather to report the data in its original state.

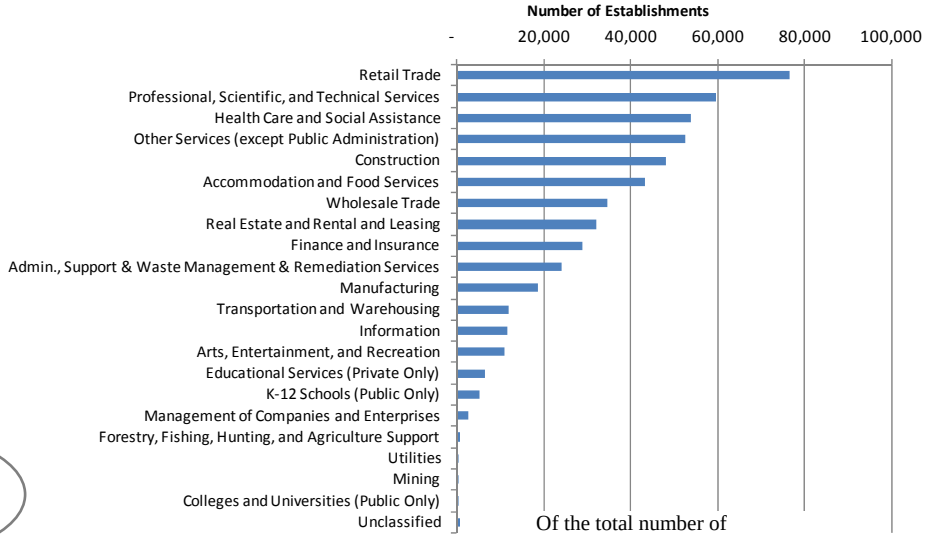
Figure 3-2 shows the number of establishments and the building area. The data is shown by county area. The shading represents the volume of establishments or building area – the darker the color the greater the volume.

[50] Source: McGraw-Hill Construction Building Stock Database.

[51] Source: McGraw-Hill Construction Building Stock Database.

Figure 3-2.New York Buildings

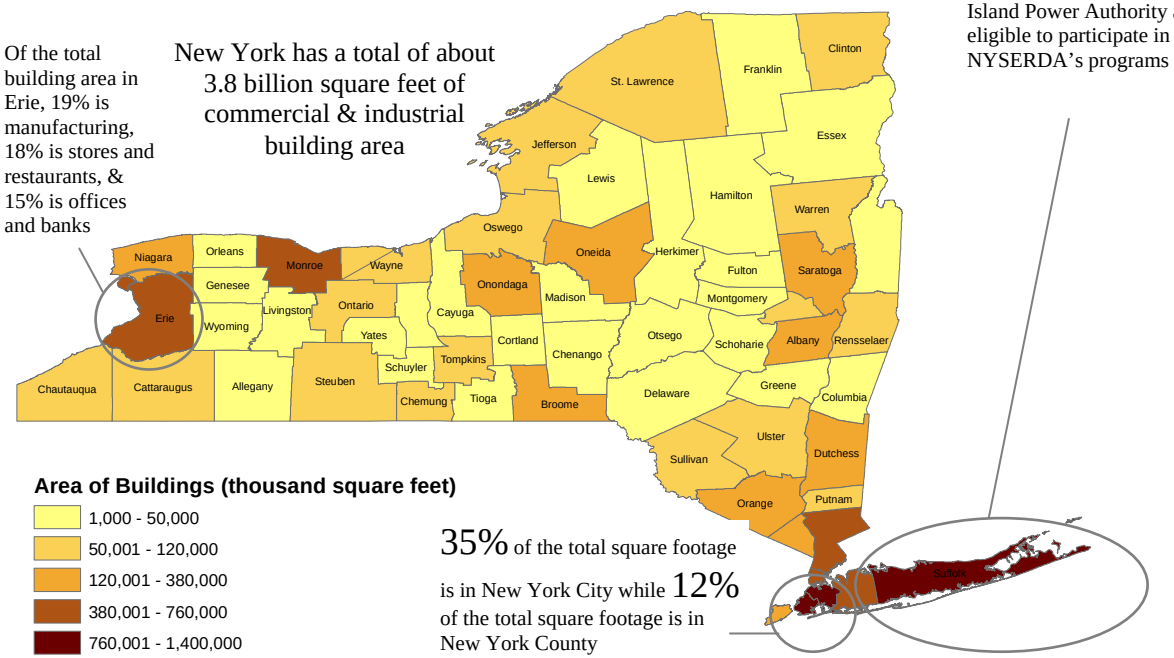


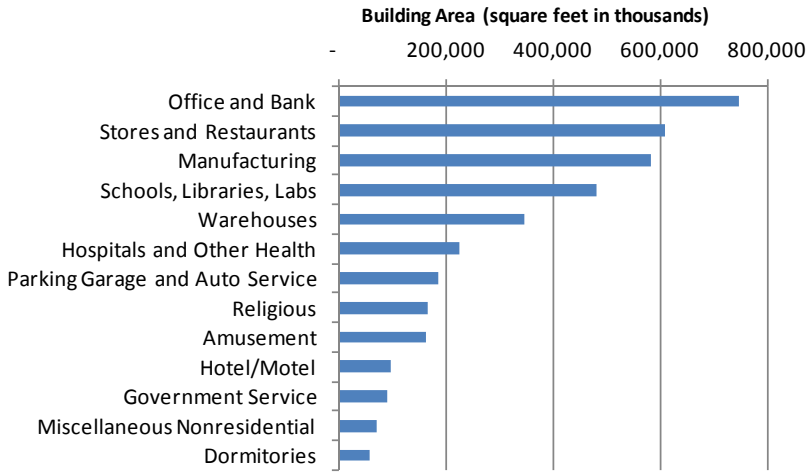


Of the total number of manufacturing establishments in New York, 15% are in New York County and 10% are in Kings County

The commercial & industrial establishments in Long Island (Nassau and Suffolk Counties) receive their power from the Long Island Power Authority and are not eligible to participate in NYSERDA's programs

Of the total building area in Erie, 19% is manufacturing, 18% is stores and restaurants, & 15% is offices and banks





40% of the area in the office and bank sector is in New York County

Sources: McGraw-Hill Construction Building Stock, US Census County Business Patterns, New York State Education Department.
Note that 224 business establishments have an unknown or not fixed location; therefore, these establishments are not shown on the map.

3.3.2 Energy Consumption and Expenditures

The energy consumption and associated expenditures of buildings are important metrics for understanding the existing building stock in New York. Figure 3-4 shows energy consumption and expenditures in commercial buildings in the Middle Atlantic Census Region (including New York, Pennsylvania, and New Jersey). Note that the data are not disaggregated by state, and therefore the region level is used for estimating energy consumption and expenditures in New York.

3.3.3 Commercial Buildings

According to the U.S. Department of Energy, the food sales sector has the highest electricity consumption in the region at 186 thousand Btu per square foot. The food service industry has the highest natural gas consumption at 184 thousand Btu per square foot. Hospitals have both a high electricity consumption (85 thousand Btu per square foot) and high natural gas consumption (122 thousand Btu per square foot). The electricity consumption for other sectors range from 10 to 90 thousand Btu per square foot, while natural gas consumption for other sectors ranges from 10 to 60 thousand Btu per square foot. In general, commercial establishments in the Middle Atlantic Census Region tend to consume more Btu of electricity than natural gas.

According to the 2003 data, enclosed malls have the highest electricity expenditures per building for commercial buildings, at nearly $1,300,000 per year. Hospitals also have high electricity expenditures at nearly $800,000 per year, as do colleges at nearly $200,000 per year.

These data are summarized in Figure 3-3.

3.3.4 Industrial Buildings

The primary metals industry has the highest fuel consumption for both electricity (58 trillion Btu) and natural gas (82 trillion Btu). Other industries with high energy consumption levels are chemicals (electricity-38 trillion Btu; natural gas-65 trillion Btu), paper (electricity-22 trillion Btu; natural gas-65 trillion Btu), and nonmetallic mineral products (electricity-18 trillion Btu; natural gas-58 trillion Btu).

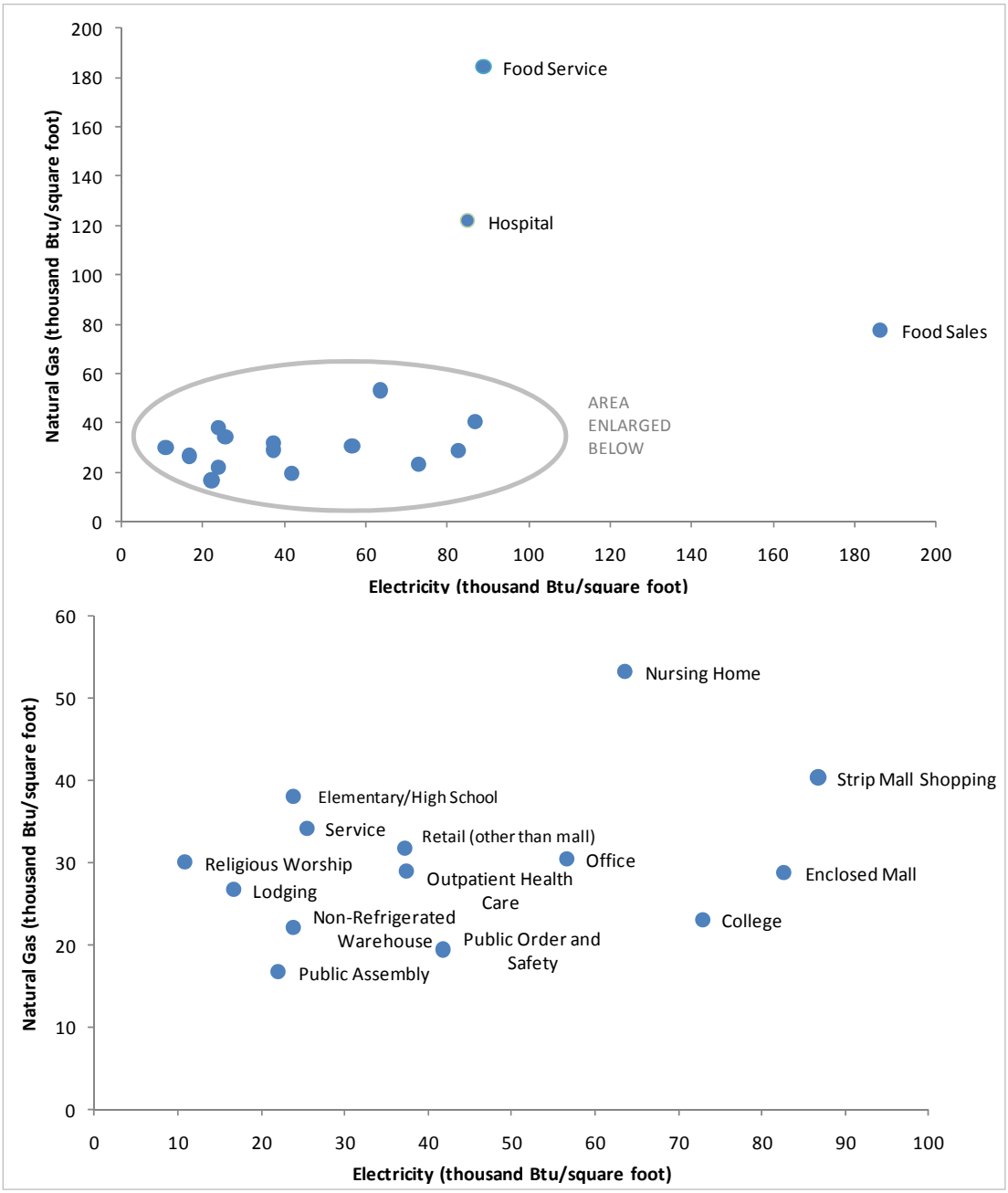
In contrast to the commercial sectors, industrial establishments in the Northeast Census Region tend to consume more Btu of natural gas than electricity.

For industrial buildings, the nonmetallic mineral products industry consumes the most energy per dollar value of shipments (9.7 thousand Btu), followed by the paper industry (7.1 thousand Btu) and the primary metals industry (5.4 thousand Btu). The apparel industry consumes the least at 0.3 thousand Btu per dollar value of shipments.

In terms of expenditures for purchased electricity, computer and electronics products (nearly $800 million), chemicals (slightly over $700 million), and primary metals (slightly over $600 million) are the top three markets.

These data are summarized in Figure 3-4.

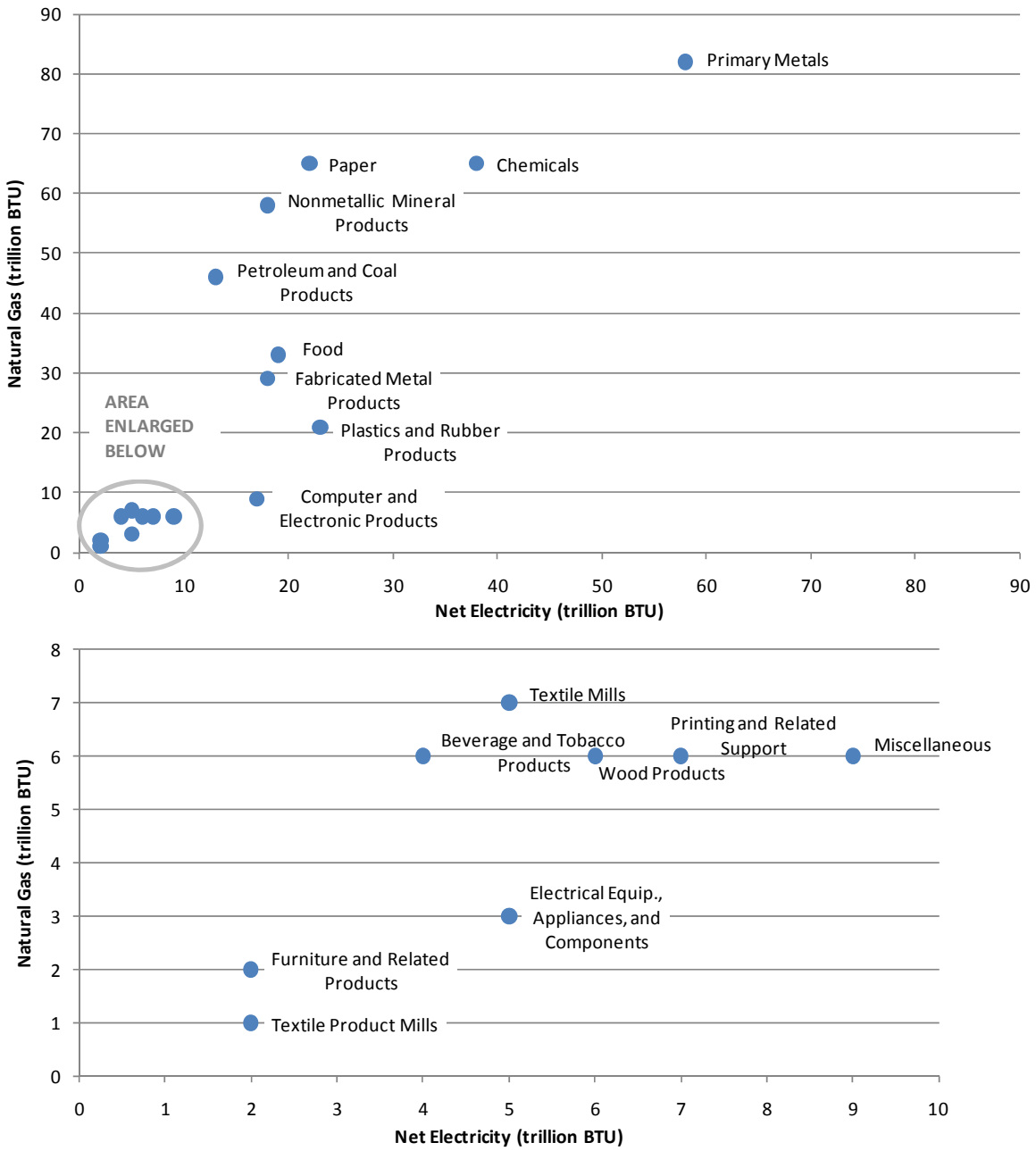
Figure 3-3. Commercial Buildings: Energy Consumption



Note that these figures are for the Middle Atlantic Census Region including New York, Pennsylvania, and New Jersey.

Source: U.S. Department of Energy. Energy Efficiency and Renewable Energy. Buildings Energy Data Book. http://buildingsdatabook.eren.doe.gov/CBECS.aspx. (accessed March 2010).

Figure 3-4. Industrial Buildings: Energy Consumption



Note that these figures are for the Northeast Census Region including NY, PA, and NJ, CT, RI, MA, ME, NH, and VT.

Source: U.S. Energy Information Administration. Manufacturing Energy Consumption Survey (MECS). 2002 and 2006. Data for the Northeast Census Region. Some market sectors withheld from the figures due to insufficient data.

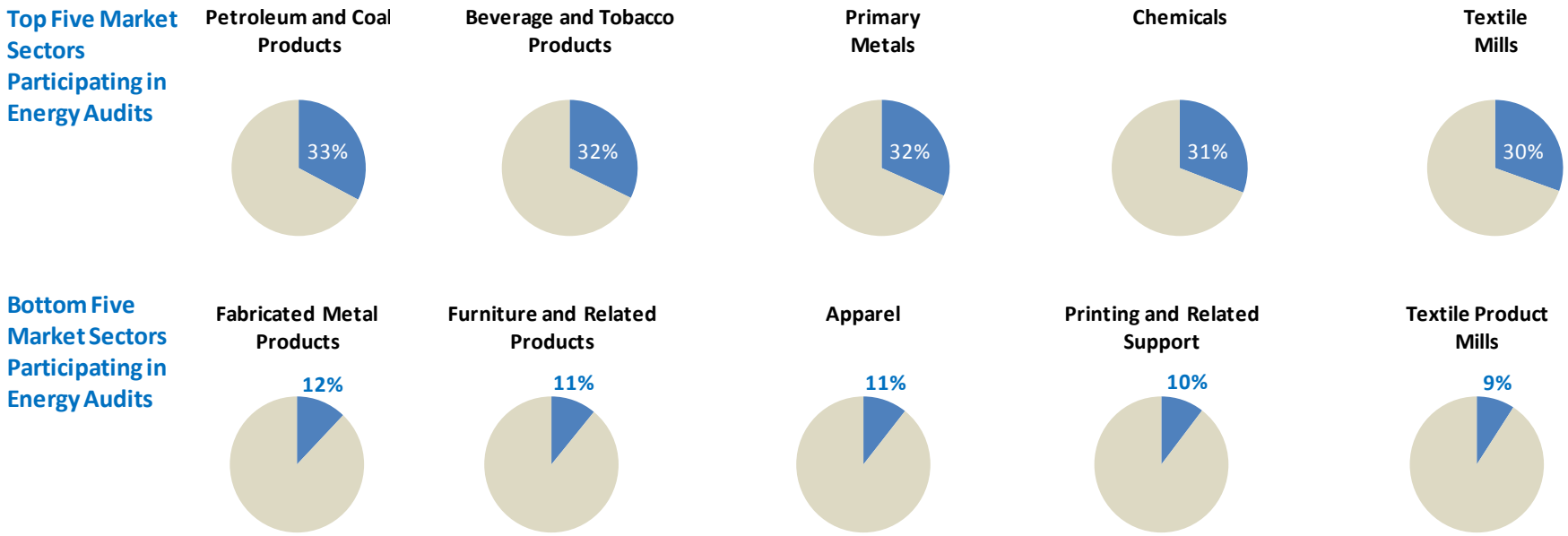
Industrial Buildings' Participation in Audits and Use of Cogeneration

In its 2002 Manufacturing Energy Consumption Survey, the U.S. Department of Energy asked respondents in industrial sectors about their energy management activities. One energy management activity on the survey was the participation in an energy audit or assessment. The top five market sectors participating in energy audits are petroleum and coal products (33% have participated), beverage and tobacco products (32%), primary metals (32%), chemicals (31%), and textile mills (30%). No industry had more than one-third of its respondents participate in an energy audit or assessment. Markets with lower participation rates are fabricated metal products (12%), furniture and related products (11%), apparel (11%), printing and related support (10%), and textile product mills (9%). It is interesting to note that the primary metals industry, which is in the top five market sectors participating in energy audits also has high expenditures for purchased electricity and the highest fuel consumption of all industrial sectors.

In its 2006 Manufacturing Energy Consumption Survey, the U.S. Department of Energy also asked respondents in industrial sectors if there was a cogeneration technology in use at their business location. Of those sectors who responded with an acceptable degree of confidence, the paper industry and the petroleum and coal products industry had the highest percentage of establishments with cogeneration use (6% of the respondents in these industries noted cogeneration use). Textile mills and chemicals each had a 4% penetration of cogeneration use and the food industry had a 2% penetration of cogeneration use.

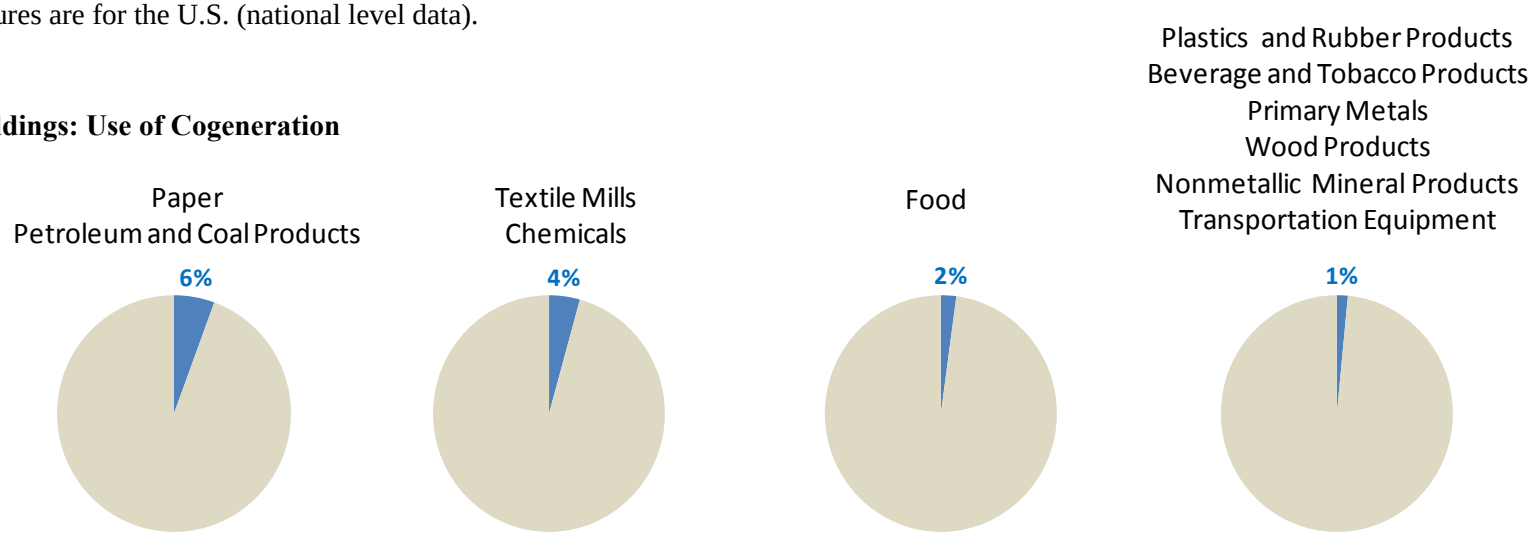
These data are summarized in Figure 3-5.

Figure 3-5. Industrial Buildings: Participation in Energy Audits



Note that these figures are for the U.S. (national level data).

Industrial Buildings: Use of Cogeneration



Note: The following sectors reported no establishments with cogeneration: apparel, leather and allied products, printing and related support, and electrical equip., appliances, and components. The data for the following sectors was withheld due to large error bands or to avoid disclosing data for individual establishments: furniture and related products, fabricated metal products, machinery, computer and electronic products, textile product mills, and miscellaneous.

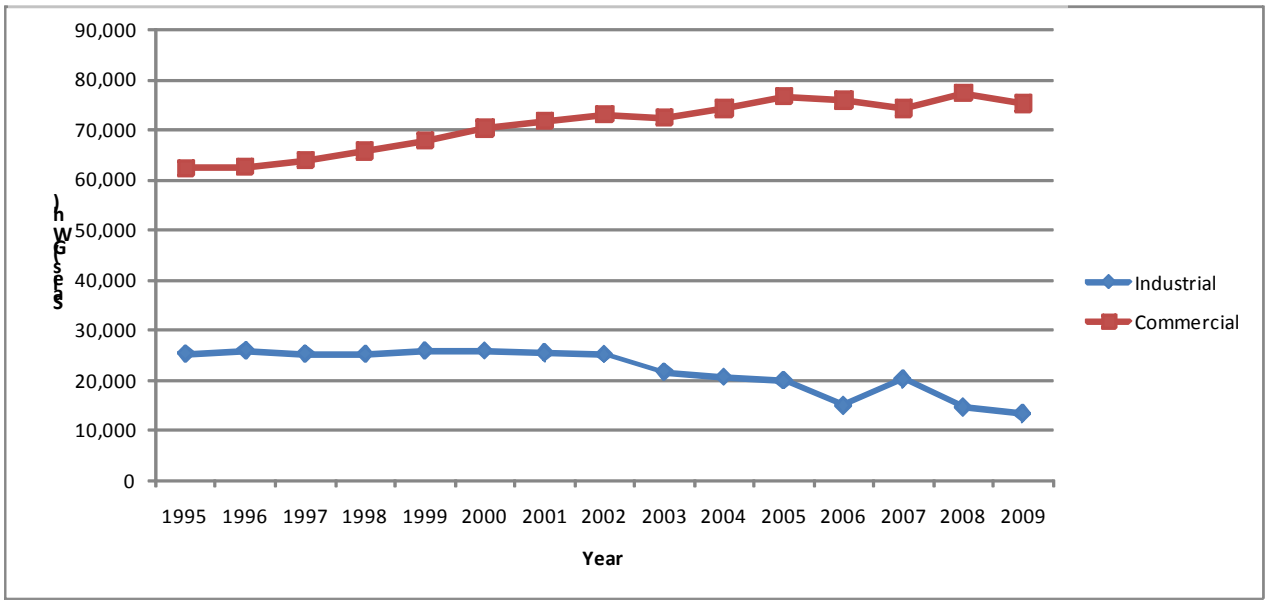
Source: U.S. Energy Information Administration. Manufacturing Energy Consumption Survey (MECS). 2002Data for the United States.

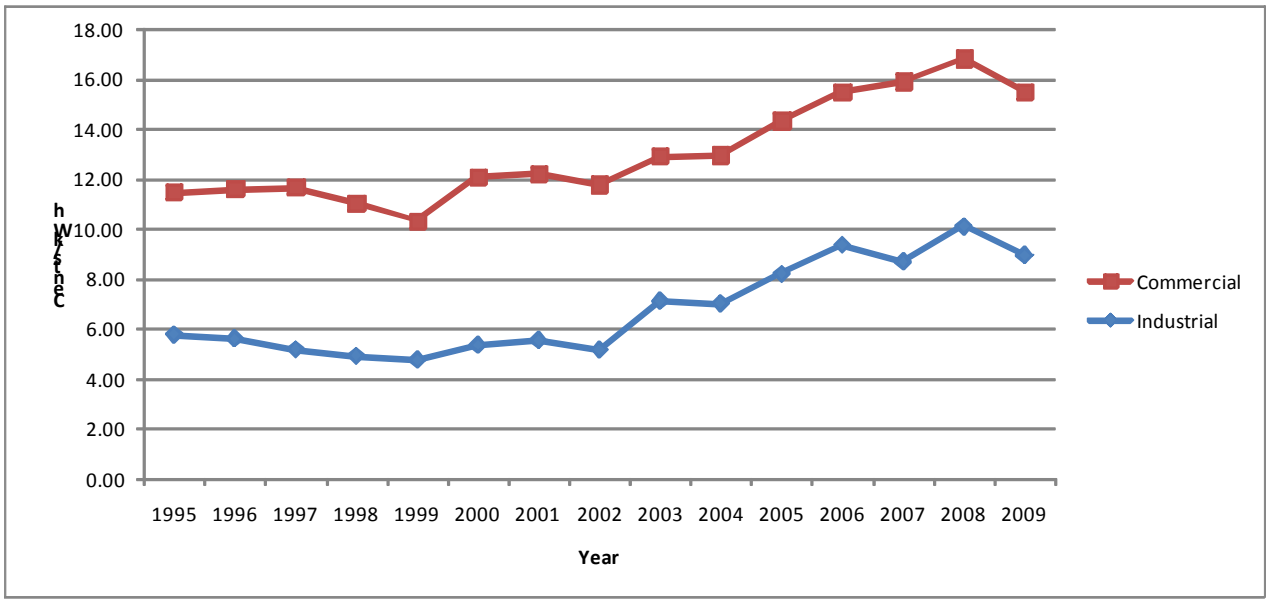
Energy Use Patterns

The sales of electricity in New York to the commercial sector have increased by 21% between 1995 and 2009. However, the sales of electricity in New York to the industrial sector have decreased by 47% during this same time period. In 2009, the total sales to the commercial sector were approximately 75,000 GWh and the total sales to the industrial sector were approximately 13,000 GWh.

The price of electricity for both the commercial and industrial sectors has increased between 1995 and 2009. During this timeframe, the price of electricity in New York for the commercial sector increased by 35%, and the price of electricity in New York for the industrial sector increased by 55%. In 2009, the average price for electricity in New York was 15.51 cents/kWh for the commercial sector and 8.98 cents/kWh for the industrial sector. These data are summarized in Figure 3-6.

Figure 3-6. Energy Use Patterns





Source: NYSERDA, *Patterns and Trends, New York State Energy Profiles: 1995-2009*, January 2011.

3.4 FLEXTECH PROGRAM ACCOMPLISHMENTS

As of December 31, 2009, 1,622 studies had been completed through the FlexTech Program. Four-hundred seventy-two of those studies were completed between May 1, 2006 and December 31, 2009. In addition, 711 studies were in-process, meaning that they were in the application phase or working with a technical service provider to complete an energy analysis.

Figure 3-7 shows the number of completed FlexTech studies and the corresponding recommended energy savings by zip code area. The shading represents the volume of studies or recommended energy savings – the darker the color, the greater the volume. The downstate region has been enlarged for both maps.

The map of the number of completed studies per zip code shows that the completed studies are distributed fairly well across New York. Some counties have many completed studies while others have only a few completed studies. Only one county, Hamilton County, has no completed studies.

Three-quarters of all completed studies are located in upstate New York, while about one-quarter are in downstate New York. In the upstate region, there appears to be more program activity around Albany and Buffalo than around Syracuse and Rochester. The highest concentration of studies was in zip code areas within Buffalo and New York City: zip code 14202 in Buffalo had 25 completed studies and zip code 10022 in New York had 24 completed studies. The majority (64%) of the completed studies in zip code 14202 is in the local government sector, while 63% of the completed studies in zip code 10022 are in the commercial- wholesale/retail sector.

For all completed studies, the majority of the industrial/manufacturing studies (86%) and agriculture/forestry studies (98%) are located in upstate New York.

It should be noted that the FlexTech database does not have recommended energy savings for all completed studies; therefore, some zip code regions with studies may not show any recommended energy savings in the map.

Figure 3-7. FlexTech Studies by Location: All Completed Projects

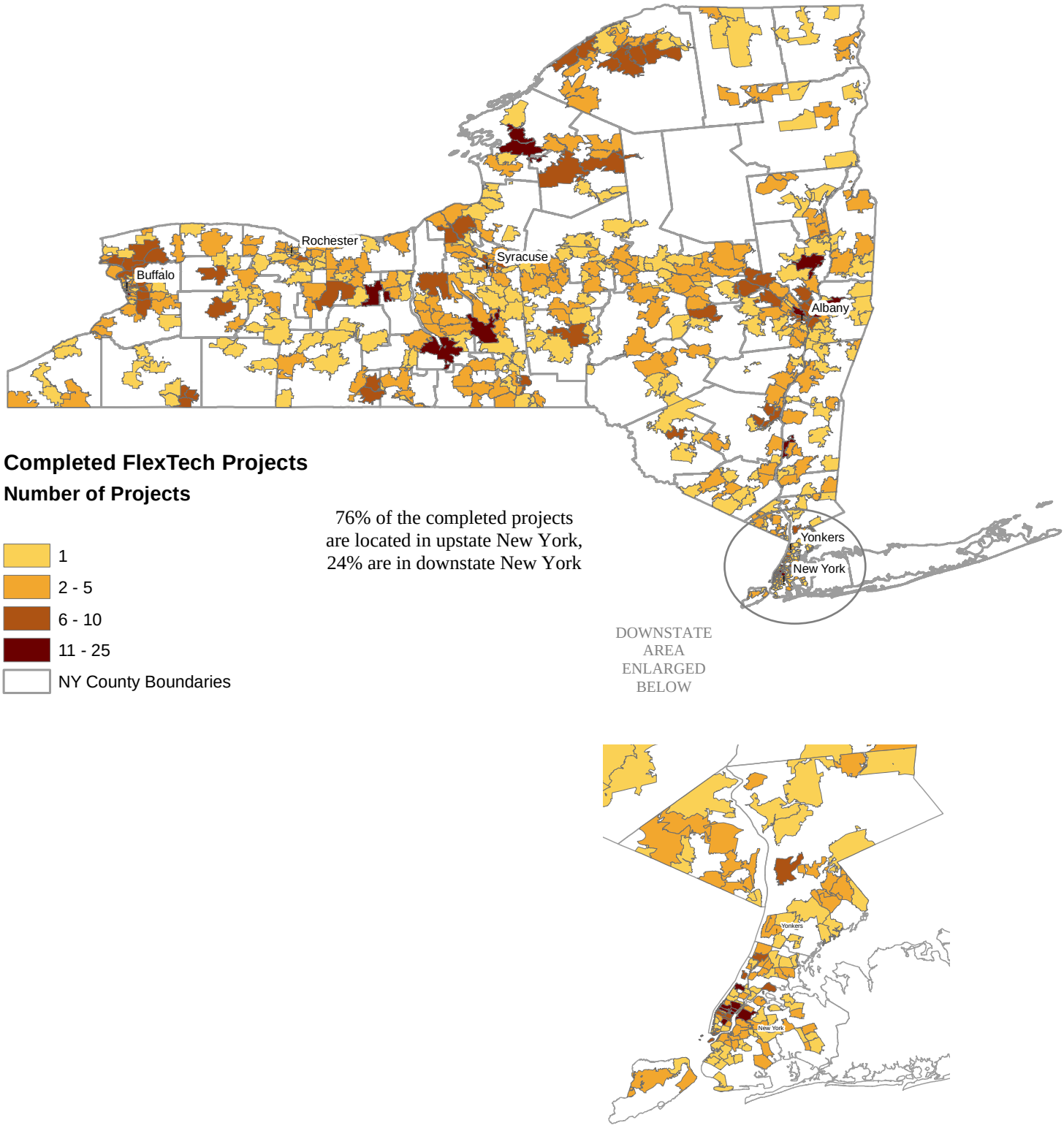
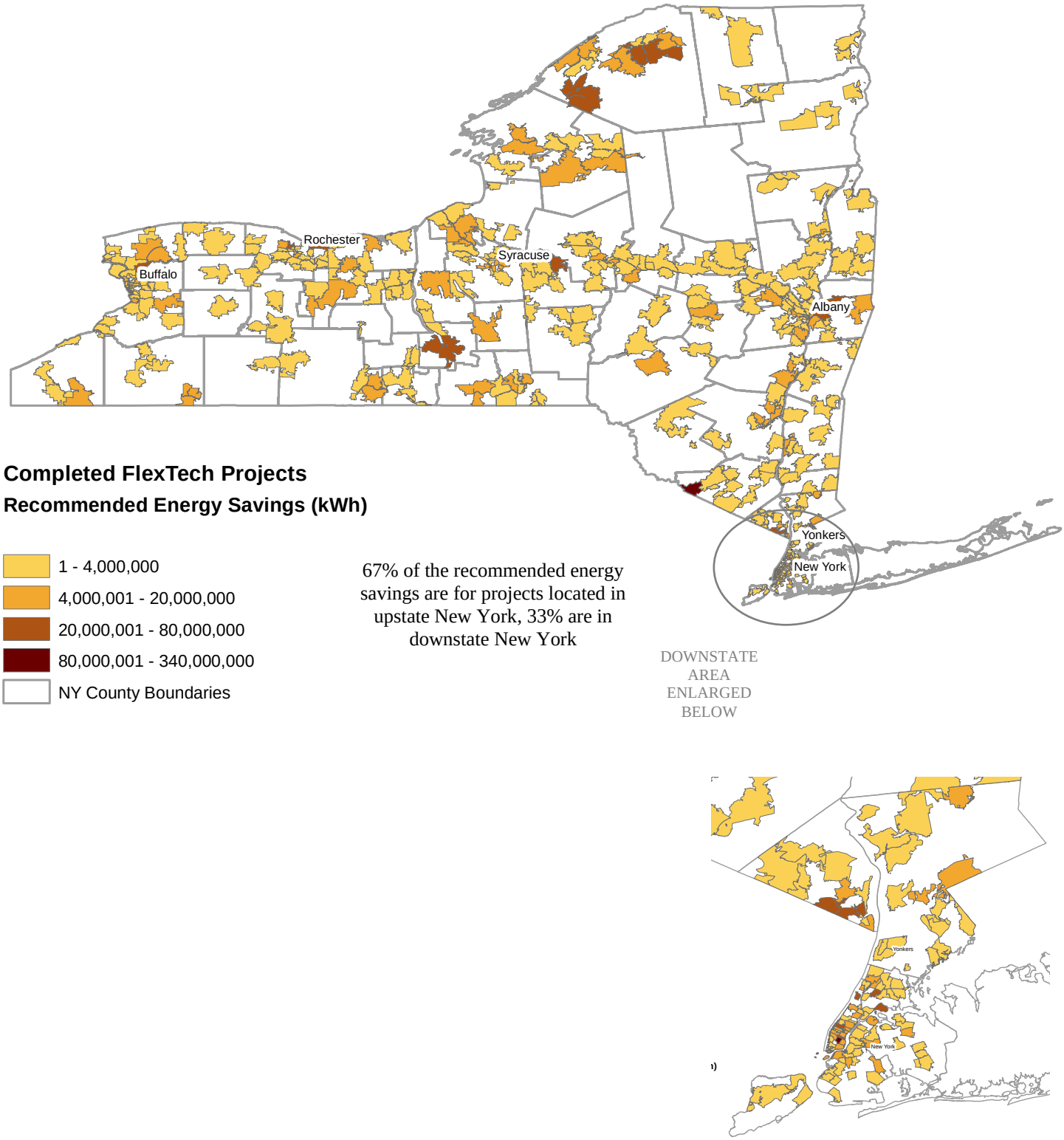


Figure 3-7 Con't. FlexTech Studies by Location: All Completed Projects



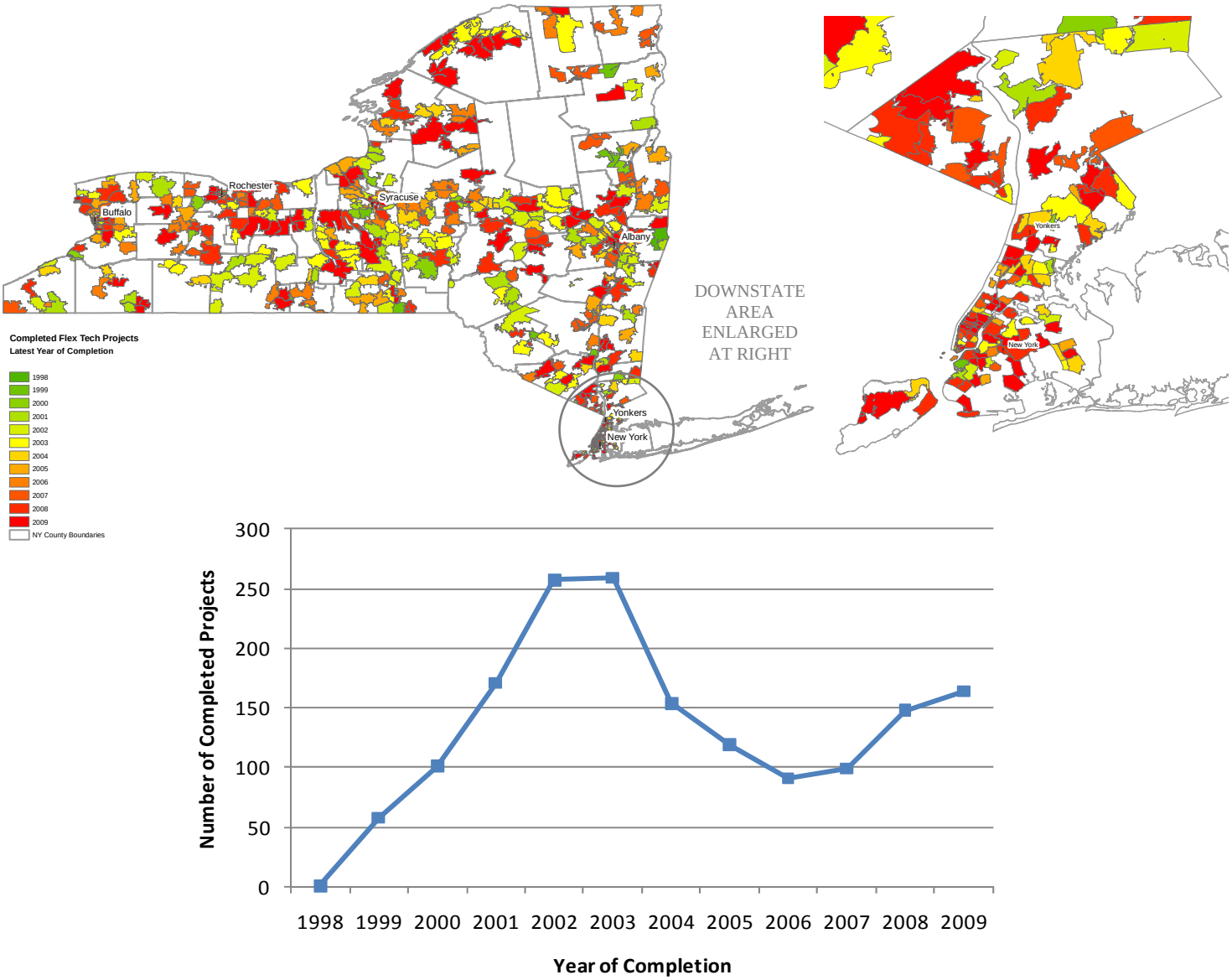
Note that recommended energy savings are not included in the database for every completed project. Therefore, some zip code areas that show completed projects in number may not have a corresponding recommended energy savings.

Source: NYSERDA FlexTech database as of December 2009

The number of completed FlexTech projects increased each year from 1998 to 2002, from one completed project in 1998 to 257 completed projects in 2002. The number of completed projects in 2003 was quite similar to that in 2002 with 259 FlexTech projects completed. The annual number of completed projects began to decline in 2004 falling to 91 projects completed in 2006. The number of completed projects has risen annually since that time with 164 projects completed in 2009.

Figure 3-8 shows the most recent year in which a project was completed in zip codes in New York. The color scale ranges from dark green—completions in 1998, to dark red—completions in 2009. This map allows one to see where completions may have occurred in the past, but have not occurred in some time (shades of green). These regions may be good areas to target the FlexTech Program. The downstate area is enlarged on a separate map. Many of the projects in the downstate area have been completed in recent years, shown in red, perhaps reflecting the increased program focus on the downstate region.

Figure 3-8. FlexTech Studies by Year: All Completed Projects



Source: NYSERDA FlexTech database as of December 2009

3.4.1 Market Sectors

Between May 1, 2006 and December 31, 2009,[52] 472 FlexTech studies were completed. The sector with the highest number of completed studies during that time was the industrial/manufacturing sector. The zip code areas with the highest density of industrial/manufacturing sector studies were 14127 (Orchard Park) and 13057 (East Syracuse), which each had three completed studies. Businesses in these zip codes ranged from the plastic injection molding industry to the automotive industry. In the Orchard Park area, two of the three completed studies were with the medical products industry.

Other sectors with a high number of completed studies included office and bank buildings, local government, education- colleges and universities, health care, agriculture and forestry, and education-elementary and secondary schools. These six sectors plus the industrial/ manufacturing sector comprise nearly 80% of the completed studies by number. The location of the studies in these sectors is mapped in Figure 3-9.

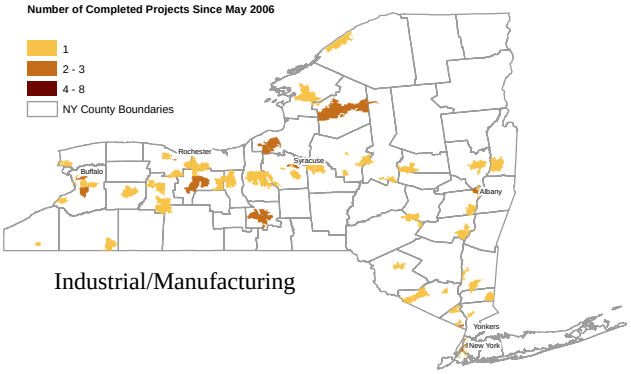
The zip code with the highest number of studies for a single market sector is in New York City. Eight office and bank studies have been completed in zip code 10019 since May 2006.

Market sectors with a low number of completions include supermarkets, hotels, and stores and restaurants. The two completed supermarket studies were for one supermarket chain located in Schenectady. Eight of the ten completed hotel studies are located in New York City. These studies are with varying hotel establishments.

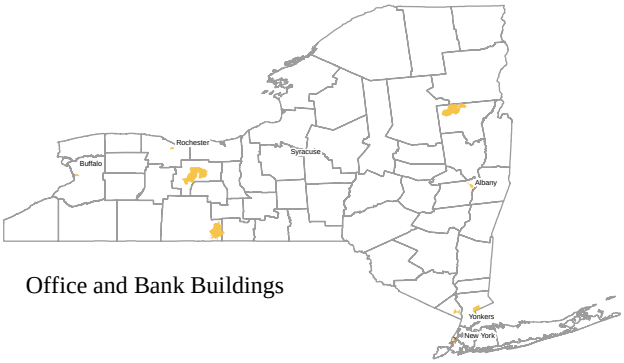
[52] Projects that had audit reports completed prior to April 30, 2006 were sampled during previous MCA studies. Therefore, data for these dates are shown to assess recent program activity.

Figure 3-9. FlexTech Studies by Market Sector: Completed between May 2006 and December 2009

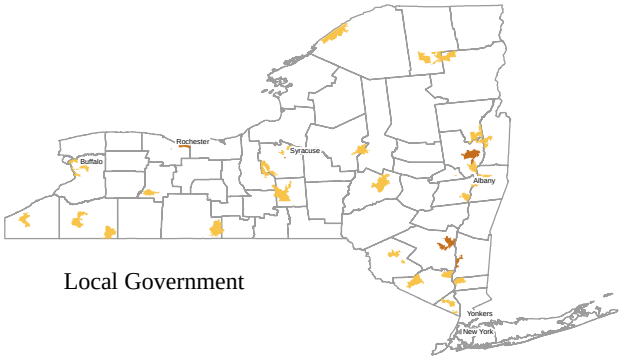
Market Sector	Number of Completed Projects Since May 2006	Percentage of Total Completed Since May 2006
Industrial/Manufacturing	112	24%
Office and Bank Buildings	54	11%
Local Government	49	10%
Education - Colleges & Universities	44	9%
Health Care	39	8%
Agriculture & Forestry	36	8%
Education - Elementary & Secondary Schools	34	7%
Retail/Mall	15	3%
Not for Profit	14	3%
Amusement and Recreation Services	13	3%
Hotel	10	2%
Multifamily	9	2%
State Government	7	1%
Stores and Restaurants	7	1%
Commercial - Wholesale/Retail	6	1%
Research or Lab Facility	5	1%
Services - Technical/Energy/Admin	3	1%
Supermarket	2	0.4%
Warehouse	2	0.4%
Real Estate and Rental and Leasing	2	0.4%
Federal Government	1	0.2%
Parking Garages and Automotive Services	1	0.2%
Personal Services / Laundry, Cleaning, and Garment Services	1	0.2%
Finance and Insurance	1	0.2%
Unknown	5	1%
Total	472	



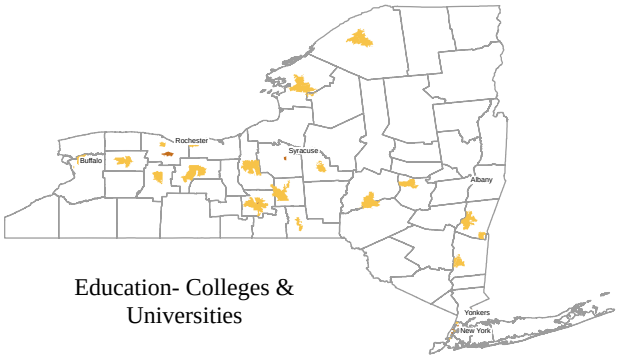
Industrial/Manufacturing



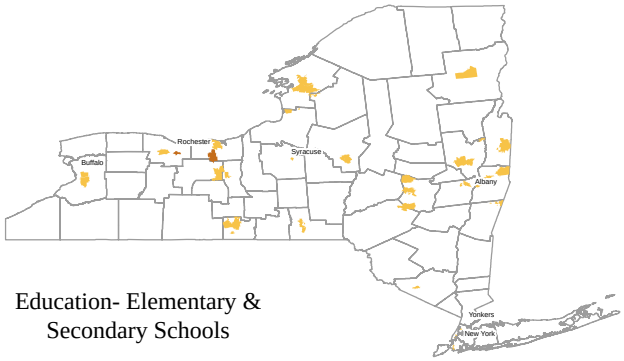
Office and Bank Buildings



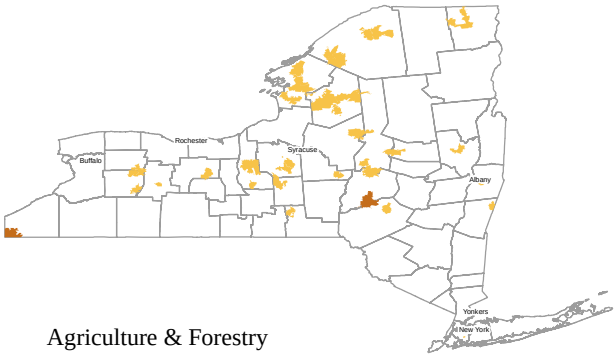
Local Government



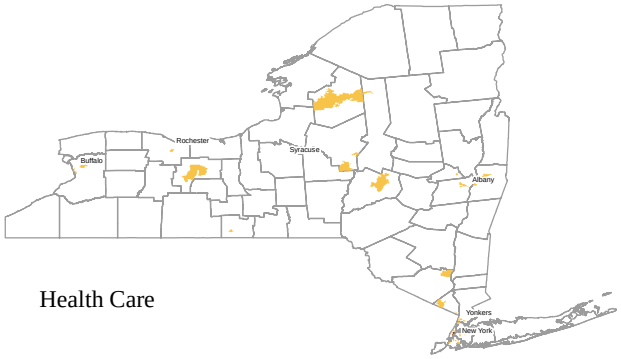
Education- Colleges & Universities



Education- Elementary & Secondary Schools



Agriculture & Forestry

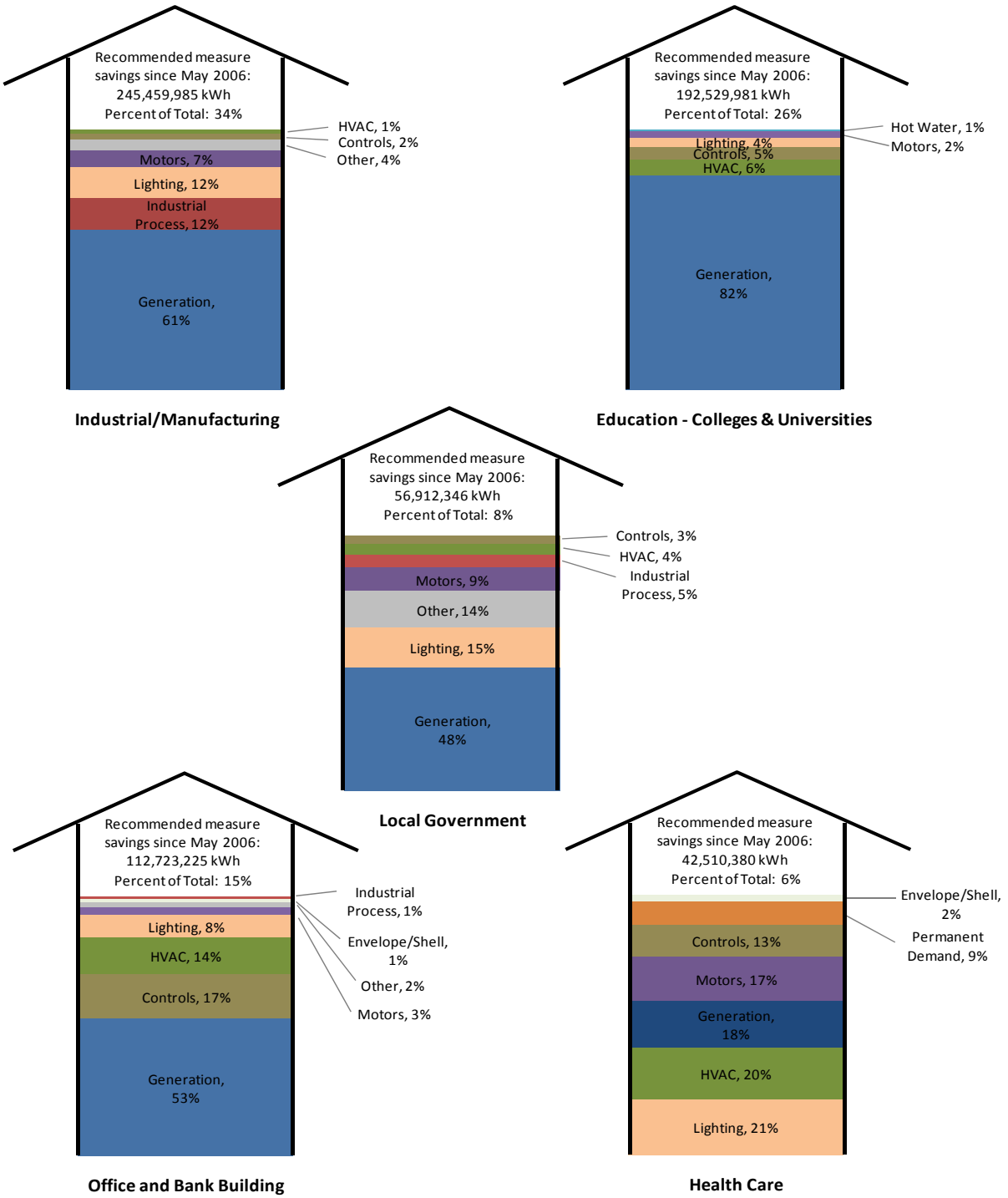


Health Care

Source: NYSERDA FlexTech database as of December 2009

Completed FlexTech studies contain recommended actions along with the estimated energy savings of those actions. Of the completed projects since May 2006, 89% of the recommended energy savings is within five market sectors: industrial/manufacturing, education- colleges & universities, office and bank buildings, local government, and health care. For all sectors but health care, the greatest percentage of recommended savings has been for generation measures. Lighting comprised the greatest percentage of recommended measure savings for the health care sector. These data are summarized in Figure 3-10.

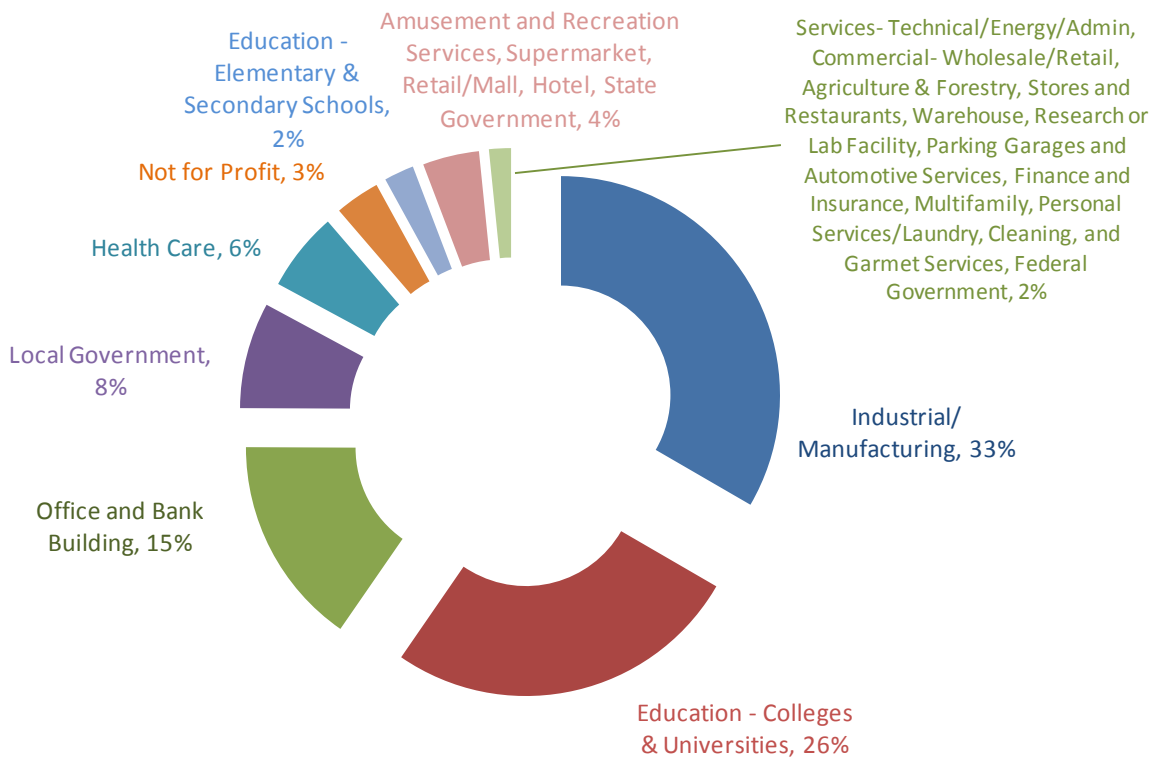
Figure 3-10.FlexTech Studies by Market Sector and Recommended Measure: Completed between May 2006 and December 2009



Source: NYSERDA FlexTech database as of December 2009

For projects that completed FlexTech studies between May 2006 and December 2009, the majority of the recommended energy savings from those studies were with the industrial/manufacturing sector (33% of the total recommended energy savings). Education- colleges and universities was second with 26% of total recommended energy savings, followed by office and bank buildings (15%). Figure 3-11 shows the percentage of recommended energy savings for all market sectors.

Figure 3-11. FlexTech Studies by Market Sector and Recommended Energy Savings: Completed between May 2006 and December 2009



Source: NYSERDA FlexTech database as of December 2009

3.4.2 In-process Studies

As of December 31, 2009, 711 studies were in-process or active in the FlexTech Program, meaning that they were still in the process of completion. It is also possible that these studies will not complete the process and will discontinue participation in the program. The majority of the in-process studies were in the general commercial- wholesale/retail market sector (27% of the total in-process studies). Note that for completed studies, the MCA Team further defined sub-sectors for studies within the "commercial-wholesale/retail" classification; however, due to the large number of studies, this process was not completed for in-process studies.

Other market sectors with a high percentage of in-process studies were industrial/manufacturing (12%), local government (11%), health care (10%), and education- colleges and universities (9%). This breakout is similar to the market sectors with a high percentage of completed studies; the top market sectors with the most completed studies between May 2006 and December 2009 are industrial/manufacturing, office and bank buildings, local government, education- colleges and universities, and health care.

More than half (53%) of the in-process studies were located in upstate New York while 33% were located in downstate New York. Fourteen percent of the in-process studies had an unknown location.[53] This is a somewhat similar breakdown to all completed studies in the program since program inception; however, the location of most of the completed studies was known (only 1% had an unknown location). For the completed studies since program inception, 76% were located in upstate New York while 24% were located in downstate New York.

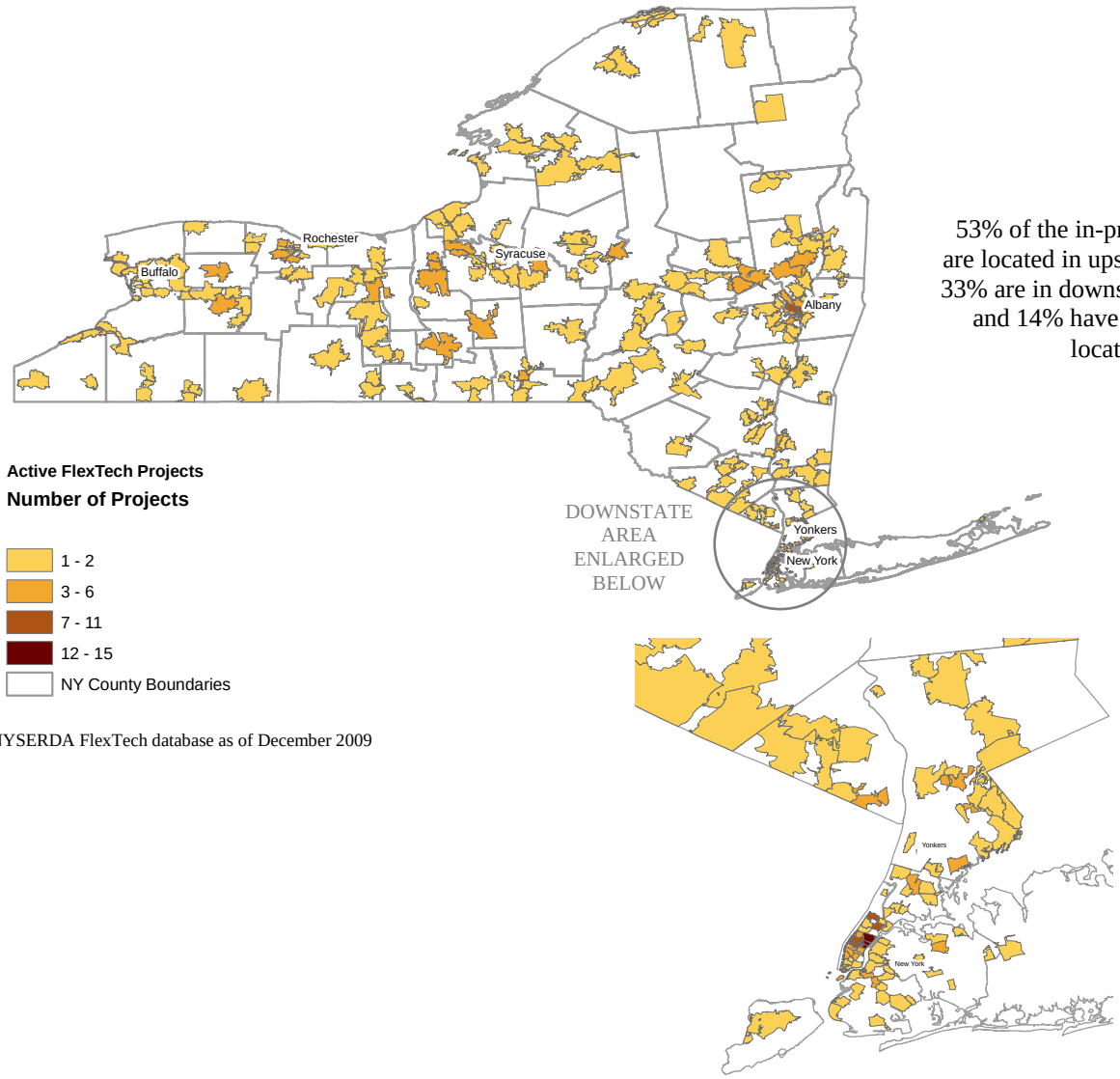
Many zip codes with high concentrations of in-process studies were located in New York City, and one pocket was in Albany. Six zip codes in New York City had at least nine in-process studies, and one zip code in New York County had 15 in-process studies, though a few of these studies are for the same business name.

These data are summarized in Figure 3-12.

[53] Database records available to the MCA Team did not list the location of these projects. Efforts to identify the locations using program records proved unsuccessful.

Figure 3-12. FlexTech: In-Process Projects as of December 31, 2009

Market Sector	Number of Projects	Percent of Total
Commercial - Wholesale/Retail	195	27%
Industrial/Manufacturing	82	12%
Local Government	78	11%
Health Care	70	10%
Education - Colleges & Universities	67	9%
Education - Elementary & Secondary Schools	32	5%
Not for Profit	31	4%
Agriculture & Forestry	17	2%
State Government	16	2%
Multifamily	11	2%
Services - Technical/Energy/Admin	4	1%
Federal Government	3	0.4%
Energy Utilities & Producers	1	0.1%
Mining - Oil, Gas, & Other	1	0.1%
Unknown	103	14%
Total	711	



53% of the in-process projects are located in upstate New York, 33% are in downstate New York, and 14% have an unknown location

Source: NYSERDA FlexTech database as of December 2009

3.4.3 FlexTech Consultants

Participants in the FlexTech Program can either choose to use a technical service provider that has been contracted by NYSERDA to provide services under the FlexTech Program (NYSERDA FlexTech consultant) or choose to use a consultant of their choice to complete the energy analysis and report. NYSERDA's documentation shows some consultants as primary consultants and others as sub-consultants (those who work with the primary consultants).

Figure 3-13 shows the number of NYSERDA FlexTech consultants mapped by city. The size of each dot represents the number of consultants located in that city. Green dots represent locations with primary consultants, blue dots represent locations with primary and sub consultants, and red dots represent locations with sub consultants. The county locations and names are shown on the map for reference.

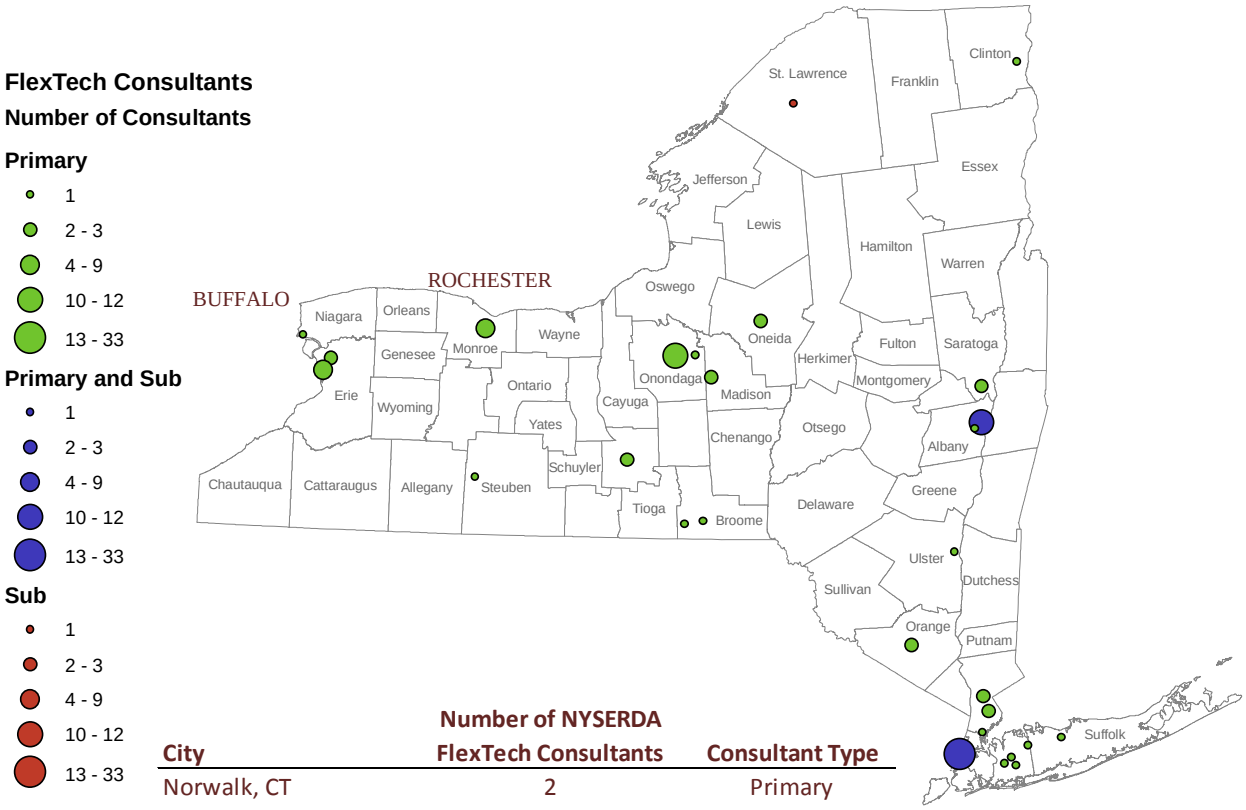
Not surprisingly, the NYSERDA FlexTech consultants tend to be located near major city centers including New York City, Buffalo, Rochester, Syracuse, and Albany. In addition, a few NYSERDA FlexTech consultants are located outside of New York, as shown in the table next to the map. These consultants are located in Connecticut, New Jersey, Maryland, California, and Pennsylvania. These out-of-state consultants may also have offices in New York.

The team matched the Standard Industrial Classification (SIC) code to the FlexTech consultants to understand the types of firms participating in the program. Fifty-three percent of FlexTech consultants are described as providing "engineering services," 10% provide "management consulting services," and the remaining 36% have varying SIC codes. The "other" group includes 20 additional classifications such as lumber and other building materials dealers, architectural services, and general contractors.

The FlexTech data also reveals the percentage of customers with completed studies who used a NYSERDA FlexTech consultant versus their own consultant to complete the study. According to the data, 61% of customers with completed studies since program inception used a NYSERDA FlexTech consultant compared to 39% of customers who used their own consultant. Data is not available for less than 1% of customers with completed studies since program inception.

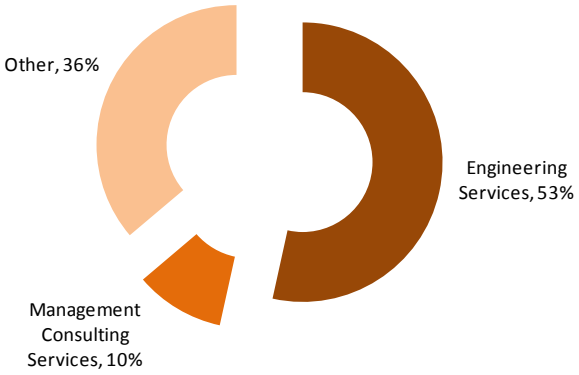
Since May 2006, 55% of customers with completed studies used a NYSERDA FlexTech consultant compared to 45% of customers who used their own consultant. Comparing these results to all completed studies can lead to the conclusion that more customers with recent studies are increasingly likely to use their own technical service provider/consultant.

Figure 3-13.NYSERDA FlexTech Consultants



City	Number of NYSERDA FlexTech Consultants	Consultant Type
Norwalk, CT	2	Primary
Avon, NJ	1	Primary
Edison, NJ	1	Primary
Baltimore, MD	1	Sub
Oakland, CA	1	Sub
Lincoln University, PA	1	Sub

Other includes 20 additional classifications such as lumber and other building materials dealers, architectural services, and general contractors.



Consultant Type	All Completed Projects	Completed Since May 2006
Customer used NYSERDA FlexTech consultant	61%	55%
Customer used own service provider/consultant	39%	45%
Unknown	0.2%	0%

Source: NYSERDA FlexTech Consultants and Their Areas of Expertise. Document on the NYSERDA website. http://www.nyserda.org/programs/flextech.asp (accessed December 2009);Document from NYSERDA. "All Consultant Addresses.doc." Sent in an email from Jaime Ritchey on December 30, 2009. NYSERDA FlexTech database as of December 2009

3.4.4 Consultants Involved with Completed FlexTech Studies

Figure 3-14 shows the locations of all consultants that had completed studies through the FlexTech Program as of December 2009. These consultants may be NYSERDA FlexTech consultants or may not be under contract with NYSERDA. The blue dots are located in the center of a zip code region, and the size of the blue dot represents the number of consultants located in that zip code. The county locations and names are shown on the map for reference.

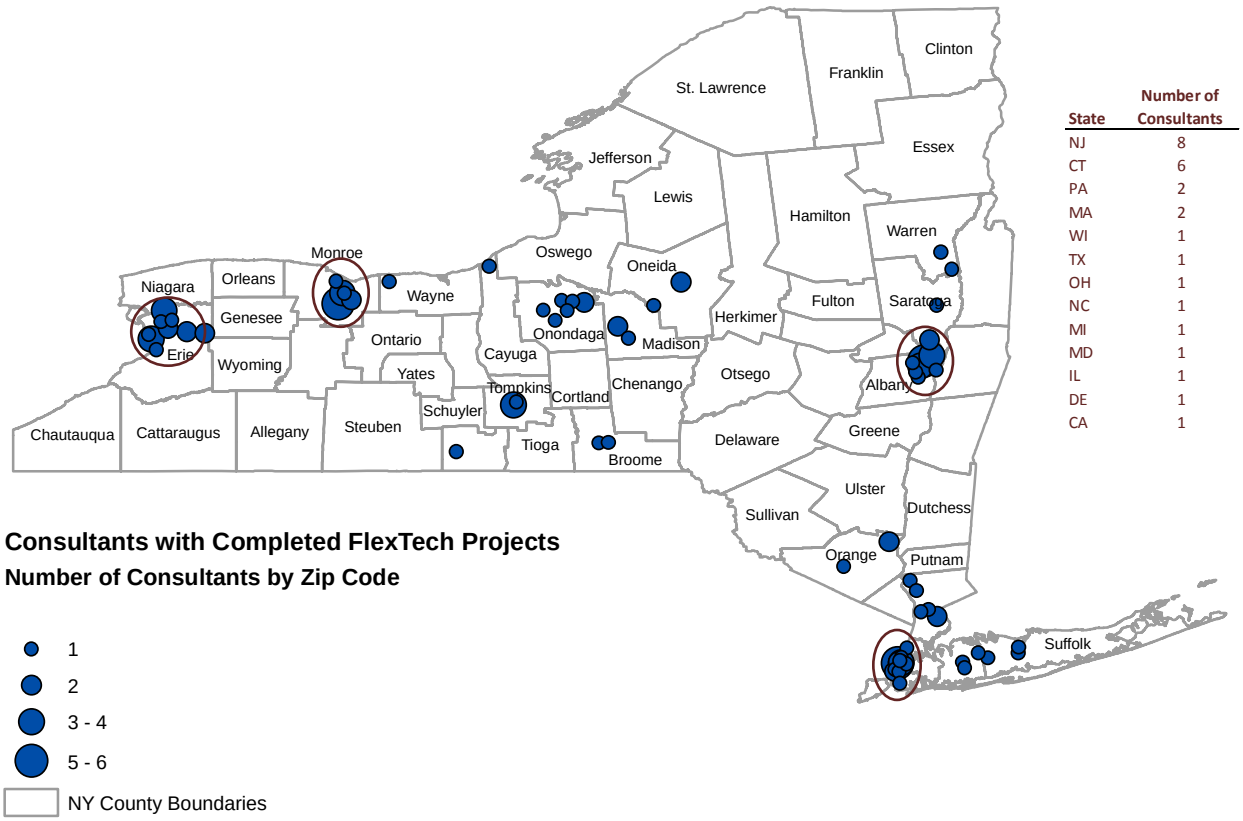
There are four main clusters of consultants in the state, along with a few less concentrated regions of consultants. The four main clusters are located in major cities: New York City, Albany, Rochester, and Buffalo. Regions with a smaller concentration of consultants include Westchester County and the city of Syracuse. In addition, the location of consultants listed in the FlexTech database includes thirteen states other than New York. These states are listed next to the map.

A table with the top ten technical service providers by both recommended kWh savings and number of studies completed from program inception through December 2009 is also presented in Figure 3-14. The top ten providers by recommended kWh savings represent 45% of the total recommended energy savings and 33% of the total number of studies for all completed studies since program inception. The top ten providers by number of studies represent 31% of the total recommended energy savings and 53% of the total number of studies for all completed studies since program inception.

Five technical service providers are located on both “Top 10” lists – the name of these firms is in a dark blue text. Their inclusion on both lists indicates that these five firms have a high volume of studies and recommend measures with high energy savings for their studies.

The technical service providers with an asterisk (*) next to their name are also NYSERDA FlexTech consultants. Eight of the top ten technical service providers by recommended kWh savings are NYSERDA FlexTech consultants, and eight of the top ten providers by number of studies are NYSERDA FlexTech consultants. The remaining four providers that are not currently NYSERDA FlexTech consultants may be good candidates for contracting with NYSERDA to provide technical services in the future.

Figure 3-14.All Consultants Involved with Completed FlexTech Projects



State	Number of Consultants
NJ	8
CT	6
PA	2
MA	2
WI	1
TX	1
OH	1
NC	1
MI	1
MD	1
IL	1
DE	1
CA	1

Top 10 Engineering Firms by Recommended kWh Savings

Engineerng Firm Name	Engineering Firm Location	Number of Completed Projects	% of Total Completed Projects	Recommended kWh Savings	% of Total Recommended kWh Savings
Clough, Harbour & Associates, LLP*	Rochester, NY	104	8%	133,924,366	10%
PB Power, Inc.	New York, NY	2	0.2%	103,033,538	8%
Wendel Duchscherer Architects & Engineers P.C.*	Amherst, NY	97	7%	72,450,087	5%
Luthin Associates, Inc.*	Avon, NJ	7	1%	58,128,751	4%
Goldman Copeland Associates, P.C.*	New York, NY	4	0.3%	50,995,288	4%
C&S Engineers, Inc.*	Buffalo, NY	26	2%	49,210,867	4%
Siemens Building Technologies, Inc.	Latham, NY	18	1%	43,192,149	3%
Malcolm Pirnie, Inc.*	Chicago, IL	32	2%	39,672,568	3%
C.J. Brown Energy, P.C.*	Buffalo , NY	72	6%	35,123,394	3%
CDH Energy Corporation*	Cazenovia, NY	62	5%	34,934,997	3%

Top 10 Engineering Firms by Number of Projects

Engineerng Firm Name	Engineering Firm Location	Number of Completed Projects	% of Total Completed Projects	Recommended kWh Savings	% of Total Recommended kWh Savings
L & S Energy Services, Inc.*	Clifton Park, NY	118	9%	32,719,885	2%
Clough, Harbour & Associates, LLP*	Rochester, NY	104	8%	133,924,366	10%
Wendel Duchscherer Architects & Engineers P.C.*	Amherst, NY	97	7%	72,450,087	5%
EME Group*	New York, NY	73	6%	28,335,454	2%
C.J. Brown Energy, P.C.*	Buffalo , NY	72	6%	35,123,394	3%
DL Tech, Inc.	Ithaca, NY	66	5%	718,640	0.1%
CDH Energy Corporation*	Cazenovia, NY	62	5%	34,934,997	3%
Joseph R. Loring & Associates, Inc.	Albany, NY	36	3%	28,677,535	2%
Daylight Savings Company*	Goshen, NY	34	3%	11,694,406	1%
Malcolm Pirnie, Inc.*	Chicago, IL	32	2%	39,672,568	3%

* These companies are NYSERDA FlexTech consultants

Source: NYSERDA FlexTech database as of December 2009

3.5 FLEXTECH PROGRAM PENETRATION AND INTERACTIONS

Figure 3-15 shows the market penetration estimates for the FlexTech Program. Penetration is shown in several different ways in the following tables. The first table compares the market sectors with a high volume of completed FlexTech studies to the market sectors with a high volume of business establishments in New York.

It should be noted that these market sectors are slightly different than those shown in other sections of the report. This difference occurs because the tables in this section aim to compare data from three different sources; therefore, some consolidation and creation of additional sectors were needed to accomplish the comparison. In addition, the data shown in the tables in this section are for the FlexTech Program since its inception. It should also be noted that the U.S. Census data do not break out the government sector.

The major market sectors which have been active in the FlexTech Program in the upstate region are commercial- wholesale/retail, industrial/manufacturing, government (federal, state, local), and education. According to the U.S. Census, the market sectors with the greatest percentage of business establishments in New York are the wholesale/retail sectors, followed by the construction sector. From the data, the services- technical/energy/admin sector appears to be less represented in the FlexTech Program than in the building stock, while the industrial/ manufacturing sector appears to be more represented in the FlexTech Program data than in the building stock in the upstate region.

The commercial-wholesale/retail sector makes up nearly half (48%) of the number of studies in the downstate region. Similar to the upstate region, the services- technical/energy/admin sector appears to be less represented in the FlexTech Program data than in the building stock.

The supermarket sector has low market penetration in terms of FlexTech studies (0.2% upstate and 0% downstate). It is not classified in the U.S. Census data, so it is difficult to estimate its relative position in the New York market; however, it may be a good target market for the program going forward.

3.5.1 Market Penetration

The second table in Figure 3-15 shows the completed FlexTech studies as a percentage of the number of business establishments in New York for both the upstate and downstate regions. Due to the fact that the U.S. Census market sectors do not exactly align with the FlexTech Program sectors, this table contains only a few sectors for which data was available and able to be matched.

The data shows that the agriculture and forestry sector has a high penetration in the upstate region, as 25% of the establishments have been involved in the FlexTech Program. It is also estimated that 3% of the education establishments in the upstate region have been involved in the FlexTech Program.

The market sector with the highest penetration in the downstate region is also agriculture and forestry. However, the downstate region’s 3% penetration rate is much lower than the upstate region and likely reflects a relatively small number of agriculture and forestry establishments in the downstate region.

Figure 3-15. Market Penetration Estimates: Number of FlexTech Projects Compared to Number of Buildings in New York

Breakout of Market Sectors in the FlexTech Program Compared to New York

Market Sector	FlexTech Program Number of Completed Projects (% of Total) Upstate	New York Number of Establishments (% of Total) Upstate	FlexTech Program Number of Completed Projects (% of Total) Downstate	New York Number of Establishments (% of Total) Downstate
Agriculture & Forestry	11.5%	0.2%	0.4%	0.0%
Amusement and Recreation Services	0.4%	1.9%	1.6%	2.4%
Commercial - Wholesale/Retail	19.7%	20.4%	47.7%	22.0%
Education	16.1%	2.4%	10.4%	2.2%
Energy Utilities & Producers	0.0%	0.2%	0.2%	0.0%
Finance and Insurance	0.1%	5.5%	0.0%	5.6%
Health Care	7.4%	10.7%	11.7%	9.8%
Hotel	0.1%	NA	1.8%	NA
Industrial/Manufacturing	19.1%	4.1%	7.6%	3.0%
Multifamily	0.7%	NA	4.1%	NA
Not for Profit	4.5%	NA	2.5%	NA
Office and Bank Building	0.8%	NA	8.6%	NA
Parking Garages and Automotive Services	0.1%	NA	0.0%	NA
Personal Services / Laundry, Cleaning, and Garment Services	0.0%	NA	0.2%	NA
Real Estate and Rental and Leasing	0.0%	4.1%	0.4%	8.4%
Research or Lab Facility	0.3%	NA	0.2%	NA
Services - Technical/Energy/Admin	0.8%	10.6%	0.6%	12.2%
Stores and Restaurants	0.3%	NA	0.6%	NA
Supermarket	0.2%	NA	0.0%	NA
Warehouse	0.2%	2.4%	0.0%	2.2%
Government (federal, state, local)	17.6%	NA	1.4%	NA
Information	NA	1.8%	NA	2.7%
Management of Companies and Enterprises	NA	0.5%	NA	0.5%
Mining, Quarrying, and Oil and Gas Extraction	NA	0.1%	NA	0.0%
Other Services (except Public Administration)	NA	9.8%	NA	10.3%
Unclassified	NA	0.1%	NA	0.2%
Accommodation and Food Services	NA	8.7%	NA	7.8%
Administrative and Support and Waste Management and Ren	NA	5.2%	NA	4.0%
Construction	NA	11.4%	NA	6.7%
Religious	NA	NA	NA	NA

Completed Projects as a Percentage of New York Buildings by Market Sector

Market Sector	Number of Completed FlexTech Projects as Percent of Census Establishments Upstate	Number of Completed FlexTech Projects as Percent of Census Establishments Downstate
Agriculture & Forestry	25.4%	2.9%
Education	3.0%	1.0%
Industrial/Manufacturing	2.0%	0.5%
Commercial - Wholesale/Retail	0.4%	0.4%
Health Care	0.3%	0.2%
Amusement and Recreation Services	0.1%	0.1%
Services - Technical/Energy/Admin	0.0%	0.0%
Warehouse	0.0%	0.0%
Finance and Insurance	0.0%	0.0%
Energy Utilities & Producers	0.0%	0.9%
Real Estate and Rental and Leasing	0.0%	0.0%

Sources: NYSERDA. FlexTech Program database as of December 2009; U.S. Census County Business Patterns, Data for 2007.

Figure 3-16 shows the market penetration in terms of the FlexTech studies' recommended energy savings and the building area in New York.

For all completed studies in the FlexTech Program, 90% of the recommended energy savings in the upstate region are for three market sectors: education (43%), industrial/manufacturing (32%), and government- federal, state, local (15%). Comparing these percentages to the percentages for the building area by market sectors reveals that the program has achieved relatively high market penetration in these three sectors. Sectors that appear to be underrepresented in the program include stores and restaurants, and office and bank buildings.

For all completed studies in the FlexTech Program, 77% of the recommended energy savings in the downstate region are for four market sectors: education (26%), health care (20%), energy utilities and producers (16%), and office and bank buildings (15%). Office and bank buildings are much better represented in the program in the downstate region than the upstate region.

Figure 3-16. Market Penetration Estimates: FlexTech Projects' Recommended Energy Savings Compared to Building Area in New York

Market Sector	FlexTech Program Recommended Energy Savings (kWh) FlexTech Program Data (% of Total) Upstate	New York Building Area (sq.ft. in thousands) McGraw-Hill Construction Building Stock (% of Total) Upstate	FlexTech Program Energy Savings (kWh) FlexTech Program Data (% of Total) Downstate	New York Building Area (sq.ft. in thousands) McGraw-Hill Construction Building Stock (% of Total) Downstate
Agriculture & Forestry	0.5%	NA	0.3%	NA
Amusement and Recreation Services	0.0%	4.3%	1.4%	4.2%
Commercial - Wholesale/Retail	0.1%	NA	0.4%	NA
Education	42.8%	15.8%	26.4%	11.9%
Energy Utilities & Producers	0.0%	NA	16.0%	NA
Finance and Insurance	0.0%	NA	0.0%	NA
Health Care	5.6%	5.9%	19.8%	5.8%
Hotel	0.0%	2.4%	0.7%	2.8%
Industrial/Manufacturing	31.6%	16.9%	12.2%	13.0%
Multifamily	0.3%	NA	4.7%	NA
Not for Profit	1.8%	NA	1.5%	NA
Office and Bank Building	0.9%	14.6%	15.0%	26.4%
Parking Garages and Automotive Services	0.0%	4.6%	0.0%	5.2%
Personal Services / Laundry, Cleaning, and Garment Services	0.0%	NA	0.0%	NA
Real Estate and Rental and Leasing	0.0%	NA	0.0%	NA
Research or Lab Facility	0.1%	NA	0.0%	NA
Services - Technical/Energy/Admin	0.5%	NA	0.1%	NA
Stores and Restaurants	0.1%	18.1%	0.0%	13.1%
Supermarket	0.5%	NA	0.0%	NA
Warehouse	0.1%	8.7%	0.0%	9.5%
Government (federal, state, local)	15.0%	2.6%	1.3%	2.0%
Information	NA	NA	NA	NA
Management of Companies and Enterprises	NA	NA	NA	NA
Mining, Quarrying, and Oil and Gas Extraction	NA	NA	NA	NA
Other Services (except Public Administration)	NA	NA	NA	NA
Unclassified	NA	1.6%	NA	2.2%
Accommodation and Food Services	NA	NA	NA	NA
Administrative and Support and Waste Management and Rem	NA	NA	NA	NA
Construction	NA	NA	NA	NA
Religious	NA	4.5%	NA	4.0%

Sources: NYSERDA, FlexTech Program database as of December 2009; McGraw-Hill Construction Building Stock, Data for 2007.

3.5.2 Relationship between Location of Studies and Consultants

Figure 3-17 shows the spatial relationships between all participating consultants and studies in the FlexTech Program. The consultants are shown as blue dots with each dot located at the center of a zip code area. The size of the dot represents the number of consultants with addresses in that zip code according to the FlexTech database. The address in the database is used for the mapping; therefore, regional offices of consultants are not shown on the map. The zip code area is also shaded based on the number of completed studies (upper map) or the total recommended energy savings (lower map). The darker shading corresponds to a higher number of studies or higher recommended energy savings.

It should be noted that the FlexTech database does not collect energy savings for all completed studies; therefore, some zip code regions with studies may not show any recommended energy savings in the map.

Consultants involved with completed FlexTech studies are clustered around city centers, namely New York City, Albany, Rochester, and Buffalo with a minor cluster around Syracuse. Despite this fact, FlexTech studies have been completed throughout the state, many in areas far from a consultant location as it is entered in the database. This suggests that the consultants may be reaching outside of their city or region to market and complete FlexTech studies. It could also reflect activity conducted by regional offices of the consultant organizations.

Figure 3-17 shows some interesting findings: (1) market sectors are highly variable by location and (2) study completion occurs both in areas with consultants and in areas without consultants or by consultants not located in the study's area. These findings are illustrated by three zip code examples.

Zip Code 14850

Nineteen completed studies and three consultants are located in zip code 14850 (Ithaca). Nine of the nineteen studies were completed by consultants located in the same zip code. In this situation, the consultants in this area are involved with studies in this area. In addition, the market sectors for this area include education- college and university (six studies, dominated by Cornell University and Ithaca College), food sales (four studies), industrial/manufacturing (three studies), local government (three studies), and sectors with one study each (not for profit, research or lab facility, and retail).

Zip Code 12866

Twelve completed studies and one consultant are located in zip code 12866 (Saratoga Springs). None of these twelve studies were completed by consultants located within this zip code. Forty-two percent of the studies were completed by consultants within 100 driving miles of this location (Albany area), while 58% of studies were completed by consultants more than 100 driving miles from this location (New York City, Syracuse, and Rochester). The market sectors of completed studies in this zip code also vary with the major sectors being agriculture and forestry (three studies) and local government (also three studies). Other sectors with one study each are health care, industrial/manufacturing, hotel, restaurant, and retail. One study has an unknown market sector.

The studies in this zip code confirm that market sectors are highly variable by location. This example also shows that over half of the studies in this zip code were completed by consultants more than 100 driving miles from the building location.

Zip Code 13601

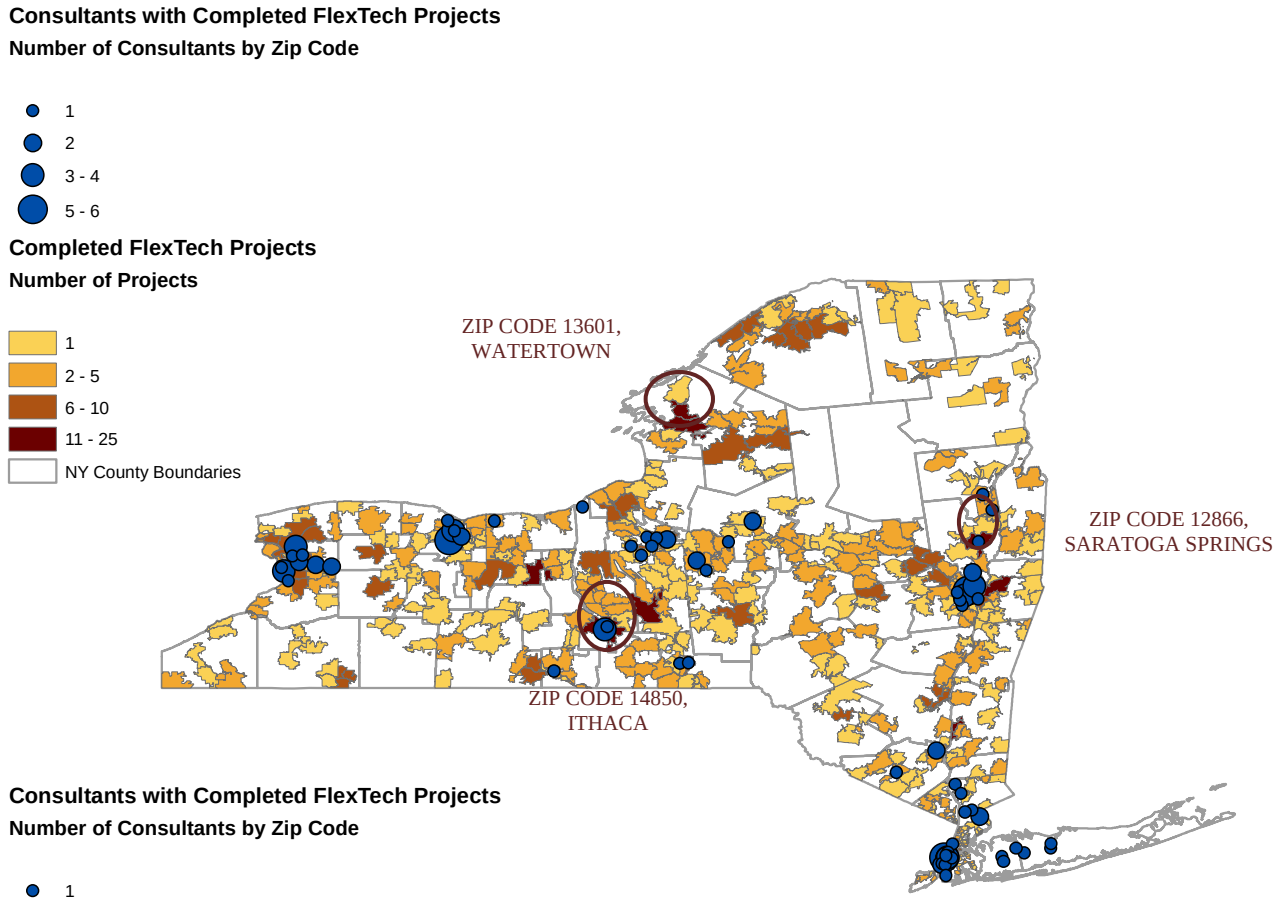
Twelve completed studies are located in zip code 13601 (Watertown); however, no consultants are located in this zip code, and according to the map, none are located in close proximity. Seventy-five percent of the completed studies were completed by consultants located over 100 driving miles from zip code 13601, while seventeen percent of the completed studies were completed by consultants located

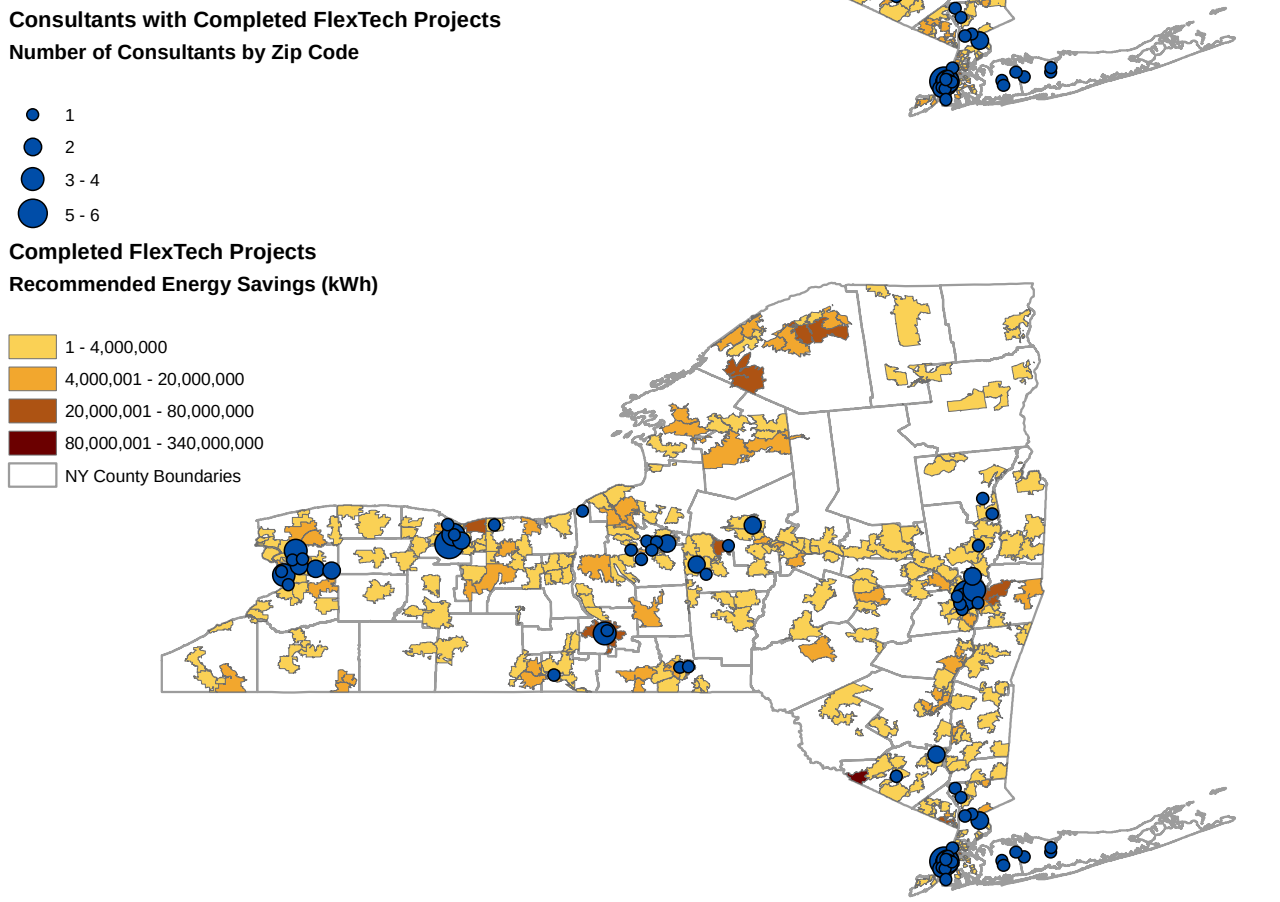
within 100 driving miles of the building location (zip code 13601). One study had an unknown consultant location.

The market sectors of completed studies in this zip code are industrial/manufacturing (three studies), local government (two studies), retail/mall (two studies), and federal government (two studies). Sectors with one study include agriculture and forestry, education- colleges and universities, and education-elementary and secondary schools.

The studies in this zip code also confirm that market sectors are highly variable by location. In addition, this example shows that three-quarters of the studies in this zip code were completed by consultants more than 100 driving miles from the building location.

Figure 3-17. Interactions between Consultants and Projects: Number of Projects and Recommended Energy Savings





Source: NYSERDA FlexTech database as of December 2009

3.6 ALTERATION AND ADDITION PROJECTS IN NEW YORK

This section presents data on commercial and industrial alteration and addition projects in New York.[54] Reviewing the amount of alteration and addition activity is one way to estimate the potential for the FlexTech Program because the period before projects begin is an optimal time for a company to complete a FlexTech study. Ideally, NYSERDA could work with businesses prior to the alteration/addition phase to plan energy efficiency options into the retrofit projects.

3.6.1 Alteration Projects

Data regarding alteration projects in the commercial and industrial sectors are summarized in Figure 3-18.

Location. The value of the alteration projects in New York has been highly concentrated in New York County, which captured 32% of the total project value between 2003 and 2007. Other counties with a high total construction value of alteration projects include Queens, Kings, the Bronx, Westchester, and Erie Counties.

Trends over Time. The value of alteration projects has followed an upward trend between 2003 and 2007 (note that the value is given in nominal dollars). The dip in project value in 2007 is likely due to the fact that the 2007 data is only through the third quarter.

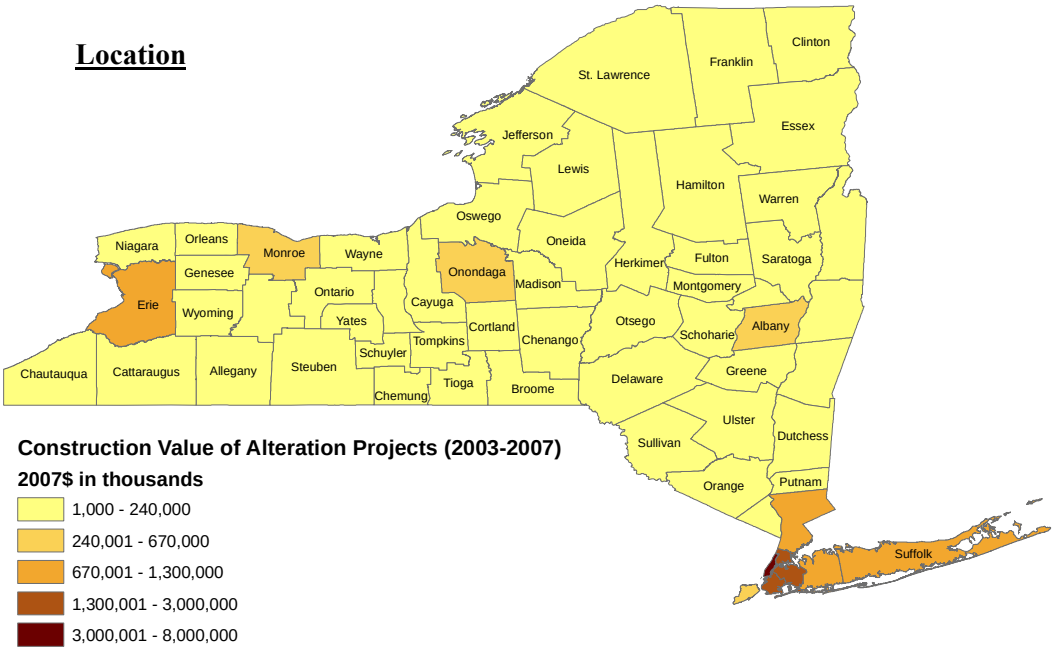
Market Sectors. The word cloud on the following page shows the sectors which have had alteration projects between 2003 and 2007. The text size of the sector indicates the relative value of the alteration projects. Alteration projects in schools, libraries, and labs have had the highest construction value compared to other sectors (28% of the total construction value between 2003 and 2007), followed by office and bank buildings (17%). These two sectors are also on the top of the list for completed FlexTech projects since May 2006. Seventeen percent of the FlexTech projects completed since May 2006 fit into the schools, libraries and labs classification,[55] while 11% percent of the completed projects were in the office and bank buildings sector. The industrial/manufacturing sector, which has the greatest percentage of completed FlexTech projects, has not had many alteration projects between 2003 and 2007, suggesting that these projects are occurring outside of the alteration process.

[54] Addition (new building space added to an existing building) and alteration (reconfiguration of existing building space) projects differ from new construction projects in that they are focused on existing building space. The focus on existing building is aligned with the focus of the FlexTech Program. Data in this section were obtained from the McGraw Hill Construction Starts Database, 2008.

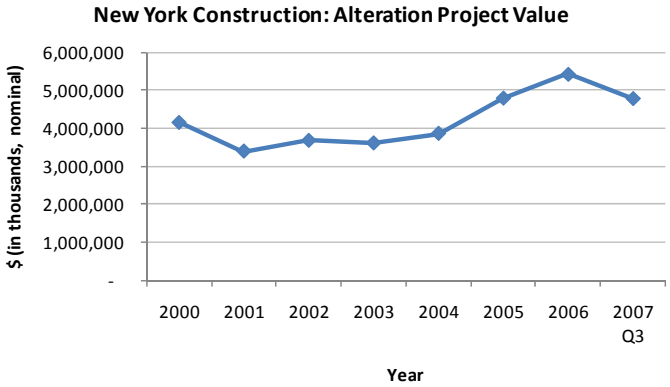
[55] The corresponding FlexTech data sectors are “education- colleges and universities,” “education- elementary and secondary schools,” and “research or lab facility.”

Figure 3-18. Commercial and Industrial Alteration Projects

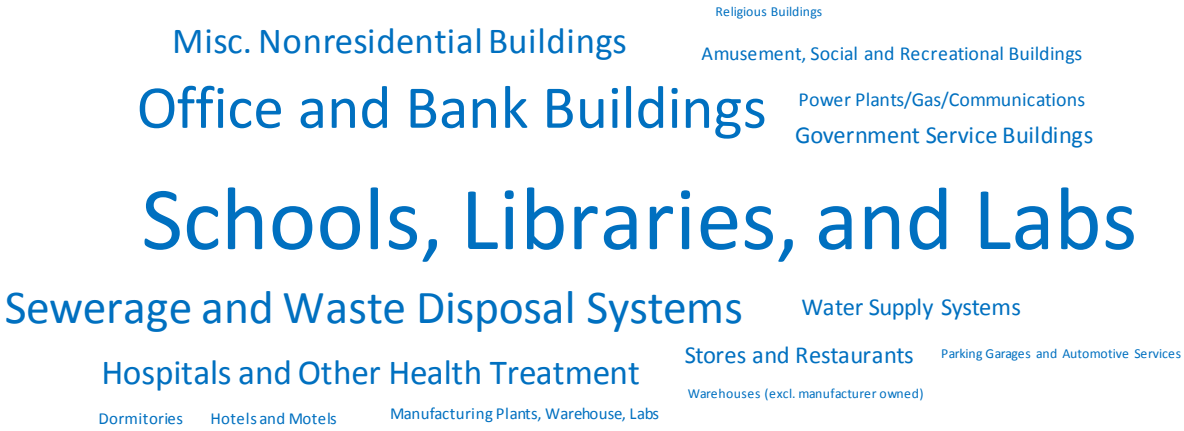
Location



Trends over Time



Market Sectors



Source: McGraw Hill Construction Starts Database. 2008.

3.6.2 Addition Projects

Data regarding addition projects in the commercial and industrial sectors are summarized in Figure 3-19.

Location. The value of addition projects in the commercial and industrial sectors in New York has also been concentrated in New York County, which captured 13% of the total project value between 2003 and 2007. However, this is a smaller concentration than the alteration projects. For addition projects, nearly one quarter (24%) of the value between 2003 and 2007 has occurred in the five counties of New York City (including New York County). Other counties with high addition project value (over $400,000 in 2007$) between 2003 and 2007 include Westchester, Erie, Onondaga, Monroe, and Albany Counties.

Trends over Time. The total area of addition projects has decreased by 36% between 2000 and 2006. The area of addition projects in 2000 was 14,000,000 square feet compared to nearly 9,000,000 square feet in 2006.[56] In addition, the project value of addition projects has also decreased between 2000 and 2006, from a little over $3 billion in 2000 to $2 billion in 2006. This decrease in project value is likely a result of the decrease in project area.

Market Sectors. The word cloud on the following page shows the sectors which have had addition projects between 2003 and 2007. The text size of the sector indicates the relative value of the addition project. Addition projects in schools, libraries, and labs have had the highest construction value compared to other sectors (45% of the total construction value between 2003 and 2007), similar to the alteration projects. Hospitals and other health treatment follows as the sector with the second highest construction value (16% of the total construction value between 2003 and 2007). These two sectors are near the top of the list for completed FlexTech projects since May 2006. Seventeen percent of the projects completed since May 2006 fit into the schools, libraries and labs classification,[57] while 8% percent of the completed FlexTech projects were in the health care sector.

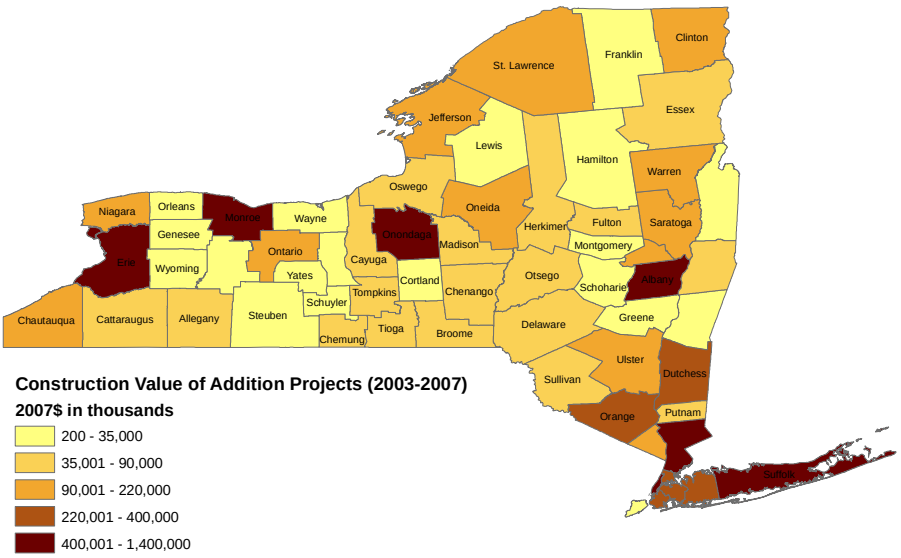
Similar to the alteration projects, the industrial/manufacturing sector, the sector with the greatest percentage of completed FlexTech projects, has not had a large value of addition projects between 2003 and 2007, suggesting that these projects are occurring outside of the addition process.

[56] 2007 Q3 value is not used in this comparison because the data is not for a full year.

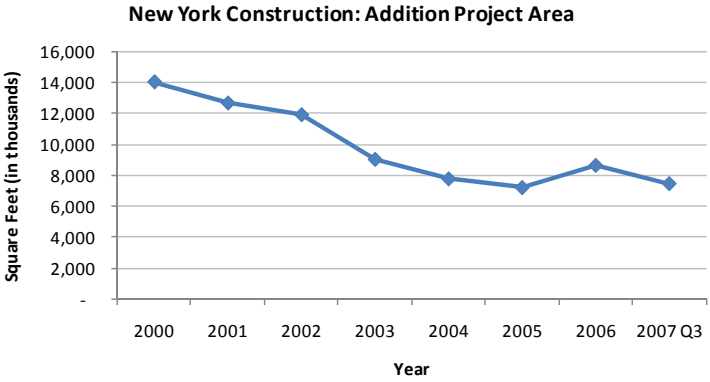
[57] The corresponding FlexTech sectors are “education- colleges and universities,” “education- elementary and secondary schools,” and “research or lab facility.”

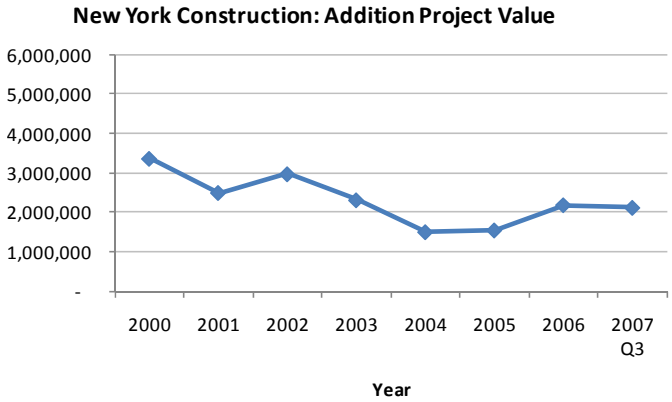
Figure 3-19. Commercial and Industrial Addition Projects

Location



Trends over Time





Market Sectors

Source: McGraw Hill Construction Starts Database. 2008.

3.7 CUSTOMERS EXEMPT FROM NYSERDA PROGRAMS

The majority of customers in New York are eligible to participate in NYSERDA's **New York Energy $mart**[SM] program, including FlexTech. The NYSERDA website describes eligibility into the FlexTech Program as follows:

Eligible applicants include: NYS industrial and commercial facilities, state and local governments, not-for-profit and private institutions, public and private K-12 schools, colleges and universities, and health care facilities. Facilities must pay into the System Benefits Charge as electricity distribution customers of one of the following utilities: Central Hudson Gas & Electric Corporation, Consolidated Edison, New York State Electric & Gas Corporation, National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation.[58]

New York facilities that are customers of the Long Island Power Authority (LIPA) and the New York Power Authority (NYPA) along with participants in the Empire Zone program and the Power for Jobs program do not pay into or partly pay into the Systems Benefits Charge and thus are exempt or partly exempt from NYSERDA's **New York Energy $mart**[SM] program. These programs are discussed below.

3.7.1 Long Island Power Authority (LIPA)

LIPA is a non-profit municipal electric provider. LIPA serves customers in Nassau and Suffolk Counties as well as the Rockaway Peninsula in Queens. LIPA offers separate energy efficiency programs to its customers and its customers do not pay into the Systems Benefits Charge which funds NYSERDA programs.

3.7.2 New York State Power Authority (NYPA)

NYPA provides electric service to business and industrial customers, government agencies and public systems, investor-owned utilities, and healthcare, educational, and cultural institutions. A map of NYPA's municipal and cooperative customers is shown in Figure 3-20. NYPA offers separate energy efficiency programs to its customers and its customers do not pay the Systems Benefits Charge.

[58] NYSERDA. FlexTech Program website (http://www.nyserda.org/programs/flextech.asp), accessed April 2010.

Figure 3-20. NYPA Operations

Source: NYPA. http://www.nypa.gov/Partners/map.htm. accessed April 2010.

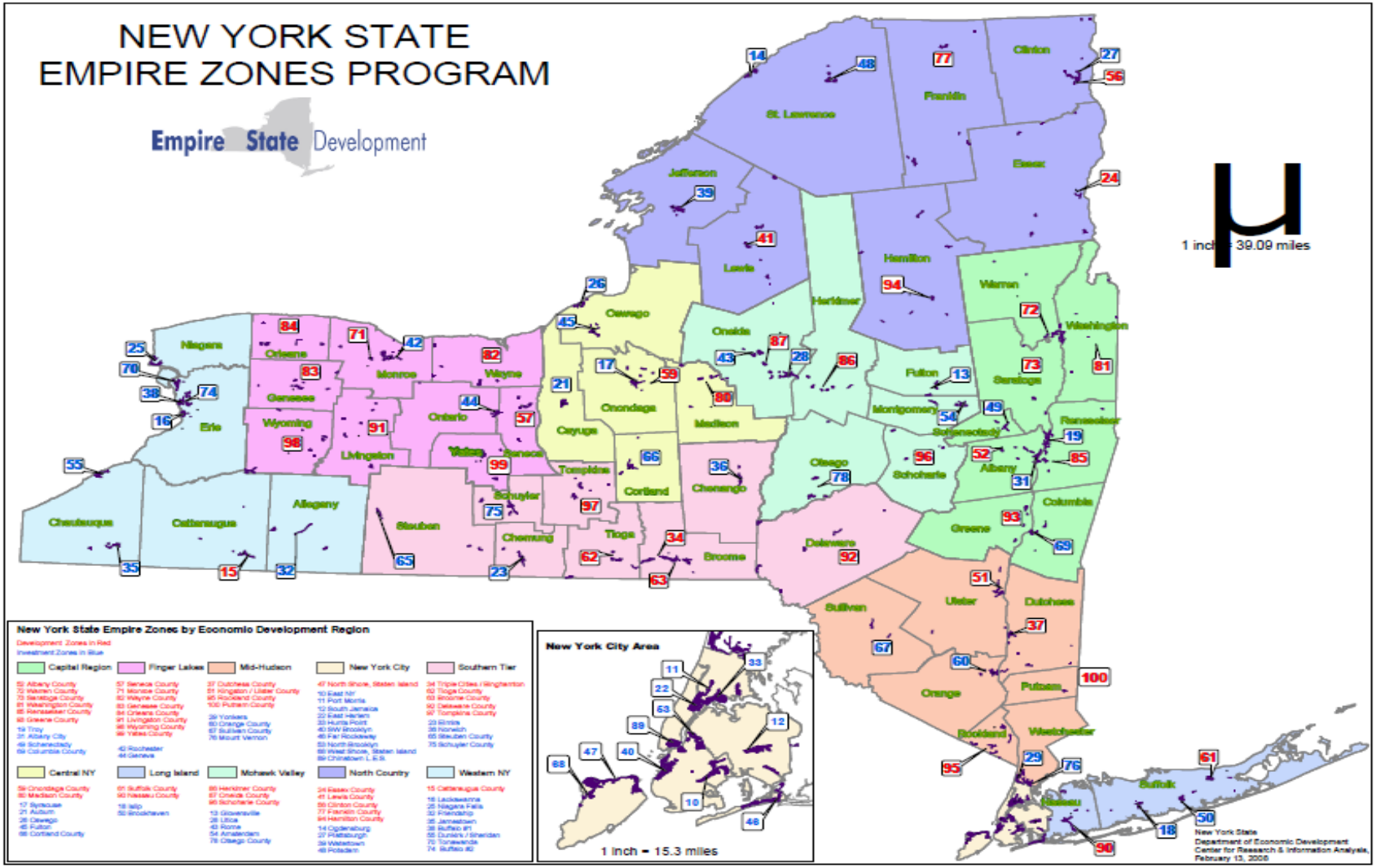
3.7.3 Empire Zone Program[59]

The Empire Zone Program was created in 1986 and its goal is to stimulate economic growth in New York (see Figure 3-21). The program ended in June 2010, though existing participants at that time continue to be eligible for program benefits. About 8,700 businesses (totaling 344,000 employees) in 85 zones participated in the Empire Zone Program. To participate in the Program, a business must first be located in an empire zone, or qualify as a regionally significant project, and become zone certified. To qualify for certification, a business must be able to demonstrate that it will create new jobs and/or make investments in the empire zone and be consistent with the local zone's development plan, including a cost-benefit analysis. Applications approved by local zone officials are then forwarded to the state for review and approval by the Departments of Economic Development (Empire State Development) and Labor. The benefit of participation is tax credit and participants do not pay the Systems Benefit Charge.

According to data provided by the Empire Development Corporation, about 20% of program participants are located in downstate New York, 78% are located in upstate New York, and 2% have an unknown location.

[59] New York State's Empire State Development. www.nylovesbiz.com.

Figure 3-21. Empire Zone Program



Source: New York State. Department of Economic Development. Center for Research and Information Analysis. February 13, 2008.

3.7.4 Power for Jobs Program

This program is a component of the Empire Zone Program. The program is currently being reformed by the state senate.[60] The Power for Jobs Program provided 483 megawatts of low cost electricity to businesses that remain and expand in the state. Since 1997, Power for Jobs helped to create and retain over 300,000 jobs at over 450 businesses. In accordance with the program, after a company fulfilled the requirement to retain or create a specific number of jobs, it received energy cost savings that ranged from 10% to 25% depending on usage and local utility delivery charges.

[60] http://www.www.istockanalyst.com/business/news/4977225/power-for-jobs-reform-passes-in-state-senate

Section 4:

MARKET ASSESSMENT

This section examines key market assessment indicators and researchable issues developed for the FlexTech Program. The data were obtained from the primary data collection efforts conducted with end-use customers and technical service providers that had participated in the FlexTech Program as well as with non-participant comparison groups. The section begins with a discussion of results from the end-use customer data collection efforts (Section 4.1) followed by a discussion of results from the technical service provider data collection efforts (Section 4.2). The section concludes with a discussion of key themes that emerged from the market assessment work including a summary of findings related back to the researchable issues presented in the program theory and logic model (Section 4.3).

4.1 END-USE CUSTOMERS

This section discusses results from the end-use customer (EUC) data collection efforts.

4.1.1 EUCs: Capital Improvement Projects and Decision-making

One goal of the FlexTech Program is to provide customers financial data to help facilitate the incorporation of cost-saving energy efficiency capital improvements. In order to understand the usefulness of this program goal for both participants and non-participants, the surveys sought to understand the type of capital improvement projects end-use customers have been making over the past five years and the decision-making process for moving forward with those plans.

The survey investigated the source of ideas for capital improvement projects within the organization and the decision-making process related to these types of investments. The capital investment decision-making process was examined in two ways: 1) the influential criteria in the capital investment decision-making process; and 2) the title(s) of the person(s) in the organization who are influential in affecting these decisions.

Participating and non-participating end-use customers are fairly similar in many aspects of capital improvement and decision-making; these two groups report engaging in similar levels and types of improvement projects and similar processes of decision-making. Program participation, however, does seem to be associated with some differences in approaches and involvement with energy efficiency investments in particular.

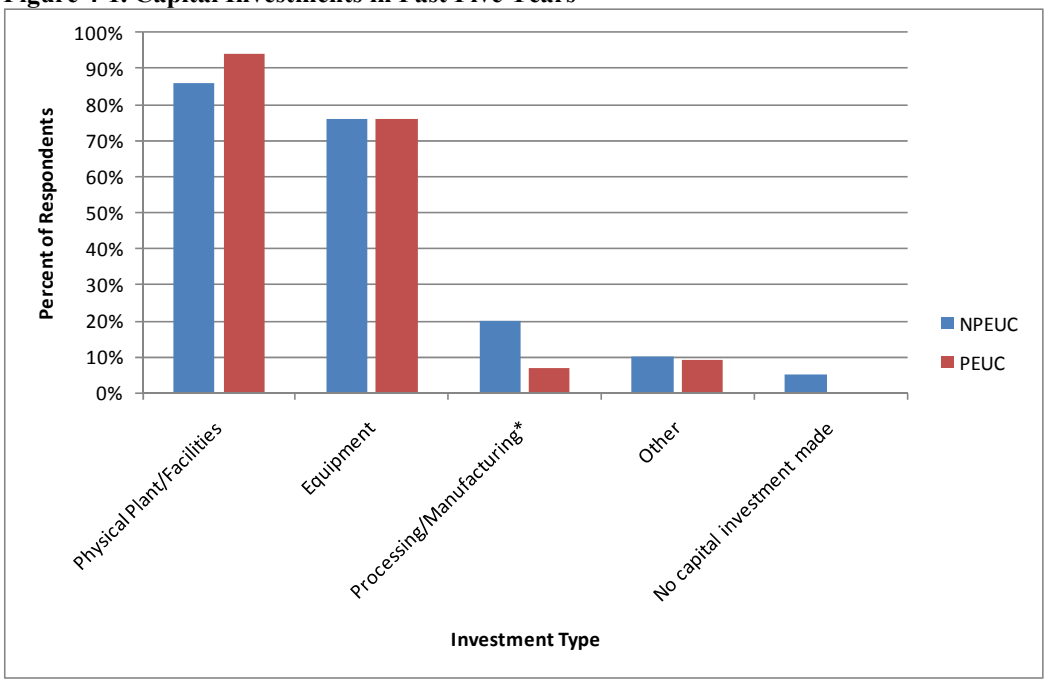
EUCs: Capital Improvement Projects

A substantial majority of both Participating End-use Customers (PEUCs) and Non-Participating End-use customers (NPEUCs) are making capital improvements despite the recent economic recession. Over the past five years, physical plant and facilities improvements were the most common capital investments, made by roughly nine in ten of both PEUCs (94%) and NPEUCs (86%) (Figure 4-1). Three quarters (76%) have made equipment investments in the past five years and processing/manufacturing improvements were made by only 20% of all NPEUCs and 7% of PEUCs.[61] Only 5% of NPEUCs made no investments in capital improvements in the past five years, and all PEUCs made at least one type of capital improvement.

[61] Only industrial or process manufacturing organizations were asked about these types of improvements: 72% of these Non-Participants (n=39) indicate that they made this type of capital investment, while62% of these Participants (n=16) made capital investments. Percentages in the figure are percent of total sample.

PEUCs reported fewer processing and manufacturing investments than NPEUCs (7% vs. 20%) and they tended to report more physical plant and facilities investments (94% vs. 86%) but this difference was not statistically significant. Physical plant or facilities improvements included projects such as additional construction or building improvements that the organizations had conducted. Equipment projects included the purchase of new equipment such as computers or hardware essential to organizational activities. Projects listed as "other" varied from water treatment facility upgrades to fleet or vehicle improvement.

Figure 4-1. Capital Investments in Past Five Years



Source: MCA data collection; n=140 for NPEUC and 140 for PEUC.
* Difference is statistically significant at the 95% confidence interval.
Note: Only industrial or process manufacturing organizations were asked about processing/manufacturing improvements: 72% of these Non-Participants (n=39) indicate that they made this type of capital investment, while 62% of these Participants (n=16) made capital investments. Percentages in the figure are percent of total sample.

EUCs: Important Factors in Decision-making

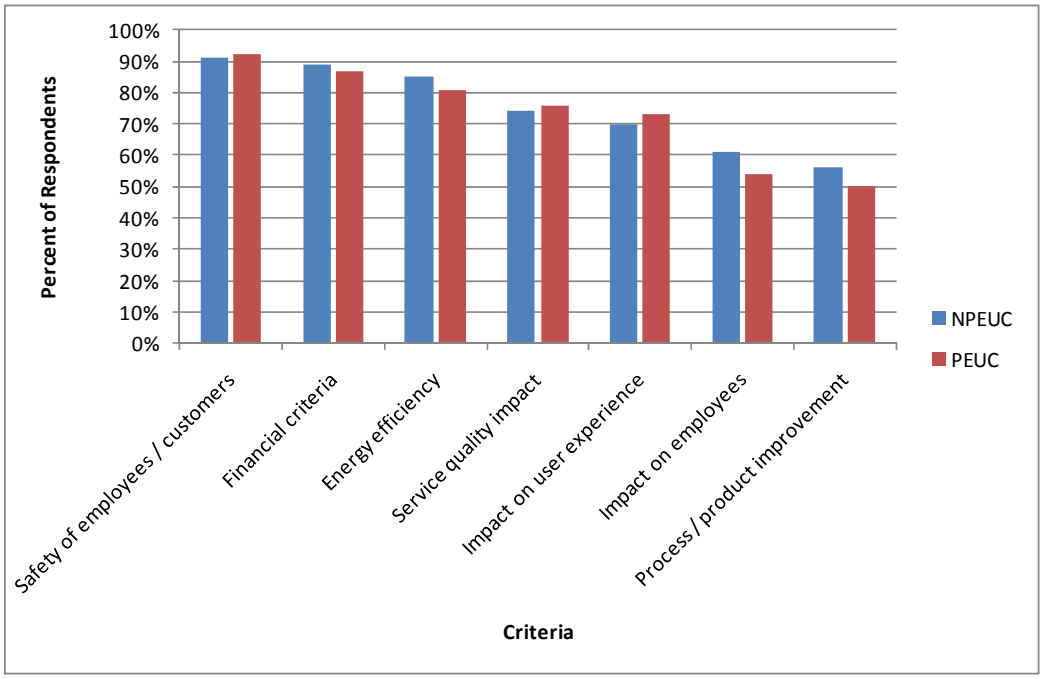
The two most commonly cited major criteria for either group of end-use customers in deciding to move forward with capital improvement projects, regardless of the type of project being considered, were concerns about the safety of employees and/or customers and financial considerations (Figure 4-2 through Figure 4-4). Nine in ten respondents indicated that the safety of their employees or customers was a major factor in deciding to move forward with capital improvement projects. Roughly the same percentages reported that financial criteria were a major factor in these decisions.

Energy efficiency was the third most commonly cited major factor, reported by eight in ten end-use customers who have made physical plant or equipment improvements. The importance of service quality and the impact on the user experience at the facility were considered major factors in decision-making by about seven in ten end-use customers. Slightly fewer, between a half and two thirds of end-use customers, indicated that impact on employees and process or product improvement were major factors they consider when deciding to move forward with different types of capital improvement projects.

There are a few factors that differ in importance depending on the type of project under consideration. These differences are seen between physical plant and equipment improvements as compared with industrial or manufacturing process improvements. Energy efficiency considerations are more often major criteria with physical plant and equipment improvements than with industrial or manufacturing process improvements, as is the impact on customers/clients, but these differences do not reach statistical significance. In contrast, process or product improvements and the impact on employees' productivity or job satisfaction are more important considerations for industrial and manufacturing improvements than for physical plant or equipment projects.

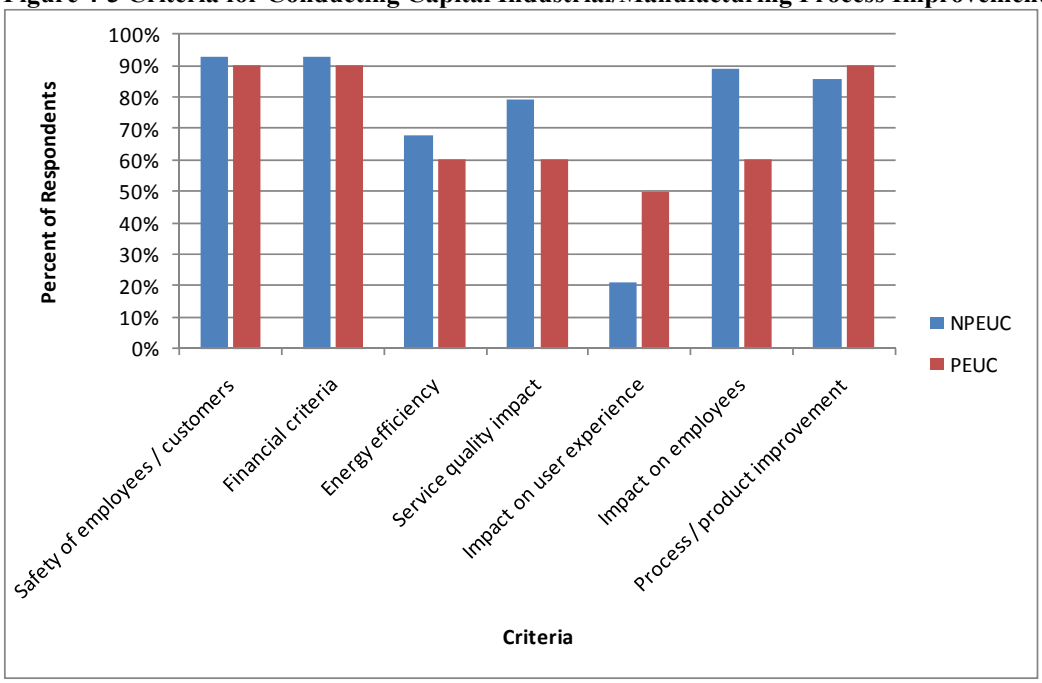
Overall, the pattern of importance of these factors relative to each other is essentially the same between PEUCs and NPEUCs, and while there may be slight differences in percentages, there are no statistically or substantively significant differences in the way in which these factors are evaluated by the two groups.

Figure 4-2. Criteria for Conducting Capital Physical Plant Improvements



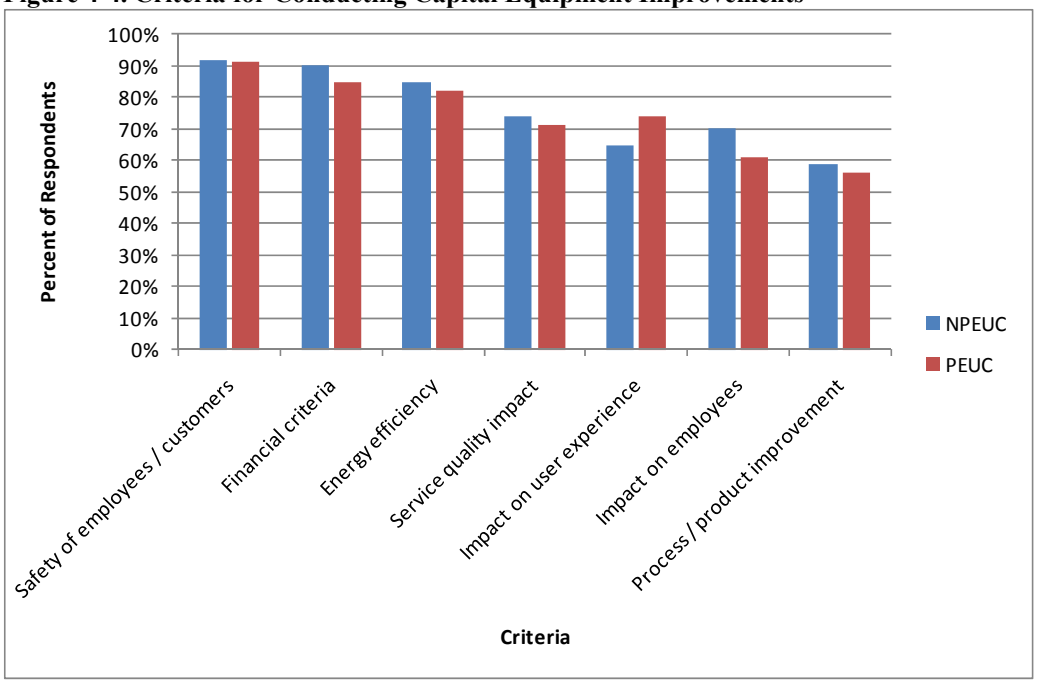
Source: MCA data collection; n=121 for NPEUCs and 127 for PEUCs.
Note: Percentages correspond to respondents saying each criterion is a major factor in decision-making.
* Difference is statistically significant at the 95% confidence interval.

Figure 4-3 Criteria for Conducting Capital Industrial/Manufacturing Process Improvements



Source: MCA data collection; n=28 for NPEUCs and 10 for PEUCs.
Note: Percentages correspond to respondents saying each criterion is a major factor in decision-making.
* Difference is statistically significant at the 95% confidence interval.

Figure 4-4. Criteria for Conducting Capital Equipment Improvements

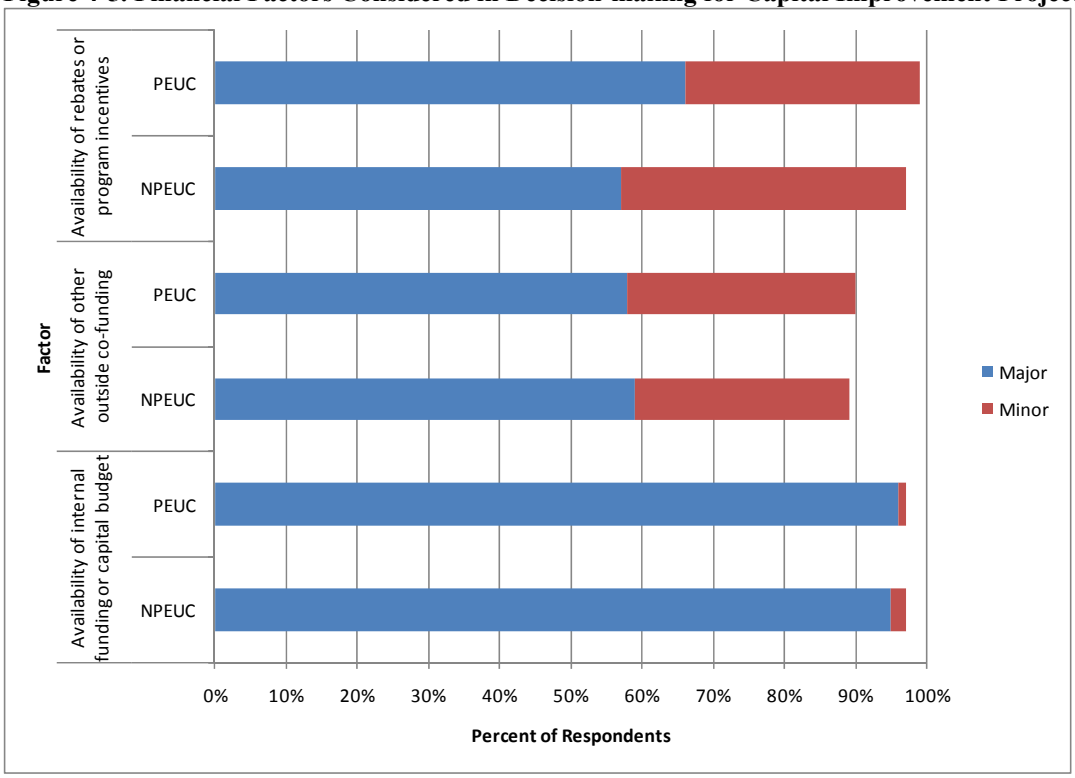


Source: MCA data collection; n = 107 for NPEUCs and 105 for PEUCs.
Note: Percentages correspond to respondents saying each criterion is a major factor in decision-making.
* Difference is statistically significant at the 95% confidence interval.

Among both NPEUCs and PEUCs who cited financial criteria as a major factor in decision-making, the most important *financial* factor in deciding to move forward with capital improvement projects was the availability of internal funding or a capital budget (Figure 4-5). Ninety-five percent of both groups who reported that financial criteria were important said this was the most important financial factor they consider. Fewer, roughly six in ten, cited availability of other outside funding or availability of rebates or incentives as key financial criteria.

While there are no statistically significant differences between PEUCs and NPEUCs in the relative importance of these three financial factors, participants were slightly more likely to indicate that program rebates and incentives were a major factor in their decision-making (66% vs. 57%).

Figure 4-5. Financial Factors Considered in Decision-making for Capital Improvement Projects

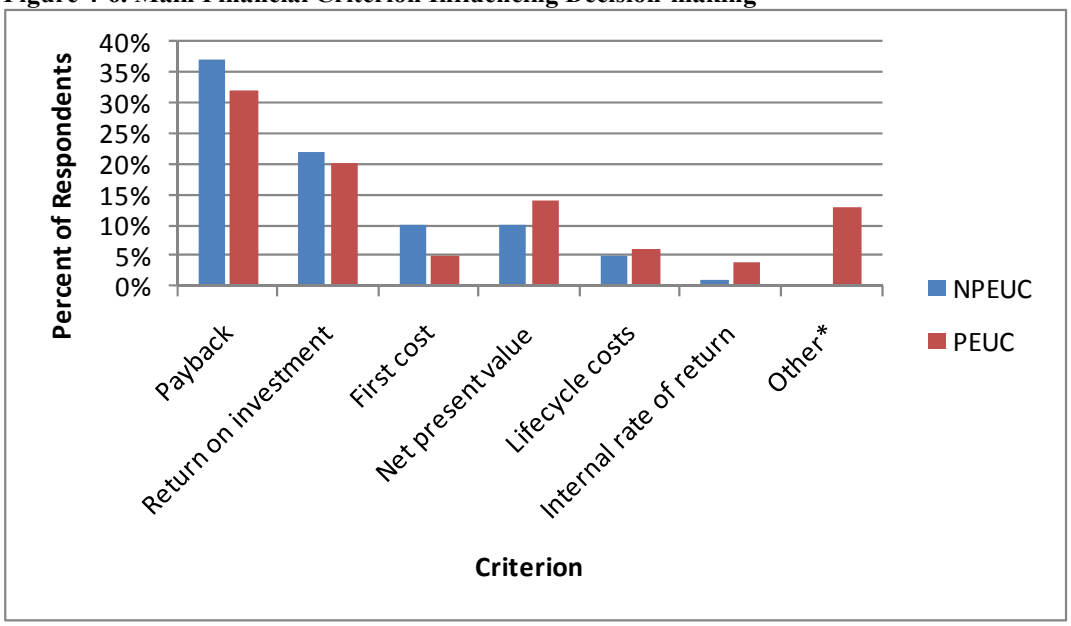


Source: MCA data collection; n=121 for NPEUCs and 121 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

End-use customers who cited financial criteria as a major factor in decision-making were also asked the main financial criterion they use (assuming that funding is available). For both PEUCs and NPEUCs, payback was the most often cited financial criterion (32% and 37%, respectively) followed by return on investment (20% and 22%, respectively) (Figure 4-6). Net present value (14% and 10% for PEUCs and NPEUCs, respectively) and first cost (10% and 5% for PEUCs and NPEUCs, respectively) were mentioned by fewer respondents.[62] Sixteen percent of NPEUCs could not name a main financial criterion that they use for decision-making.

[62] 32% of non-participants and 22% of participants gave responses to this question that were not financial criterion.

Figure 4-6. Main Financial Criterion Influencing Decision-making



Source: MCA data collection; n=83 for NPEUCs and 95 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

Among NPEUCs who mentioned payback (n=31), 16% indicated their threshold is two years or less, 26% said three years, 10% said four years, 13% said five years, and 10% said more than five years, while 26% could not give a payback threshold. PEUCs were less likely to be unable to provide a payback threshold, and for the vast majority of participants who mentioned payback as a main financial criterion (n=30), the threshold was three years (40%), four years (10%), or five years or more (40%).

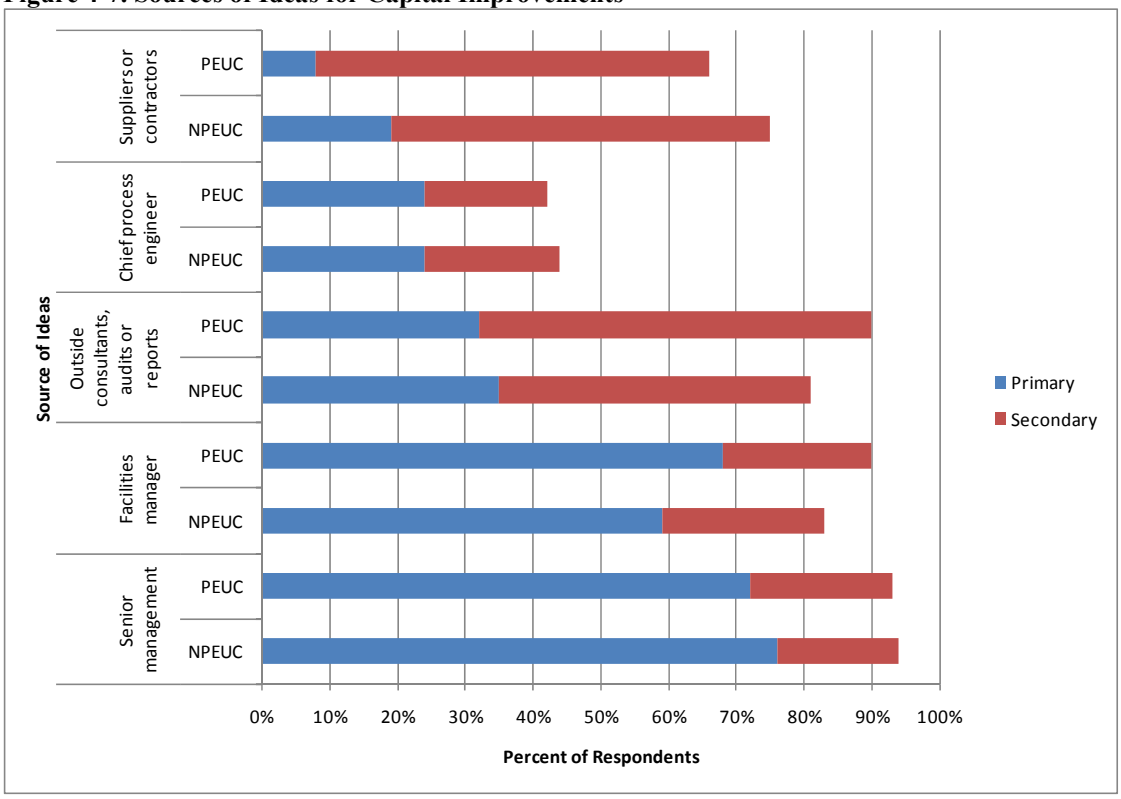
EUCs: Source of Capital Improvement Ideas

End-use customers were asked about both the most common source of ideas for capital improvements and the final decision-maker for those projects. Interestingly, those who act as the source of ideas rarely are the final decision-makers in the process.

Both groups of end-use customers reported a variety of sources for capital improvement project ideas, although Senior Management and Facilities Manager were reported as the primary source by a majority of both participants and non-participants (Figure 4-7). Seven in ten participants and non-participants said that Senior Management serves as a primary source of ideas (72% and 76%, respectively), and the Facilities Manager was also a primary source of ideas for 68% and 59% of participants and non-participants, respectively.

PEUCs were less likely than NPEUCs to look to suppliers or contractors as a primary source for capital improvement ideas (8% vs. 19%). Approximately one third of PEUCs and NPEUCs (32% vs. 34% respectively) stated that outside consultants or audits were the primary source of capital improvement ideas for their organizations.

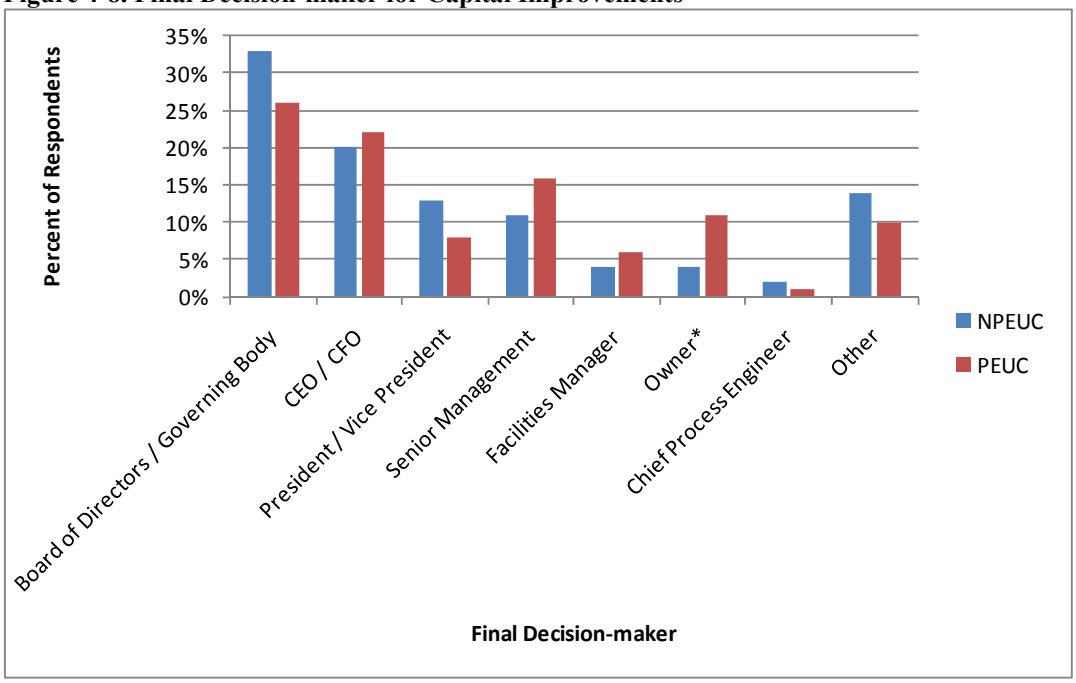
Figure 4-7. Sources of Ideas for Capital Improvements



Source: MCA data collection; n=140 for NPEUCs and 140 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

While a variety of sources may be used for capital improvement ideas, the final decision-making authority is with the Board of Directors or Governing Body for one third (33%) of non-participating and one quarter (26%) of participating end-use customers (Figure 4-8). An additional two in ten within each group indicated that the CEO/CFO has final decision-making authority.

Figure 4-8. Final Decision-maker for Capital Improvements

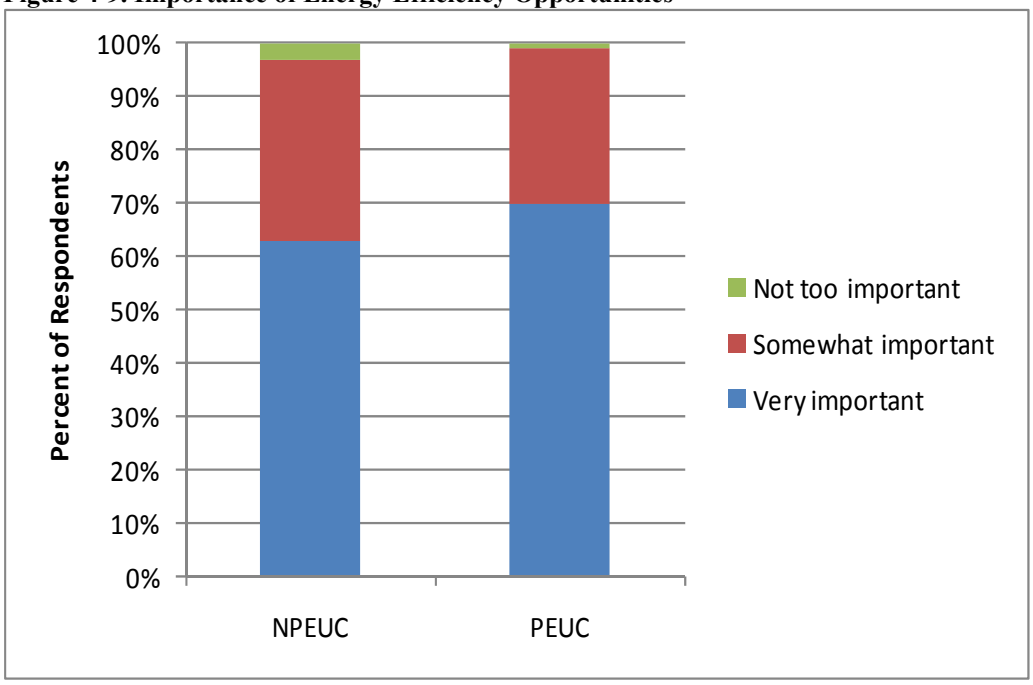


Source: MCA data collection; n=140 for NPEUCs and 140 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

4.1.2 EUCs: Capital Investment in Energy Efficiency

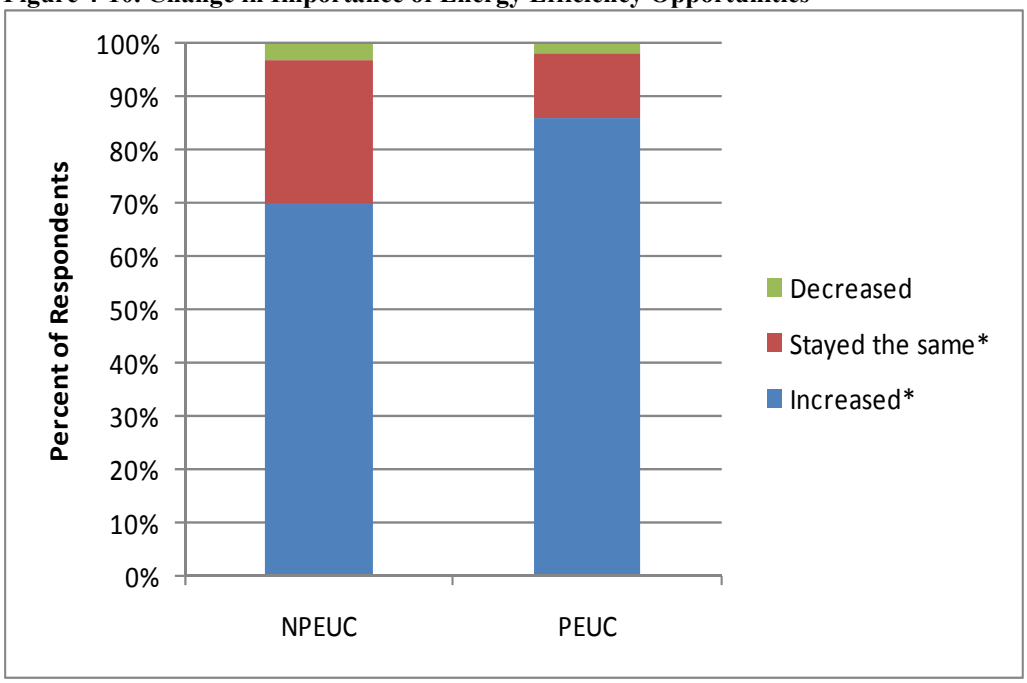
Energy efficiency opportunities are important to both participant and non-participant end-use customers and a large majority of each group perceives a significant increase in this level of importance in the last five years. Participants were slightly more likely than non-participants to view energy efficiency opportunities as very important (70% vs. 63%), and were significantly more likely to indicate that this importance has changed over the past five years (86% vs. 70%), as shown in Figure 4-9 and Figure 4-10.

Figure 4-9. Importance of Energy Efficiency Opportunities



Source: MCA data collection; n=140 for NPEUCs and 140 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

Figure 4-10. Change in Importance of Energy Efficiency Opportunities



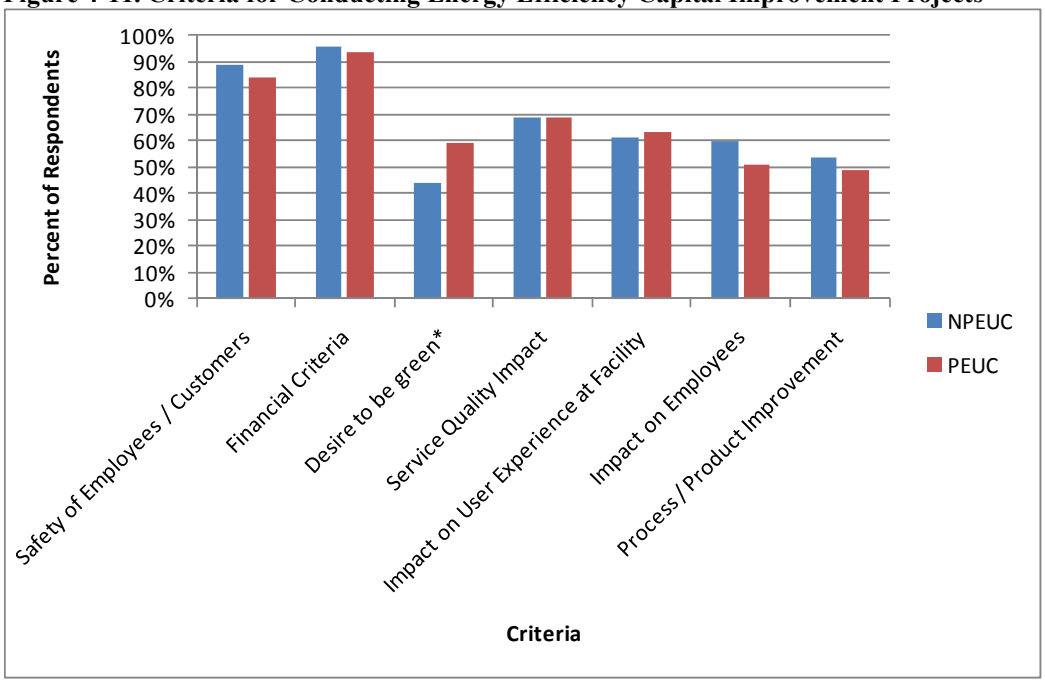
Source: MCA data collection; n=140 for NPEUCs and 140 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

Not surprisingly, PEUCs were significantly more likely than NPEUCs to have made capital investments in energy efficiency products and services in the past five years (89% vs. 75%). It is notable that fully

three quarters of NPEUCs reported that they have made relatively recent capital investments in energy efficiency products and services.

The importance of key factors in the decision-making process for energy efficiency projects is similar to the importance of these factors in decision-making about other types of projects. The major factors considered by most participants and non-participants were financial criteria and the safety of employees/customers. However, for energy efficiency projects, financial criteria were the number one spot, while for other types of projects safety edged out financial considerations (Figure 4-11). The importance of factors considered when making energy efficiency investment decisions is similar for PEUCs and NPEUCs with one notable difference: participants were more likely than non-participants to consider the "desire to be green" to be a major factor in their decision (59% vs. 44%).

Figure 4-11. Criteria for Conducting Energy Efficiency Capital Improvement Projects

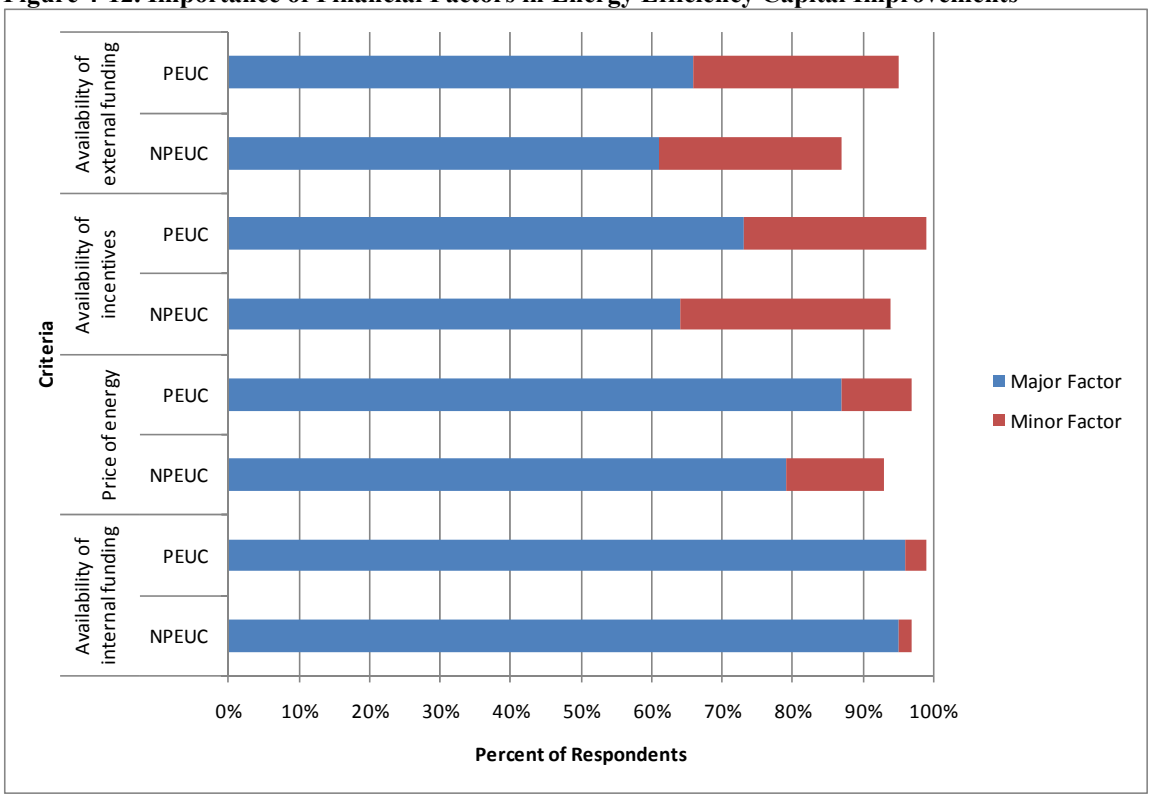


Source: MCA data collection; n=140 for NPEUCs and 140 for PEUCs.
Note: Percentages correspond to respondents saying each criterion is a major factor in decision-making.
* Difference is statistically significant at the 95% confidence interval.

Among end-use customers who indicated that financial criteria were a major factor in their decision-making process for energy efficiency investments, the availability of internal funding or a capital budget was the *main* financial factor they consider (Figure 4-12). This result is the same for participants and non-participants – more than nine in ten of each group stated that availability of internal funding was a major factor. The factor considered major by the second-largest percentage of both groups was the price of energy, which was cited as a major criterion by 87% of PEUCs and 79% of NPEUCs.

The availability of program incentives and rebates and outside funding were considered major factors by fewer respondents – both among participants and non-participants. The availability of program incentives and rebates was considered critical for three quarters (73%) of PEUCs and almost two-thirds (64%) of NPEUCs, and outside funding was the key financial factor in decision-making on energy efficiency investments for two thirds of PEUCs (66%) and 61% of NPEUCs.

Figure 4-12. Importance of Financial Factors in Energy Efficiency Capital Improvements

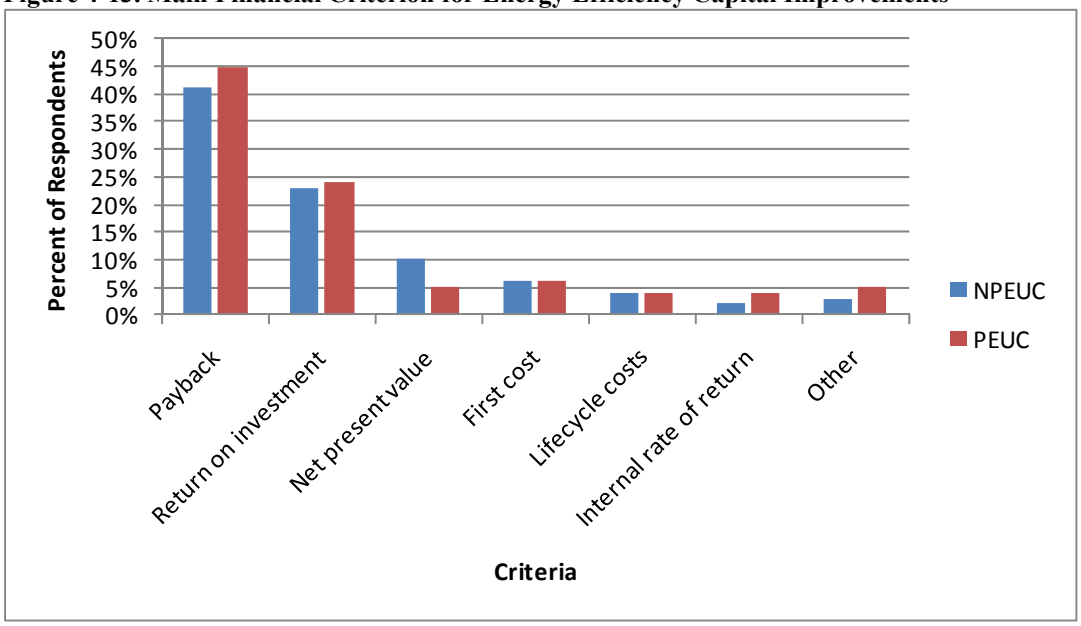


Source: MCA data collection; n=135 for NPEUCs and 125 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

Among the end-use customers who indicated that financial criteria were important, the main financial criterion that they used (assuming that funding is available) was payback (45% for PEUCs and 41% for NPEUCs), followed by return on investment (24% for PEUCs and 23% for NPEUCs) (Figure 4-13). All other criteria were mentioned by one in ten or less of respondents.[63]

[63] 26% of NPEUCs and 11% of P EUCs gave responses that were not financial criterion, these respondents are excluded from this table.

Figure 4-13. Main Financial Criterion for Energy Efficiency Capital Improvements



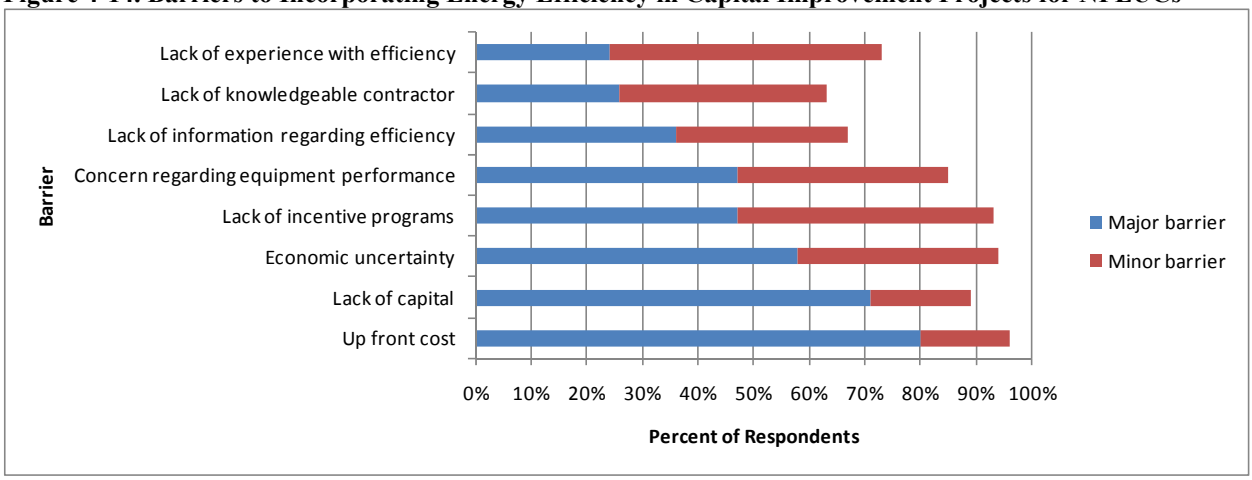
Source: MCA data collection; n=100 for NPEUCs and 111 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

4.1.3 EUCs: Barriers to Incorporating Energy Efficiency into Capital Improvement Projects

Financial issues are the largest barriers to incorporating energy efficiency into capital improvement projects (Figure 4-14 and Figure 4-15). Issues related to lack of knowledge, experience, or information regarding energy efficiency products and services represent less significant barriers for end-use customers, both participating and non-participating.

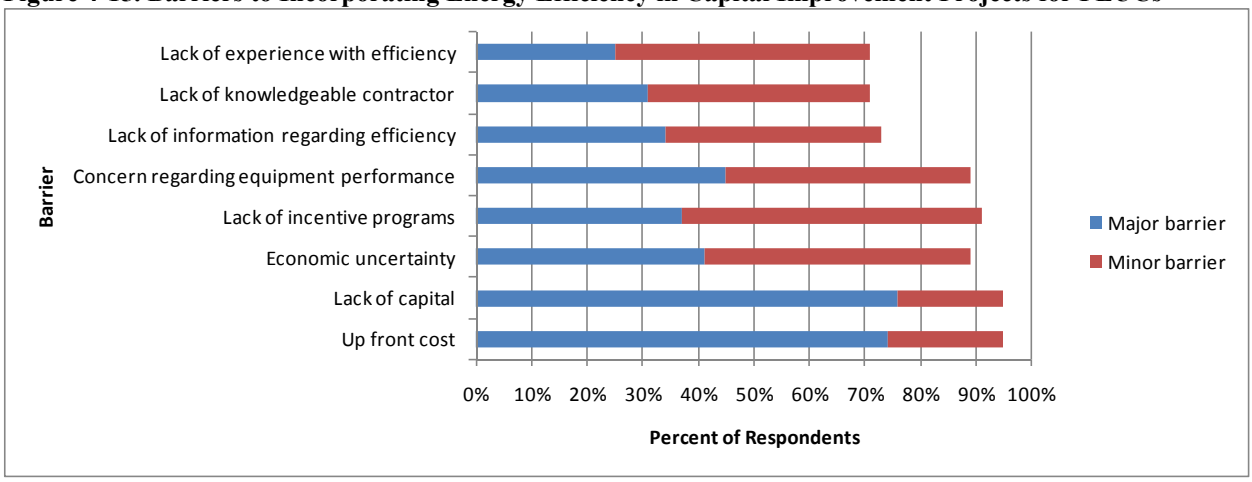
The up-front cost of energy efficient equipment was cited as a major factor by eight in ten (80%) NPEUCs. Other financial considerations like lack of capital (71%) and economic uncertainty (58%) were seen as major barriers to incorporating energy efficient products by fewer (but still majorities of) NPEUCs. Concerns about the performance or reliability of energy efficient equipment or a lack of incentive programs were cited as major barriers to incorporating energy efficiency into capital improvement projects by slightly less than half of the non-participants (47%). Non-participants were more divided in their views about how much of a barrier is presented by lack of knowledgeable TSPs, lack of information about energy efficient equipment, and lack of experience with energy efficient equipment. About a third indicated lack of information was a major barrier, while lack of knowledgeable TSPs and lack of experience with energy efficient equipment were cited as major barriers by a quarter or fewer of NPEUCs.

Figure 4-14. Barriers to Incorporating Energy Efficiency in Capital Improvement Projects for NPEUCs



Source: MCA data collection; n=140 for NPEUCs.
* Difference is statistically significant at the 95% confidence interval.

Figure 4-15. Barriers to Incorporating Energy Efficiency in Capital Improvement Projects for PEUCs



Source: MCA data collection; n=140 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

Three quarters of PEUCs viewed lack of capital (76%) and up-front costs (74%) as major barriers to incorporating energy efficiency into capital improvement projects. Significantly fewer, roughly four in ten, viewed concern with energy efficiency performance (45%), economic uncertainty (41%), and lack of incentive programs (37%) as major barriers. PEUCs were divided in the extent to which they viewed lack of information about energy efficiency, lack of knowledgeable TSPs, and lack of internal experience with energy efficiency as barriers, with about three in ten saying these were major barriers, about four in ten indicating they were minor barriers, and three in ten saying they were not barriers.

For the most part, participants and non-participants were very similar in their perceptions of certain factors as barriers to incorporating energy efficiency into capital improvements, with two exceptions: participants were less likely to view economic uncertainty and lack of incentive programs as major barriers.[64]

[64] These differences are statistically significant.

4.1.4 EUCs: Awareness and Knowledge of Energy Efficiency Products and Services

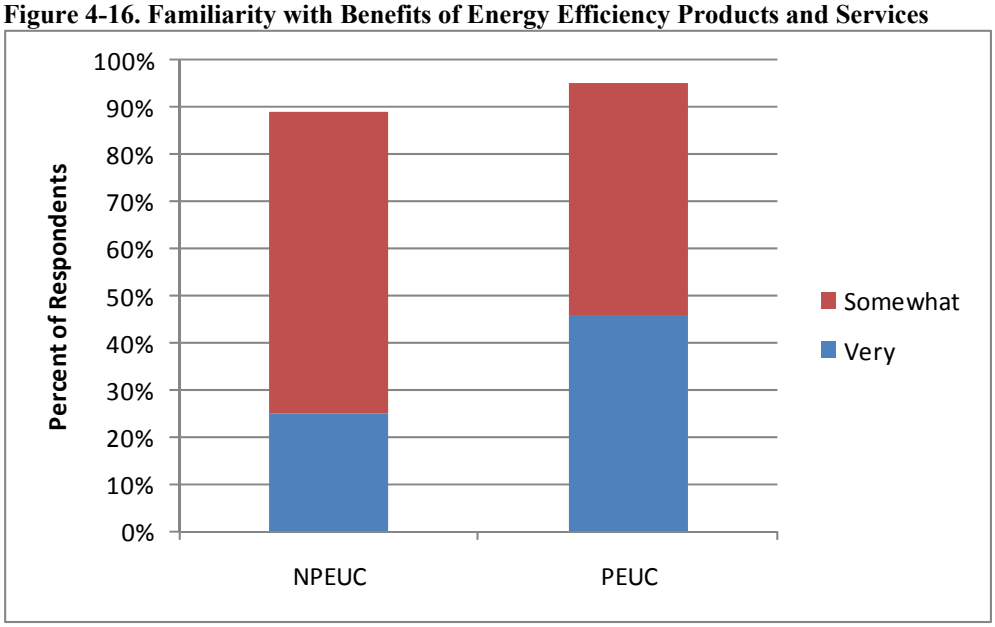
End-use customer awareness of the types of products and services that the FlexTech Program offers was measured in order to evaluate the marketplace for promotional activities, to measure shifts in awareness in the past five years, and to determine what effect awareness might have on investment in energy efficiency products and services.

EUCs: Familiarity with Energy Efficiency Products and Services

While there is still room to increase NPEUC familiarity with the benefits of energy efficient products and services in the marketplace, a majority of non-participants indicated that their familiarity with these benefits had increased over the past five years.

One quarter (25%) of NPEUCs said they were very familiar with the benefits of energy efficiency measures, and an additional 64% said they were somewhat familiar with the benefits (Figure 4-16). Only 11% said they were either not at all familiar or not very familiar with the benefits. Not surprisingly, PEUCs were more familiar with the benefits of energy efficient products and services than non-participants. Nearly half of the PEUCs (46%) said they were very familiar with the benefits, and 49% indicated they were somewhat familiar with the benefits.

Figure 4-16. Familiarity with Benefits of Energy Efficiency Products and Services



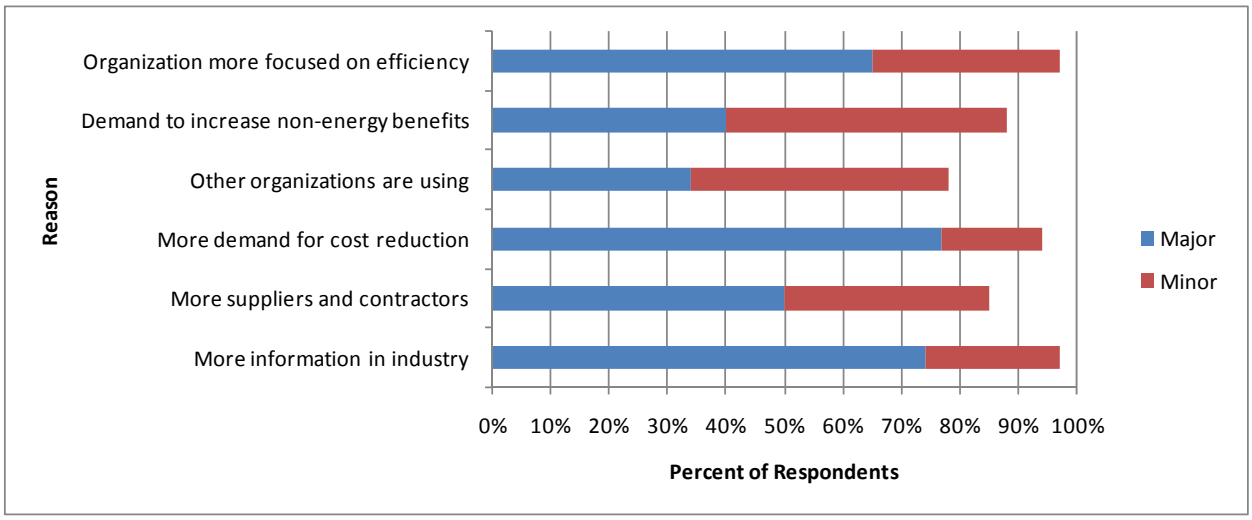
Source: MCA data collection; n=140 for NPEUCs and 140 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

Familiarity with energy efficient products and services is increasing for substantial majorities of PEUCs and NPEUCs. Eight in ten (84%) participants and three quarters (75%) of non-participants reported that their familiarity with the benefits of energy efficient products and services had increased over the past five years, while 14% of PEUCs and 24% of NPEUCs said it had remained the same.

As shown in Figure 4-17, the major reasons given for this increased familiarity among NPEUCs include increased demand for reduced costs (77%), more information circulating in the industry (74%), and increased focus on energy efficiency in the organization (65%). Fewer non-participants cited the presence of more suppliers or contractors (50%), demand for increased non-energy benefits (40%) or competition with other organizations (34%) as major drivers.

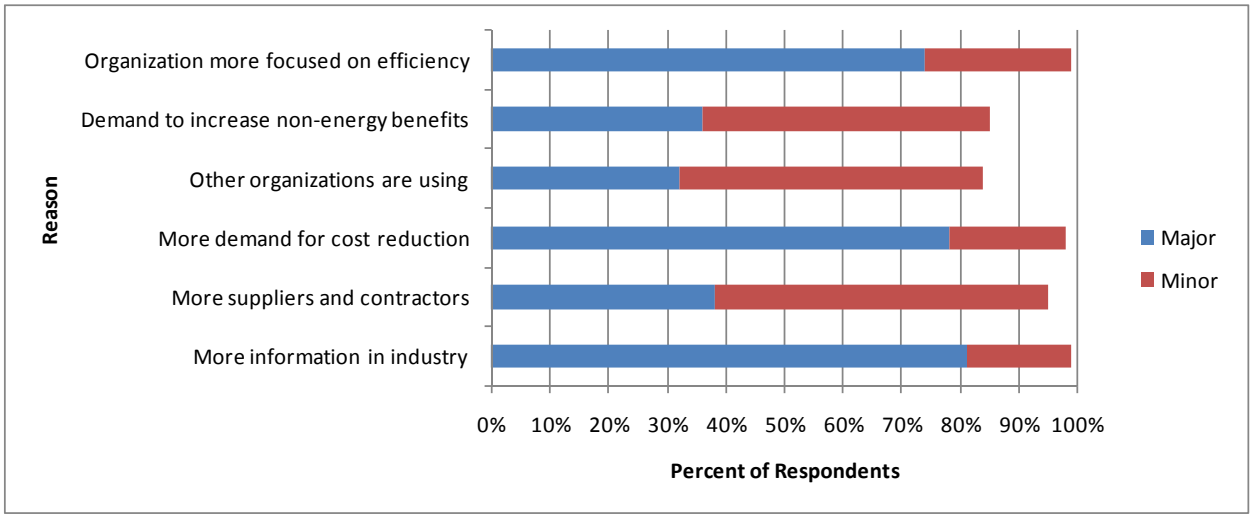
As shown in Figure 4-18, PEUCs credited the presence of more information circulating in the industry (81%), increased demand for reduced costs (78%), and increased focus on energy efficiency in the organization (75%) as the major reasons for their increased familiarity with the benefits of energy efficient products and services. As with non-participants, fewer participating customers (less than four in ten) cited additional suppliers/contractors, demand for increased non-energy benefits, and the fact that other organizations are using these products and services as major reasons for their own increased familiarity with the benefits.

Figure 4-17. Reasons for Increased Familiarity with Benefits of Energy Efficiency Products and Services for NPEUCs



Source: MCA data collection; n=105 for NPEUCs.
* Difference is statistically significant at the 95% confidence interval.

Figure 4-18. Reasons for Increased Familiarity with Benefits of Energy Efficiency Products and Services for PEUCs



Source: MCA data collection; n=118 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

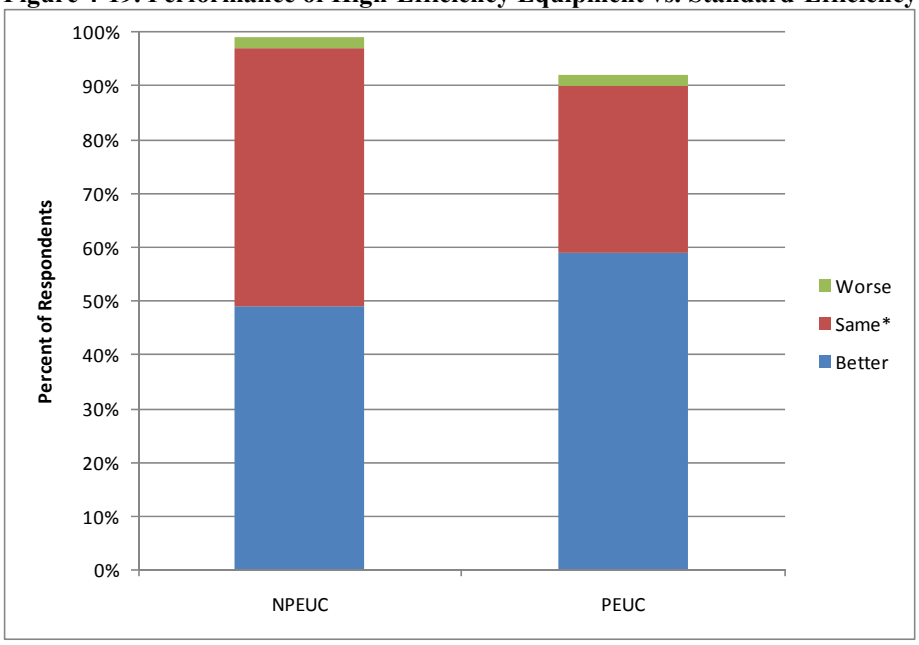
Among the 33 non-participants who were aware of FlexTech and reported an increased familiarity with energy efficiency in the past five years, 45% said that the program was a major reason for their increased familiarity, but a nearly equivalent percentage (48%) said that it is a minor reason, and 6% said that the program is not a reason for their increased familiarity. Participants were more likely than non-participants

to indicate that FlexTech was a major reason for their increased familiarity. Sixty-one percent said that the program was a major reason for their increased familiarity and 36% said it was a minor reason, while only 3% said that the program was not a reason for their increased familiarity.

EUCs: Performance of Energy Efficiency Equipment

PEUCs were more convinced of the performance standards of energy efficient equipment than NPEUCs, and they were more likely to say that this higher performance was a major reason for their investment in energy efficiency products and services (Figure 4-19). While 59% of PEUCs evaluated the performance of energy efficient equipment as better than that of standard efficiency equipment and 31% said the performance was the same, NPEUCs were more divided in their views. Forty-nine percent of NPEUCs said that high efficiency equipment performs better than standard equipment but an equal percentage (48%) said it performs the same.

Figure 4-19. Performance of High-Efficiency Equipment vs. Standard-Efficiency Equipment



Source: MCA data collection; n=140 for NPEUCs and 140 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

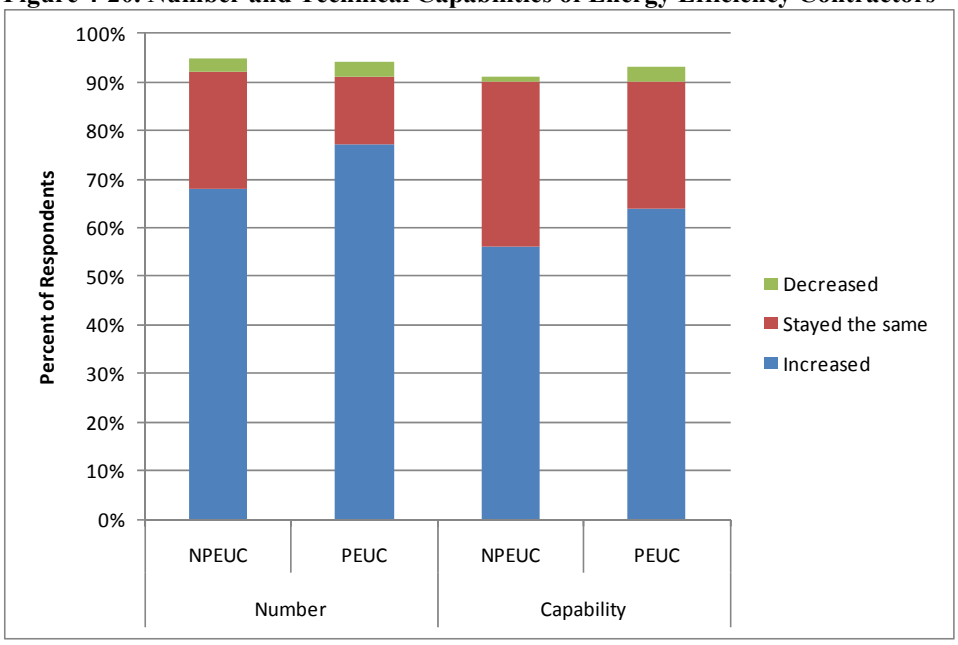
Among the 82 PEUCs who said that the performance of high-efficiency equipment was better than that of standard-efficiency equipment, 71% indicated that this improved performance was a major reason for investment in energy efficiency products and services over the past five years. Among the 68 NPEUCs who said that high-efficiency equipment performance is better than that of standard-efficiency equipment, slightly fewer (59%) indicated that improved performance was a major reason for investment in energy efficiency products and services over the past five years.

4.1.5 EUCs: Availability and Capabilities of Energy Efficiency Contractors

The common perception among end-use customers, both participating and non-participating, was that there had been an increase in the number of energy efficiency product and service contractors active in the marketplace, driven mostly by increased market opportunity. Fewer end-use customers, but still a majority, saw an increase in the capabilities of those providers (Figure 4-20).

Three quarters (77%) of PEUCs and 68% of NPEUCs thought that the number of energy efficiency product and service contractors has increased in the past five years. When asked about the technical capabilities of energy efficiency product and service contractors, nearly two thirds (64%) of the PEUCs and slightly more than half (56%) of the NPEUCs said that the capabilities of providers had increased.

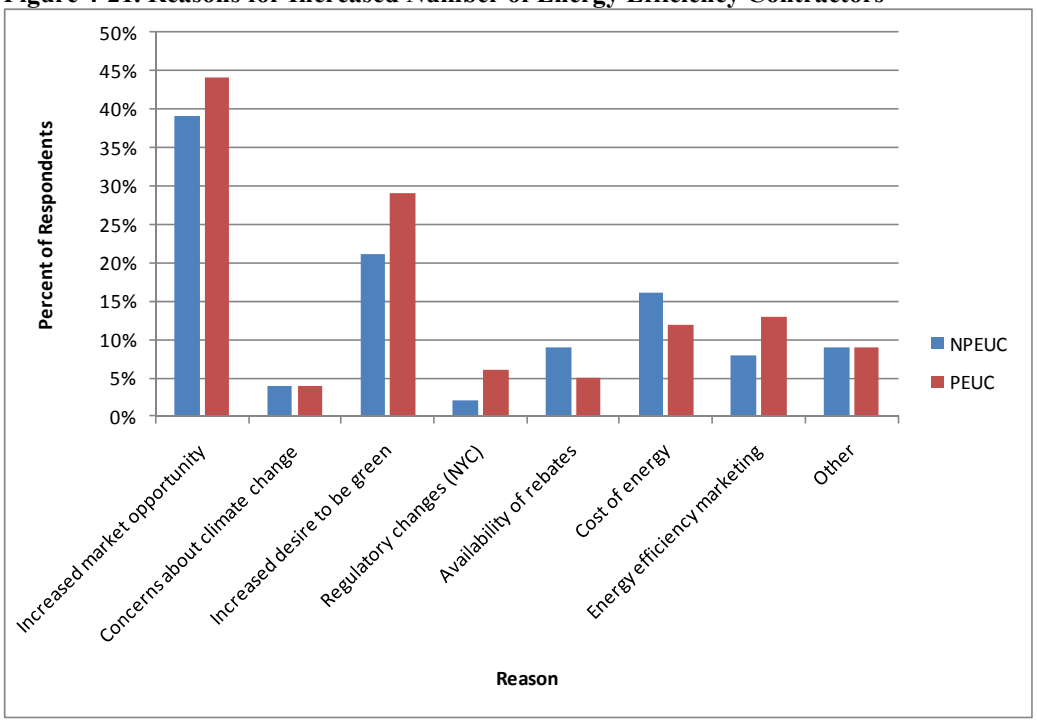
Figure 4-20. Number and Technical Capabilities of Energy Efficiency Contractors



Source: MCA data collection; n=140 for NPEUCs and 140 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

The reasons given for the perceived increase in contractors varied but the most common among both groups of customers were increased market opportunity, desire to be green, cost of energy, and marketing efforts (Figure 4-21). Other reasons included availability of rebates/incentives, regulatory changes, and concerns about climate change (all less than 10%). Participants and non-participants did not differ in the reasons they saw for the increase in energy efficiency service providers.

Figure 4-21. Reasons for Increased Number of Energy Efficiency Contractors



Source: MCA data collection; n=96 for NPEUCs and 108 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.
Note: Does not add to 100% because multiple responses were allowed.

4.1.6 EUCs: Conduct and Use of Energy Efficiency Studies

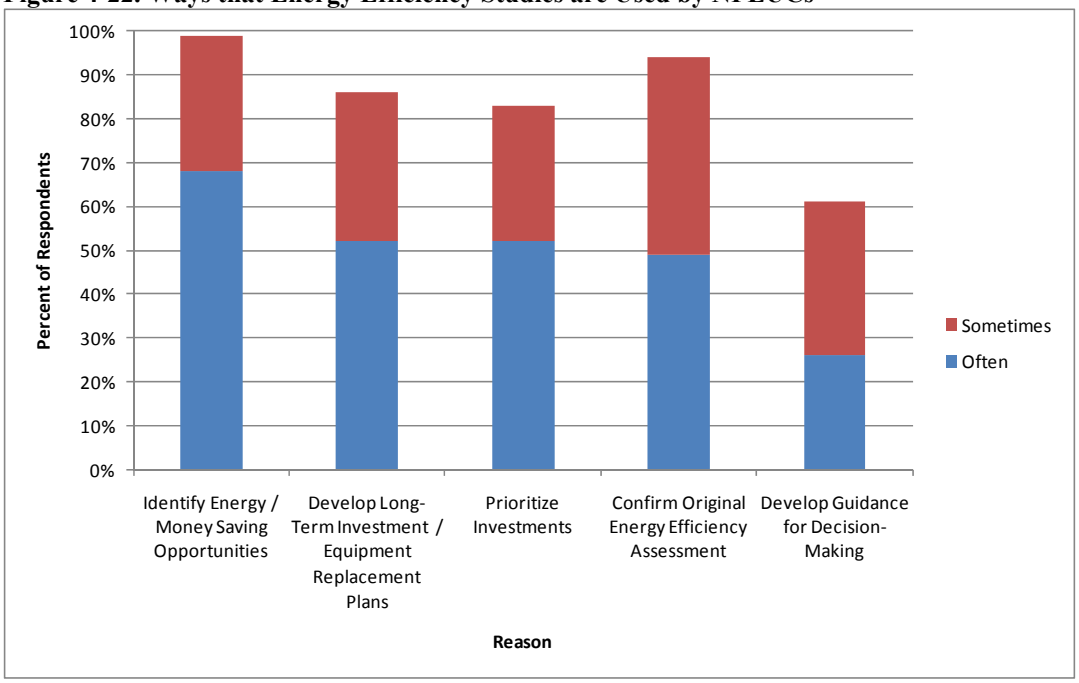
FlexTech provides a cost-sharing method for giving customers the information and a recommended plan to implement energy efficiency measures. The FlexTech Program follows the logic that arming organizational decision-makers with knowledge about energy efficiency measures will enable them to more quickly and easily make go/no-go decisions regarding subsequent implementation of the measures.

The survey examined the ways in which energy efficiency studies are conducted and used by NPEUCs and examined the impact of these studies on the organizations that have used them. FlexTech participants were asked to consider all of the FlexTech studies that their organization had participated in over the past five years and were questioned on the ways in which the results of energy efficiency studies were used. Organizations that have received the results and implemented measures were also questioned on the impact of these studies.

Reasons for Conducting Energy Efficiency Studies

Among NPEUCs who conduct energy efficiency studies on a regular basis, most reported that financial factors played a role in the importance of the energy efficiency studies, a similar trend seen in the decision-making process for capital improvements and in barriers to incorporating energy efficiency into capital improvement projects. Roughly two thirds (68%) of NPEUCs who conduct energy efficiency studies said that they often used these studies to identify energy or money saving opportunities (Figure 4-22). Half (52%) often used the studies to develop long-term capital investment or replacement plans or to prioritize investments. Forty-nine percent often used the studies to verify or confirm their original assessments about energy savings, and fewer (26%) used the studies to develop new guidance for decision-making.

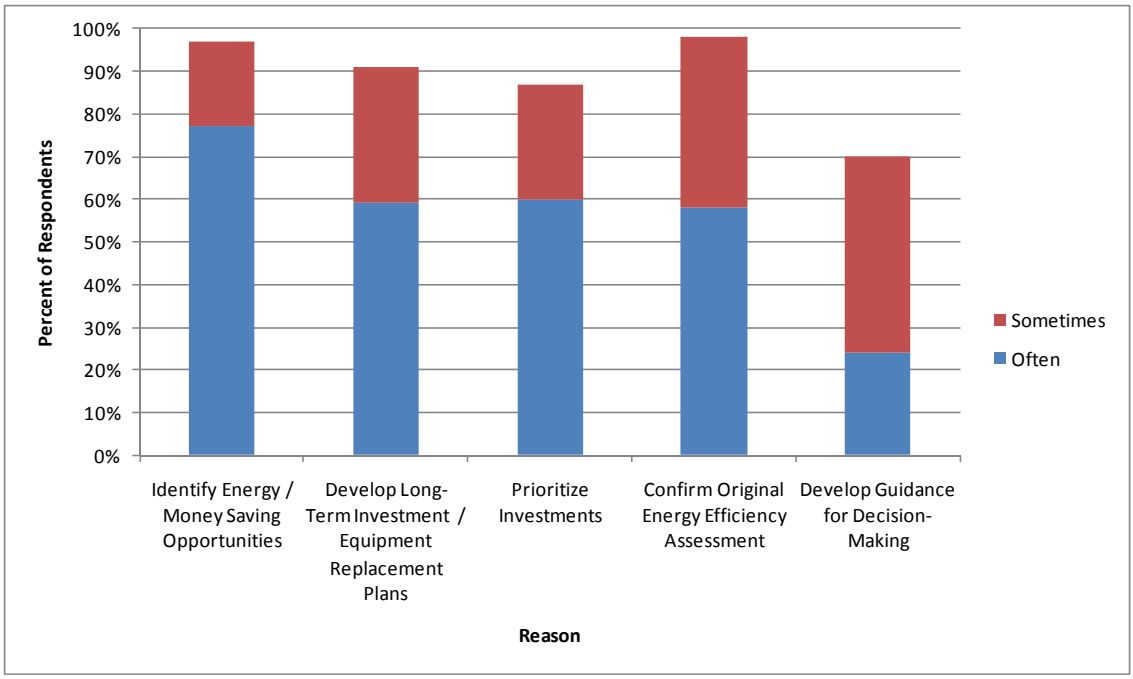
Figure 4-22. Ways that Energy Efficiency Studies are Used by NPEUCs



Source: MCA data collection; n=65 for NPEUCs.
Note: Base is NPEUCs who conduct studies on a regular basis.
* Difference is statistically significant at the 95% confidence interval.

Similarly, among PEUCs who have received the results of energy efficiency studies (n=99), most reported that results were used to inform a variety of financial factors related to the organization (Figure 4-23). Roughly three quarters (77%) of PEUCs who have used energy feasibility study results said that they often used these studies to identify energy or money saving opportunities. Six in ten (60%) often used the results to prioritize investments or to develop long-term capital investment or replacement plans. More than half (58%) of PEUCs often used results to verify or confirm their original assessments about energy savings, and fewer (24%) used the studies to develop new guidance for decision-making.

Figure 4-23. Ways that Energy Efficiency Studies are Used by PEUCs



Source: MCA data collection; n=99 for PEUCs.
Note: Base is PEUCs who have received FlexTech study results.
* Difference is statistically significant at the 95% confidence interval.

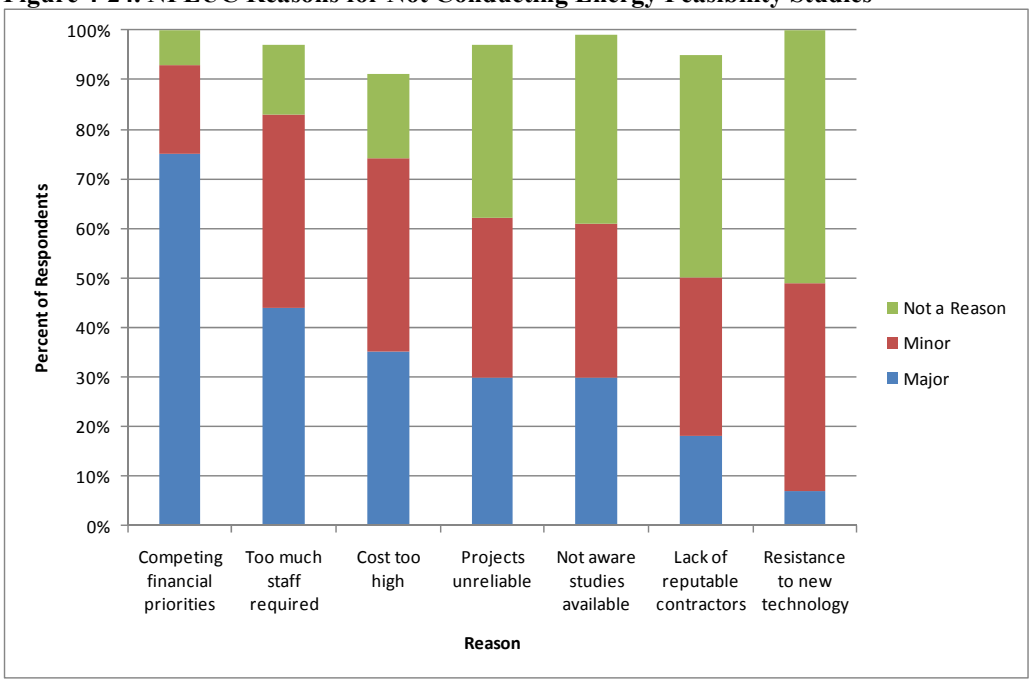
In general, PEUCs were more likely to say study results were often used for each of these purposes, although the differences are not statistically significant. In particular, participants were slightly more likely (though not significantly so) than non-participants to say that they used results to identify energy or money saving opportunities (77% vs. 68%) and to verify or confirm their original energy efficiency assessment (58% vs. 49%).

EUCs: Reasons for Not Conducting Energy Efficiency Studies

NPEUCs who reported that they did not conduct energy feasibility studies on a regular basis (51% of the total sample) were asked about the reasons for not conducting these studies. The most important barrier cited was financial – three quarters (75%) indicated it is because of competing financial priorities (**Error! Reference source not found.**).

Two categories that stand out as less significant are "Lack of Reputable TSPs" and "Resistance to New Technology." Fewer than 2 in 10 (18%) of NPEUCs replied that lack of reputable TSPs was a major reason for not conducting these types of studies and less than 10% of NPEUCs indicated that resistance to new technology was a major reason for not conducting energy efficiency studies.

Figure 4-24. NPEUC Reasons for Not Conducting Energy Feasibility Studies



Source: MCA data collection; n=71 for NPEUCs.
Note: Base is NPEUCs who do not conduct studies on a regular basis.
* Difference is statistically significant at the 95% confidence interval.

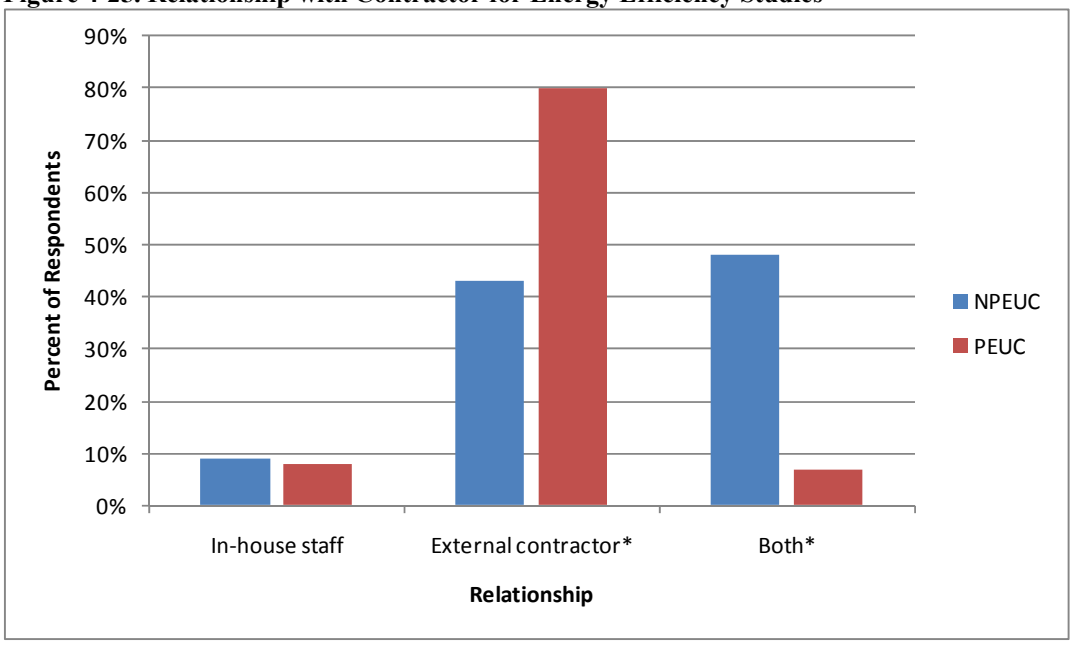
Participating customers who had not implemented any recommended changes and had no plans to do so (n=5) were asked for the reasons why they might not implement the recommended changes. Four of the five customers cited "Not enough capital to implement the recommended changes" as a major reason for not implementing changes, while three out of five also said that "competing demands for capital" and "the estimated payback period was too high" were major reasons.

EUCs: Conduct of Energy Efficiency Studies

The relationship between end-use customers and energy efficiency product and service contractors was examined in the survey slightly differently for participants and non-participants. Non-participants who indicated they conduct energy efficiency studies on a regular basis were asked about their relationship with the contractor. Participants were asked about their relationship in two different ways. First, all participants were asked about the type of contractors they used to complete their FlexTech studies, then later in the survey, participants who indicated that they had implemented measures recommended by FlexTech studies were asked about the contractor they used to implement those changes. Additionally, participants who had not implemented any measures but had plans to do so were also asked about the contractor they planned to use to implement those changes. Both participants and non-participants were asked to describe their relationship with the contractor as long-term or project-specific relationships.

PEUCs were most likely to use external contractors to conduct energy feasibility studies (80%) (Figure 4-25). Few used either a combination of in-house and external staff (7%) or in-house staff only (8%). In contrast, NPEUCs were fairly evenly split between those who used an external contractor to conduct the studies (43%) and those who used both in-house staff and external contractors (48%).

Figure 4-25. Relationship with Contractor for Energy Efficiency Studies



Source: MCA data collection; n=65 for NPEUCs and 140 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

When NPEUCs who used external contractors were asked to describe their relationship with the contractors conducting these studies, 58% reported making this decision on a project-specific basis, selecting the contractor by word of mouth or by marketing efforts, while 42% reported having a long-term relationship in place with a contractor and energy efficiency was just one service offered by the contractor.

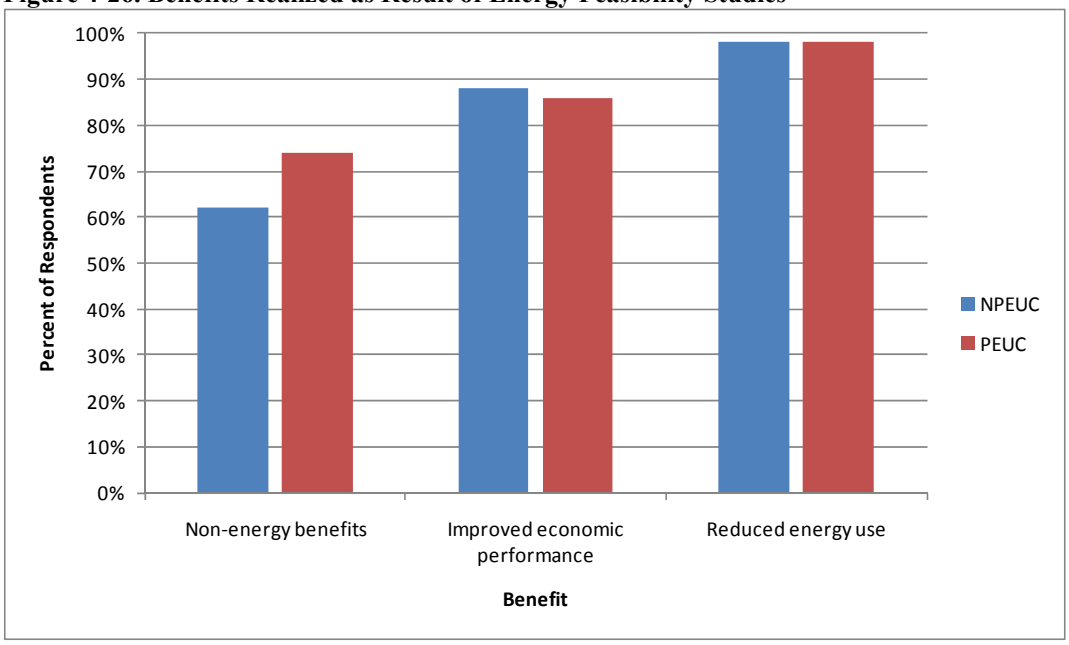
Eighty-five percent of PEUCs who used an external contractor used a NYSERDA certified FlexTech consultant. Customers using a NYSERDA certified contractor (n=104) were split as to whether they worked with the contractor before participating in FlexTech (46%) or not (51%).

Among PEUCs who did not use a certified FlexTech consultant (n=18), 28% reported making this decision on a project-specific basis, selecting the contractor by word of mouth or by marketing efforts, while 61% reported having a long-term relationship in place with a contractor and energy efficiency was just one service offered by the contractor.

EUCs: Implementation and Benefits of Studies

Among NPEUCs who conduct energy feasibility studies on a regular basis (n=65), a large majority (80%) have realized benefits as a result of conducting these studies. Among those who have realized benefits, the most common benefits cited were reduced energy use (98%), improved economic performance (88%), and non-energy benefits (62%) (Figure 4-26).

Figure 4-26. Benefits Realized as Result of Energy Feasibility Studies



Source: MCA data collection; n=52 for NPEUCs and 57 for PEUCs.
Note: Base is all customers who realized benefits.
* Difference is statistically significant at the 95% confidence interval.

Among PEUCs who have implemented changes, a large majority (86%) has realized benefits as a result of these changes, and the benefits realized from energy feasibility studies or implemented measures were similar for participants and non-participants. Among participants who have realized benefits, the most common benefits cited were reduced energy use (98%), improved economic performance (86%), and non-energy benefits (74%).

Participating customers were asked whether or not they implemented any of the changes that were recommended in the FlexTech studies they conducted. Two thirds (67%) of participating customers have implemented at least some recommended changes while 29% have not yet implemented any of the changes. Among those who have implemented changes (n=66), slightly more than half (55%) used a different contractor to implement changes than they used to complete the study, 30% used the same contractor, and 14% report using both strategies across different projects.

Participants who have not implemented any measures but have plans to do so (n=24) expressed uncertainty as to the contractor they planned to use for this work. Nearly four in ten (38%) said they do not know if they will use the same or a different contractor to implement changes. One third (33%) planned to use the same contractor, one quarter (25%) intended to use a different contractor, and 4% said they would use both strategies.

4.1.7 EUCs: Awareness of NYSERDA and Familiarity with the FlexTech Program

Nearly nine in ten (87%) NPEUCs were aware of NYSERDA, but this awareness fell considerably when they were asked about the FlexTech Program specifically. Four in ten (39%) NPEUCs were *aware* of FlexTech. Even among those NPEUCs who were familiar with NYSERDA, awareness of the FlexTech Program was still less than half (44%). Looking at the total marketplace (*i.e.*, all NPEUCs), only 6% were very familiar with FlexTech and 23% were somewhat familiar with the program. These results are consistent with previous research efforts conducted for NYSERDA by the MCA Team as well as by NYSERDA's marketing group.

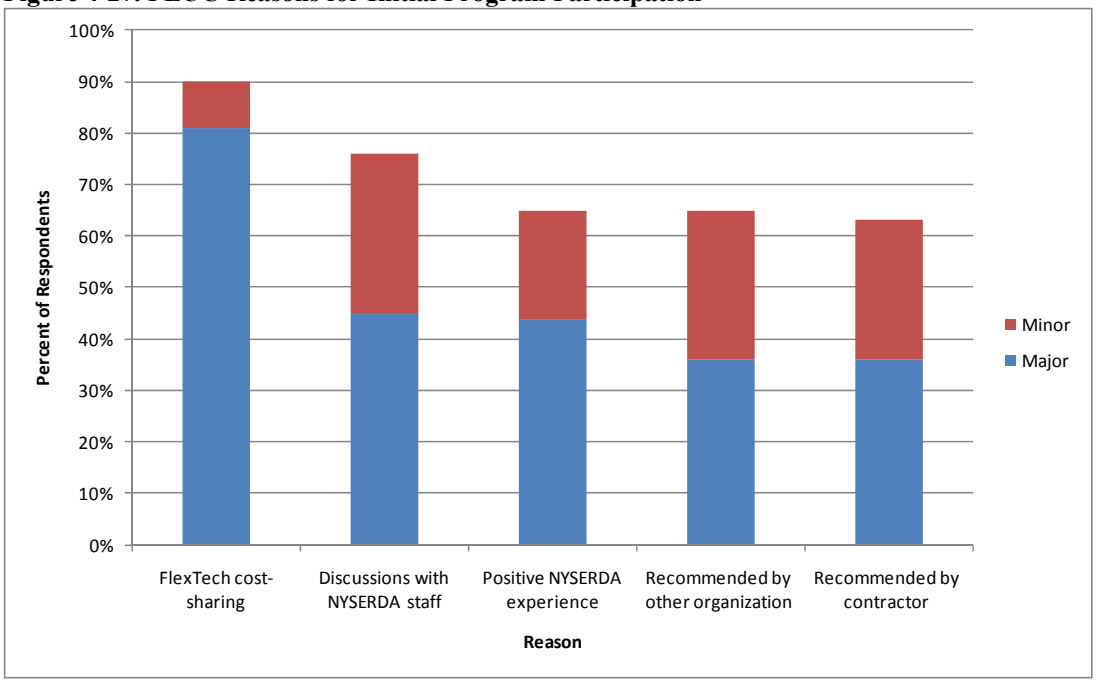
Among NPEUCs who regularly conduct energy feasibility studies (n=65), roughly half (49%) were aware of NYSERDA's FlexTech Program, 40% were not aware of the program but were aware of NYSERDA, and 11% were not aware of NYSERDA. In contrast, among those NPEUCs who do not conduct energy efficiency studies regularly (n=75), only 29% were aware of FlexTech, 56% were not aware of the program but were aware of NYSERDA, and 15% were not aware of NYSERDA.

EUCs: Reasons for FlexTech Program Participation

PEUCs first became aware of the FlexTech Program through a variety of channels including outside consultants (12%), NYSERDA (11%), and technical service providers or contractors (11%). However, NYSERDA is the most commonly mentioned source of information for program awareness when the different NYSERDA channels are combined (26% in aggregate); NYSERDA (11%), NYSERDA website (6%), other NYSERDA programs (4%), and the FlexTech Program marketing efforts (5%).

While various factors may have influenced program participation, the most important factor was the cost-sharing aspect of the program (Figure 4-27). Participants were asked to rate several different factors as to their importance as a reason to participate in the program. Eighty-one percent of PEUCs indicated that the program cost sharing was a major reason for their initial program participation, with 34% of participants indicating that this was the most influential reason.

Figure 4-27. PEUC Reasons for Initial Program Participation



Source: MCA data collection; n=140 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

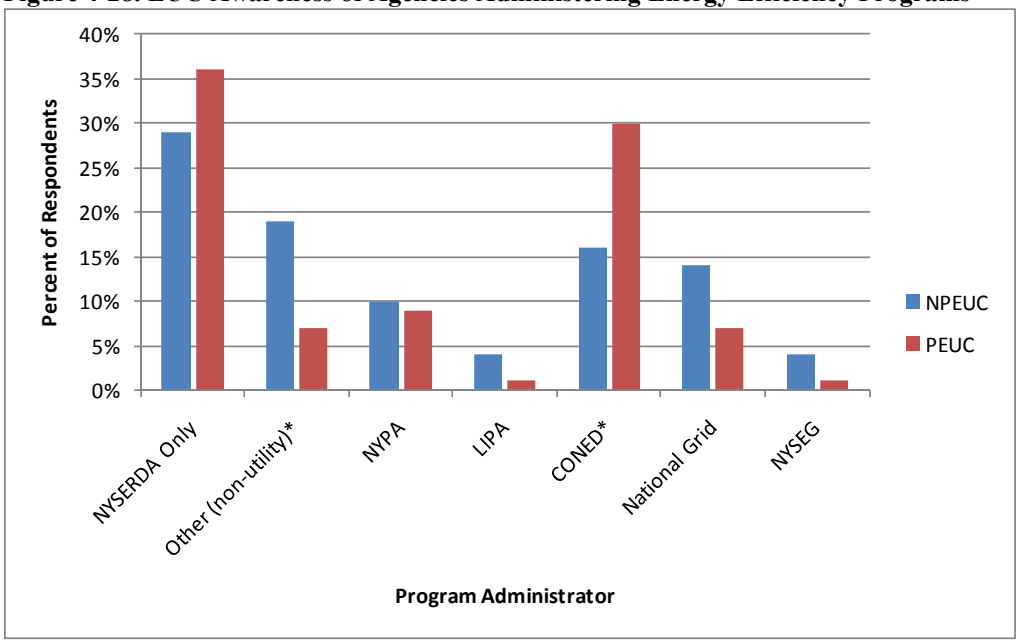
4.1.8 EUCs: Other Agencies Administering Energy Efficiency Programs

All end-use customers were asked if they are aware of other groups or agencies administering energy efficiency programs in New York, and if so, they were asked how they perceive these agencies working together in this arena. PEUCs were also asked if they had worked with any of these other groups and their views about characteristics of these groups.

Participating and non-participating EUCs did not differ in their awareness of other groups administering programs in New York. Half of participants (52%) and slightly less than half (45%) of non-participants were aware of other groups or agencies in NY that administer energy efficiency programs. Among participants, 36% thought NYSERDA was the only group administering these programs and 12% said they do not know (Figure 4-28). Of the groups mentioned, many were utilities and Con Edison was the most commonly mentioned (30%). Other utilities and groups other than utilities were mentioned by 10% or fewer PEUCs.

Among non-participants, three in ten (29%) thought that NYSERDA was the only group administering energy efficiency programs in the state. Of the utilities mentioned, Con Edison (16%) and National Grid (14%) were the ones mentioned most. One quarter (26%) of non-participants did not know if other groups or agencies were administering energy efficiency programs in New York.

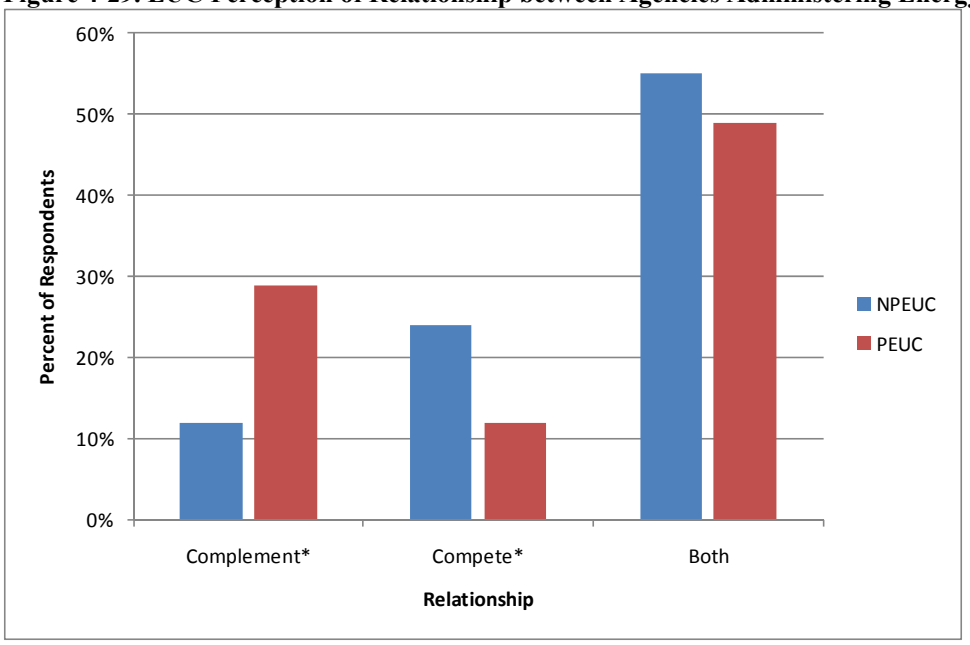
Figure 4-28. EUC Awareness of Agencies Administering Energy Efficiency Programs



Source: MCA data collection; n=140 for NPEUCs and 140 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

Perceptions of the way in which these different groups work together were examined for both participating and non-participating EUCs (Figure 4-29). In both groups, about half indicated that NYSERDA and other groups offer some programs that compete with each other and some programs that complement each other (NPEUC 55% vs. PEUC 49%). Participants tended to be more likely to feel that the different agencies complement each other (PEUC 29% vs. NPEUC12%) while non-participants tended to think they compete with each other (NPEUC 24% vs. 12% PEUC).

Figure 4-29. EUC Perception of Relationship between Agencies Administering Energy Efficiency Programs



Source: MCA data collection; n=75 for NPEUCs and 73 for PEUCs.
* Difference is statistically significant at the 95% confidence interval.

Both groups of end-use customers were asked if one of these groups does a better job than others at administering energy efficiency programs. Among participants, roughly two in ten (19%) indicated that one of these groups or agencies does a better job than others at program administration, 53% said they all do about the same and 27% could not answer the question. NYSERDA was identified as the group that does a better job than others by 93% of those who felt that one group stands out above the rest (n=14). Non-participants were more likely to say that all of these groups were about the same (72%).

Among PEUCs familiar with other groups administering these types of programs (n=73), 37% indicated they have participated in one or more of the other programs. Con Edison and National Grid were the most commonly mentioned groups. Non-participant customers were not asked this question.

4.2 TECHNICAL SERVICE PROVIDERS

To gain understanding of the technical service provider (TSP or contractor) market, the evaluation effort included surveys with participating and non-participating technical service providers. The Participating Technical Service Providers (PTSPs) are the contractors who have conducted an energy feasibility study through NYSERDA's FlexTech Program in the past five years. The Non-Participating Technical Service Providers (NPTSPs) are contractors who could be qualified to be FlexTech consultants, but have not participated in the FlexTech Program. These two groups were asked questions about the work of their firms generally and their work related to energy feasibility studies in particular. They were also asked to comment on their customers' perceptions of many aspects of the FlexTech Program. These questions were designed to characterize the contractors that participate in the FlexTech Program and to understand the market for energy feasibility studies.

4.2.1 TSPs: Firm Characterization

The participating and non-participating TSPs represented in the survey were generally similar in terms of the age of the firm and whether the firm is independent or part of a larger organization. Although PTSPs were more likely than NPTSPs to be over 50 years old (26% vs. 11%), they were less likely to be 21-49

years old (24% vs. 41%). The two groups are very similar in all other age categories. NPTSPs were slightly more likely to be independent (93% vs. 84%) but this difference was not statistically significant.

There are two statistically and substantively significant differences in the types of firms represented by participating and non-participating TSPs which should provide context for the interpretation of results presented in this section. PTSPs who responded to the survey represented larger firms and firms that have increased in size over the past five years. Thirty-five percent of PTSPs have more than 50 full time employees compared with only 13% of NPTSPs. Additionally, three quarters (74%) of PTSPs reported that their firm has increased in size over the past five years compared to 31% of NPTSPs, while NPTSPs were more likely to say their size has remained the same (39% vs. 17%) or decreased (29% vs. 7%).

PTSPs were split almost equally between certified NYSERDA consultants (53%) and independent contractors (47%).

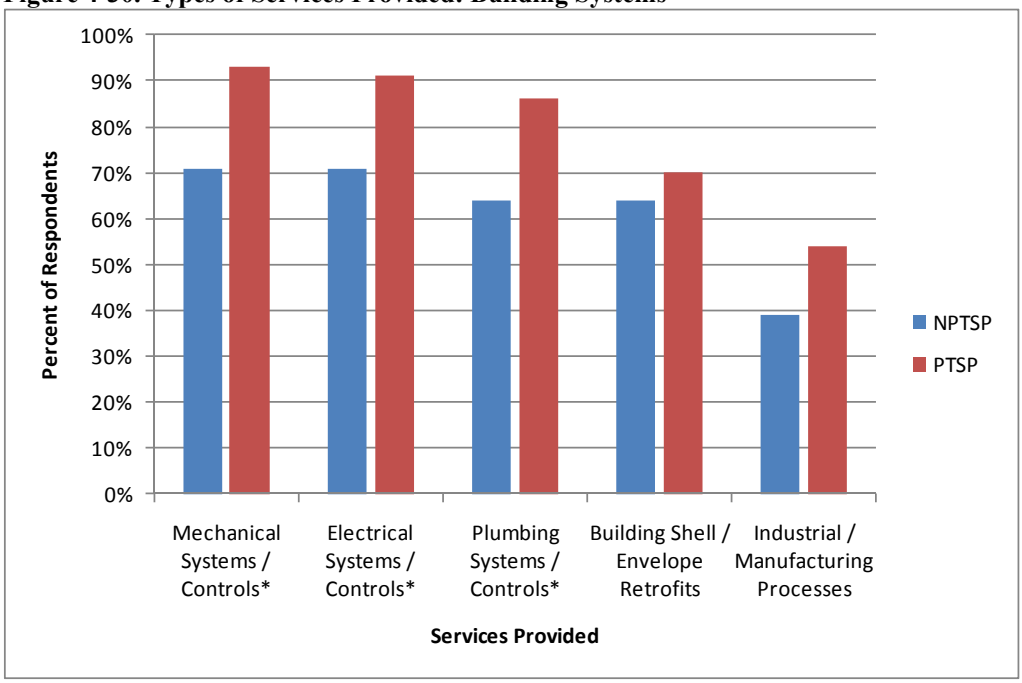
TSPs: Types of Services and Studies Provided and Business Revenue

The types of populations served and engineering services provided by these contractors were examined in order to more thoroughly characterize the TSP market and gain insight into the way in which TSPs function in the marketplace. For the most part, participating and non-participating TSPs work in the same types of buildings and in both new construction and existing facilities, but there were significant differences in the types of services they provide; PTSPs were more likely to provide services for building systems and to provide each type of energy study promoted by the FlexTech Program.

Both non-participating and participating TSPs are predominantly working in commercial and industrial buildings (92% and 94%, respectively) and industrial or manufacturing companies (79% and 83%, respectively). A large majority of contractors, both participating and non-participating, work in both new construction and existing facilities projects (87% and 84%, respectively).

Participants differ from non-participants in the types of engineering services they typically provide to their customers. Among PTSPs, roughly nine in ten provide services in mechanical systems and controls (93%), electrical systems (91%), and plumbing systems (86%) (Figure 4-30). Fewer provide services in building shell or envelope performance and retrofits (70%) and about half indicate they provide services in industrial or manufacturing processes (54%). NPTSPs were less likely to report providing these services, although the relative percentages are similar – about seven in ten non-participants reported they provide mechanical systems and controls (71%) and electrical systems. Fewer reported providing services in plumbing systems or building shell performance (64%) and just about four in ten reported they provide services in industrial or manufacturing processes (39%).

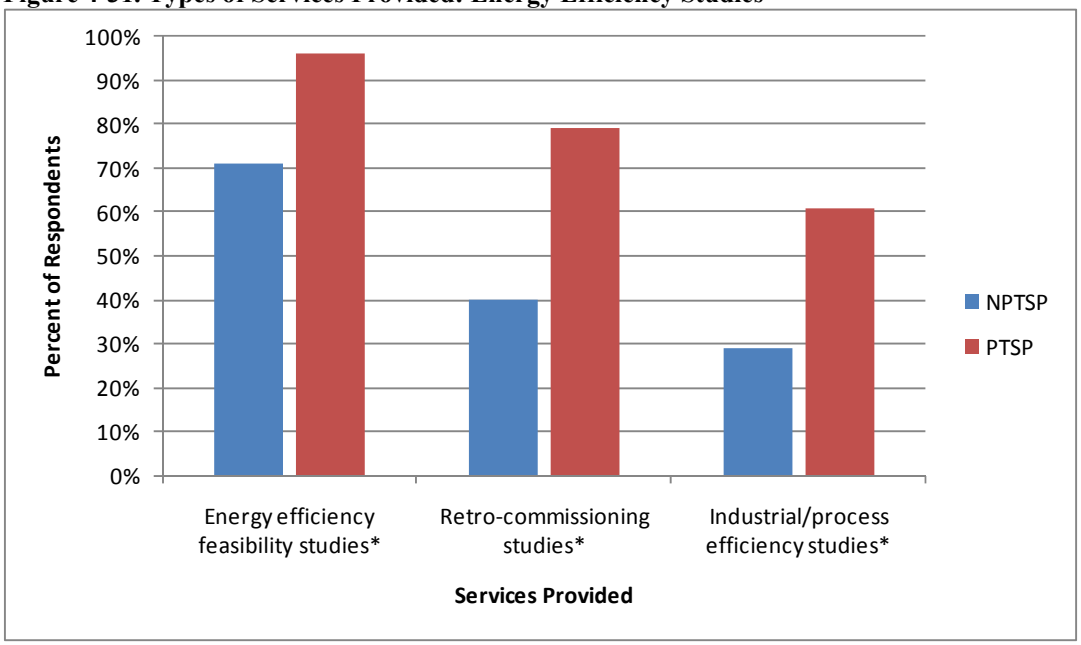
Figure 4-30. Types of Services Provided: Building Systems



Source: MCA data collection; n=140 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

PTSPs were more likely than NPTSPs to conduct all types of energy efficiency studies. Large majorities of PTSPs reported conducting engineering studies directly related to energy efficiency, procurement and generation. More than nine in ten (96%) conduct energy efficiency feasibility studies, eight in ten (79%) conduct retro-commissioning studies, and 61% conduct industrial and process efficiency studies (Figure 4-31). NPTSPs were less likely to report conducting these types of studies. Seventy-one percent conduct energy efficiency feasibility studies, but only four in ten (40%) conduct retro-commissioning studies and only three in ten (29%) conduct industrial process efficiency studies.

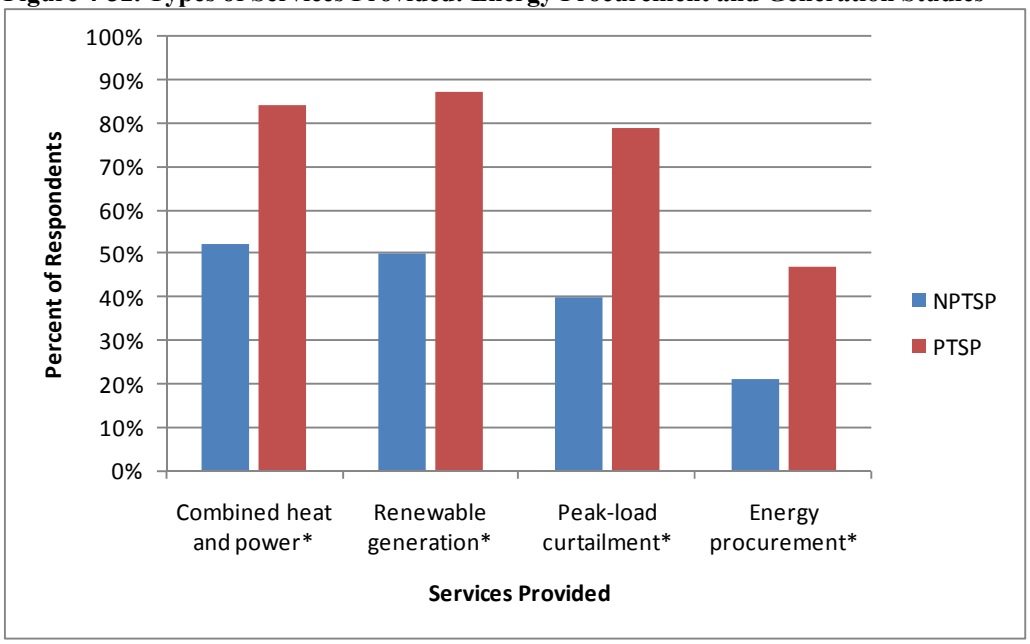
Figure 4-31. Types of Services Provided: Energy Efficiency Studies



Source: MCA data collection; n=140 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

Roughly eight in ten or more PTSPs provide renewable generation feasibility studies (87%), combined heat and power studies (84%), and peak-load curtailment studies (79%) (Figure 4-32). Only about half of PTSPs reported they conduct energy procurement studies (47%). All four of these types of studies are conducted by significantly fewer NPTSPs. About half of NPTSPs conduct combined heat and power (52%) or renewable generation studies (50%), four in ten (40%) conduct peak-load curtailment studies, and only two in ten (21%) conduct energy procurement studies.

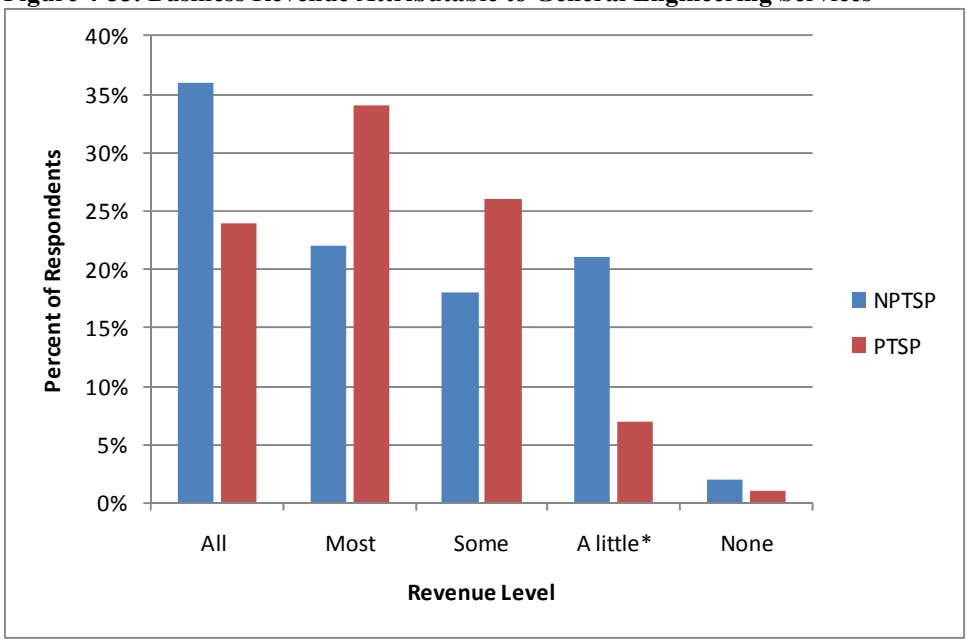
Figure 4-32. Types of Services Provided: Energy Procurement and Generation Studies



Source: MCA data collection; n=140 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

The amount of business revenue attributable to general engineering services, energy efficiency studies and energy studies reveals some notable patterns and differences between participating and non-participating TSPs. For both participating and non-participating TSPs, business revenue comes mostly from general engineering services with significantly less coming from energy efficiency studies and even less coming from energy studies (Figure 4-33 through Figure 4-35). Although this overall pattern is the same for both participating and non-participating TSPs, PTSPs were more likely than NPTSPs to report more business revenue from energy efficiency and energy studies.

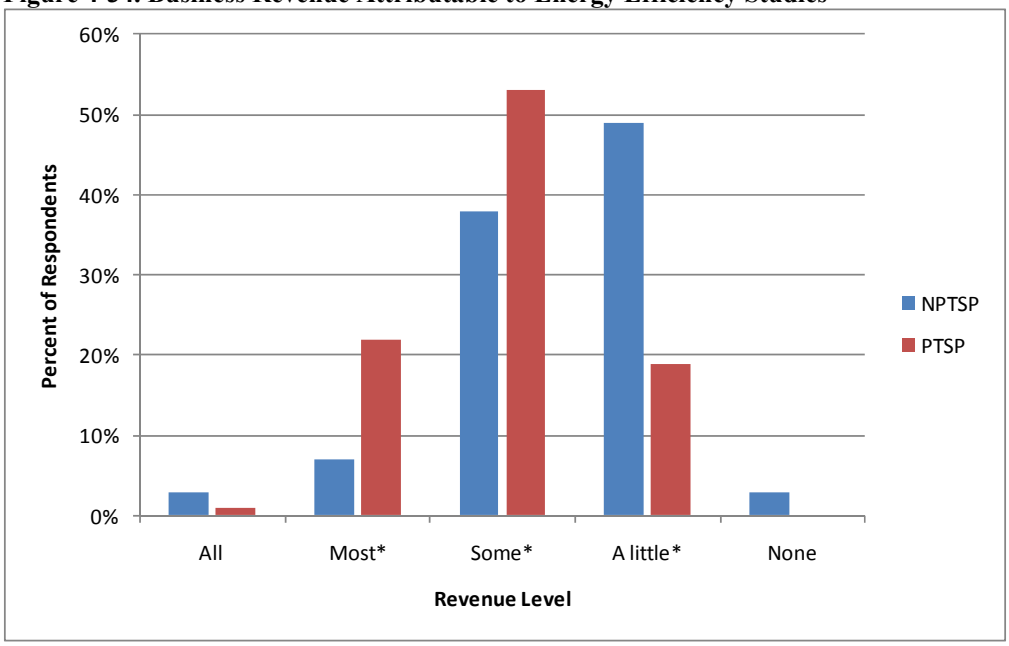
Figure 4-33. Business Revenue Attributable to General Engineering Services



Source: MCA data collection; n=140 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

Energy efficiency studies account for less business revenue than general engineering services for both participating and non-participating TSPs. Twenty-three percent of PTSPs said that all (1%) or most (22%) of their revenue comes from these studies, while only one in ten NPTSPs said that all (3%) or most (7%) of their revenue comes from energy efficiency studies (Figure 4-35).

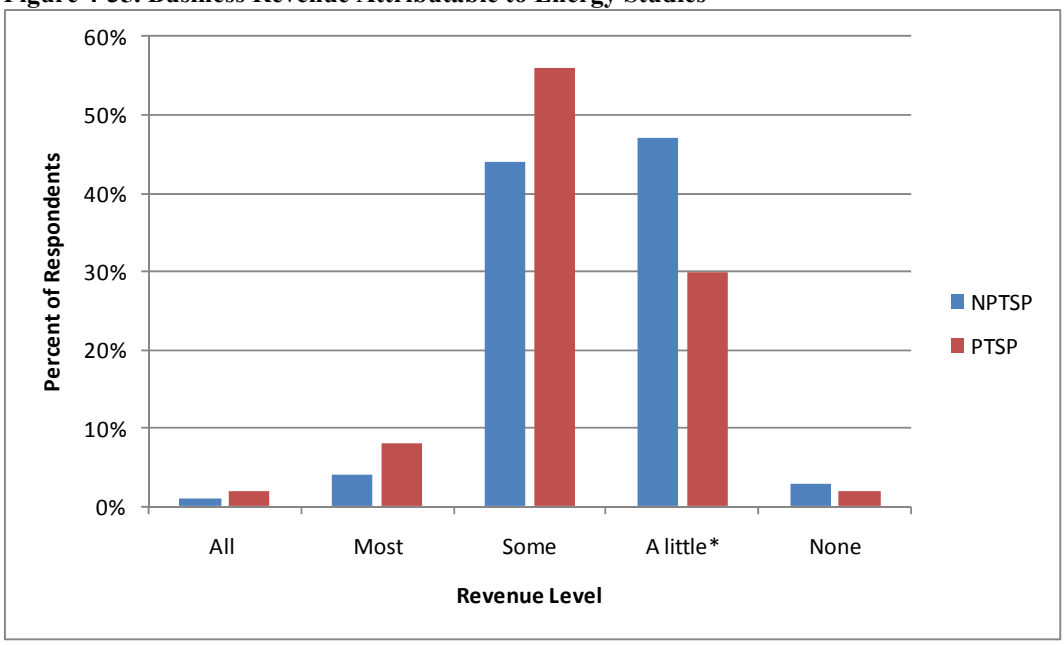
Figure 4-34. Business Revenue Attributable to Energy Efficiency Studies



Source: MCA data collection; n=101 for NPTSPs and 68 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

Even fewer TSPs indicated that they get substantial business revenue from energy studies. One in ten PTSPs said that all (2%) or most (8%) of their revenue is generated from energy studies compared to 5% of NPTSPs who said the same (all (1%) or most (4%)) (Figure 4-36).

Figure 4-35. Business Revenue Attributable to Energy Studies



Source: MCA data collection; n=94 for NPTSPs and 66 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

Contractors who do not provide energy efficiency or energy studies were asked why they don't provide these services. There were few participating contractors who do not provide these studies so sample sizes

for these questions for PTSPs are small (n=25 for energy efficiency studies and n=12 for energy studies). Generally, PTSPs who do not conduct energy studies indicated that a major reason was that they don't have the technical skills (33%). None of the other reasons presented (lack of client interest, concerns regarding profitability of conducting studies, and lack of confidence in study results) was listed as 'major' by more than 17% of PTSPs. It appears as though there is not a singular reason for the few PTSPs who do not conduct these studies.

More NPTSPs do not conduct these types of studies so sample sizes were larger. Among this group, the most frequently cited major reason for not conducting these studies was a lack of technical skill. Half of NPTSPs indicated this was a major reason they do not conduct energy studies and 35% indicated it was a major reason they don't do energy efficiency studies. Roughly half or more of NPTSPs reported that client interest, profitability of studies and confidence in results do not influence their decision to not provide these types of services.

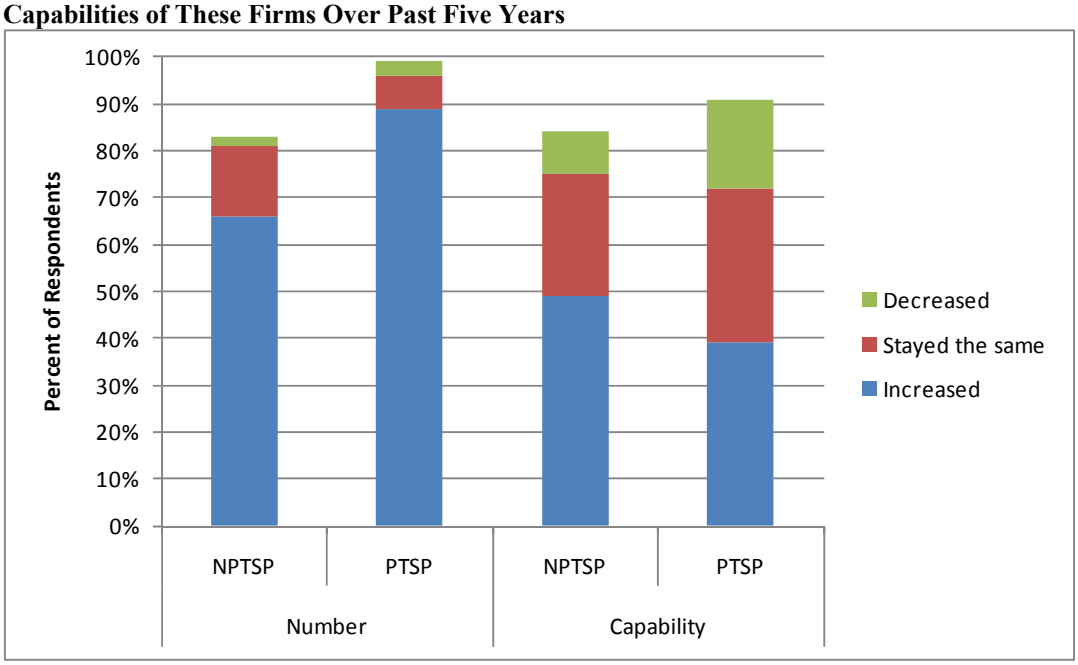
TSPs: Perception of the Market

All TSPs were asked if they felt that the number and capabilities of firms offering energy feasibility studies have increased, decreased, or remained the same over the past five years. In a similar trend to most questions about the increase or decrease of energy efficiency ideas in the past five years, most of the TSPs said that both areas have seen an increase, although a significantly larger percentage of PTSPs thought that the number of firms had increased than thought that the capabilities of these firms had increased.

Nine in ten (89%) PTSPs said the number of firms doing energy feasibility studies had increased in the past five years but just four in ten (39%) thought the technical capabilities of these firms had increased (Figure 4-36). Indeed, roughly two in ten thought the technical capabilities of these firms had decreased over the past five years and one third thought it had remained unchanged.

Among NPTSPs, two thirds (66%) thought the number of firms had increased, 15% thought the number had stayed the same, and 16% could not answer the question. With respect to the capabilities of these firms, half (49%) of the NPTSPs thought the capabilities of firms providing these services had increased in the past five years and one quarter (26%) thought the capabilities had stayed the same. Again, 16% said they don't know.

Figure 4-36. TSP Perception of Number of Firms Furnishing Energy Feasibility Studies and Technical Capabilities of These Firms Over Past Five Years

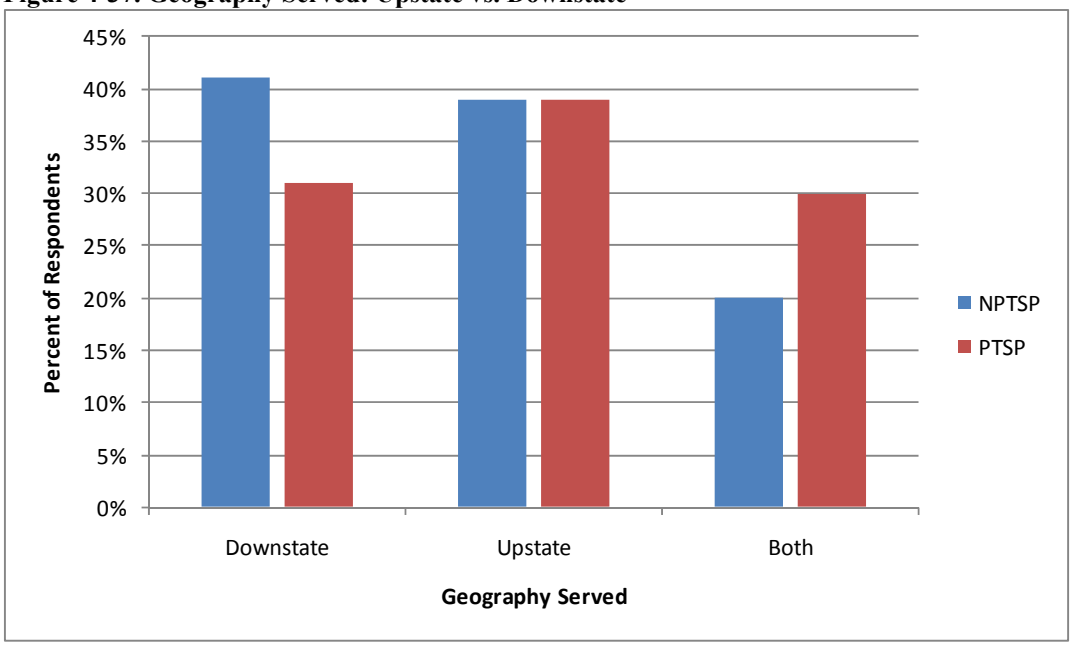


Source: MCA data collection; n=140 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

4.2.2 Characterization of Customers Served by TSPs

The customers served by participating and non-participating TSPs are fairly similar in terms of their location in the state. Roughly four in ten PTSPs and NPTSPs reported that they serve upstate customers only (Figure 4-37). Among NPTSPs, 41% serve downstate only and 20% serve both areas. Participating TSPs were equally likely to serve downstate only (31%) and both up and downstate customers (30%).

Figure 4-37. Geography Served: Upstate vs. Downstate

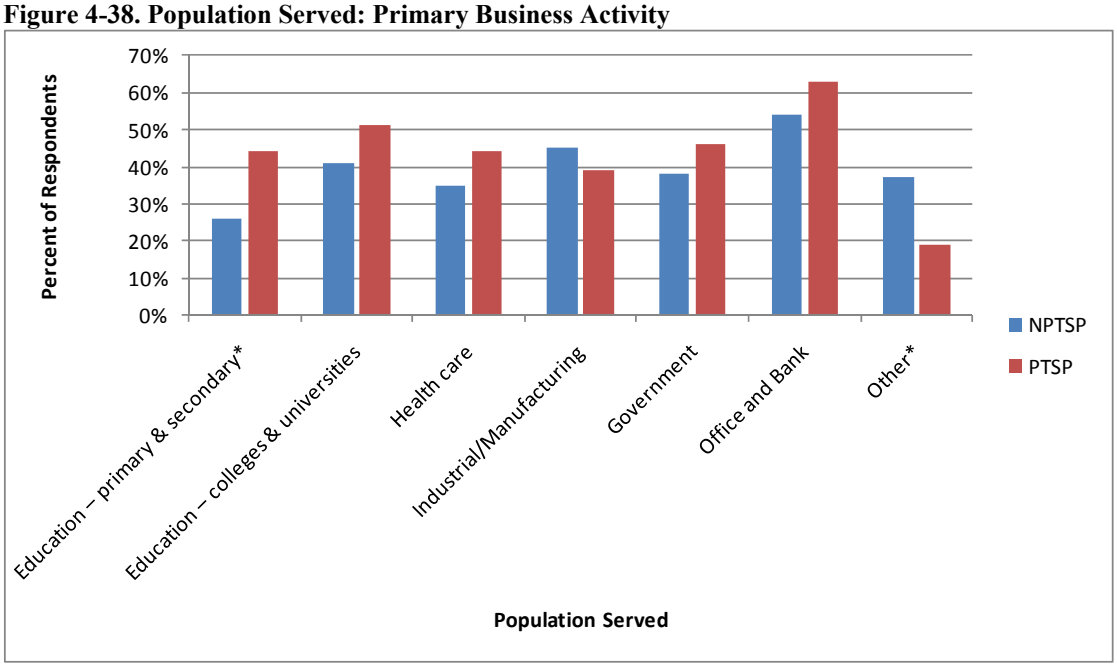


Source: MCA data collection; n=140 for NPTSPs and 70 for PTSPs.

* Difference is statistically significant at the 95% confidence interval.

In contrast to the similarity in customer location, there are marked differences in the primary business activity of participating and non-participating TSPs' customers. Both participating and non-participating TSPs serve customers across a variety of market sectors (Figure 4-38). Roughly six in ten PTSPs serve customers in office and bank buildings (63%), about half in government (46%) or colleges/universities (51%), and four in ten in schools (44%) or health care (44%) settings. Fewer (39%) provide services to customers in industrial/manufacturing. Among NPTSPs about half serve office and bank buildings (54%), four in ten provide services to industrial and manufacturing customers (45%), colleges/universities (41%), or government (38%), and 35% provide services in health care settings.

Figure 4-38. Population Served: Primary Business Activity



Source: MCA data collection; n=140 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.
Note: Multiple responses allowed.

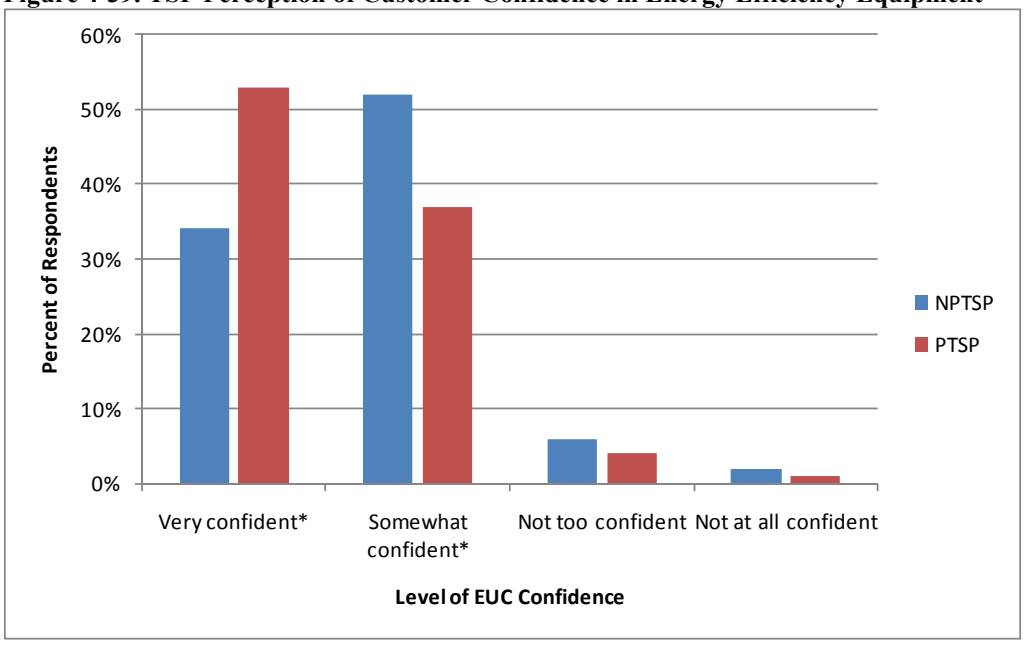
4.2.3 TSP Perceptions of Customer Awareness and Knowledge of Energy Efficiency Measures

TSP perceptions of their customers' awareness and knowledge of energy efficiency measures were examined to gain understanding of the market for energy efficiency from a different perspective. TSPs were asked about their customers' perceptions of energy efficiency measures as well as their confidence in the measures.

TSPs: Perception of Energy Efficiency Equipment Performance

In general, TSPs reported fairly high customer confidence in the performance of energy efficient equipment, with PTSPs reporting greater customer confidence than NPTSPs (Figure 4-39). Half (53%) of PTSPs said their customers were very confident that high efficiency equipment will perform better than standard equipment and an additional 37% said their customers were somewhat confident. Among NPTSPs, the percentages were almost reversed with 35% saying their customers were very confident and 52% saying their customers were somewhat confident.

Figure 4-39. TSP Perception of Customer Confidence in Energy Efficiency Equipment



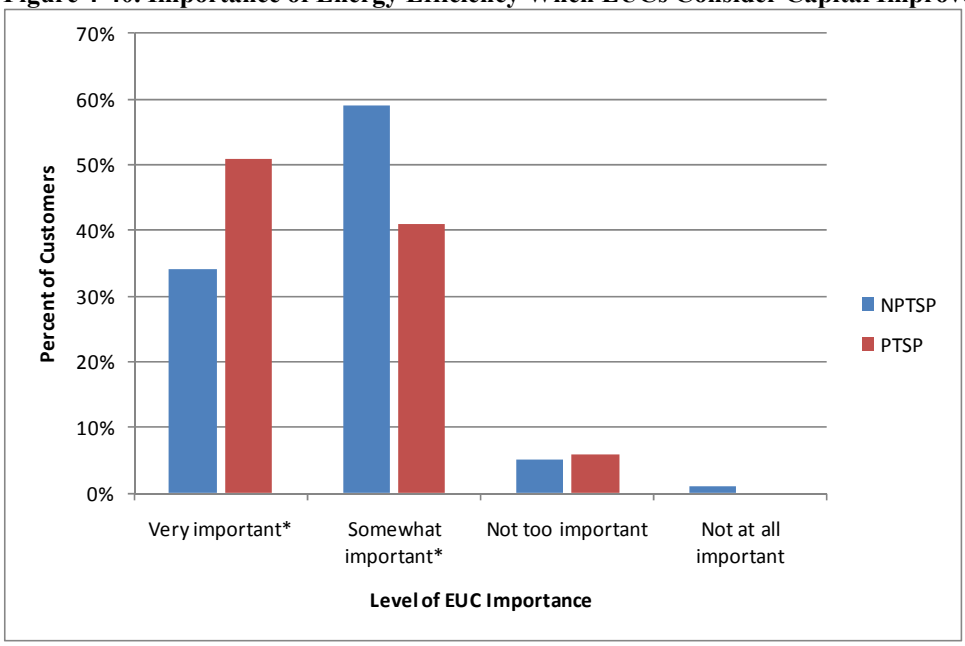
Source: MCA data collection; n=140 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

TSPs: General Importance of Energy Efficiency to Customers

TSPs believe that energy efficiency is important to their customers and that it has become more so over the past five years. They also reported that they present energy efficient options to their customers. There are some differences in TSP views between participating and non-participating TSPs, however.

Half (51%) of PTSPs said energy efficiency opportunities were very important to their customers and 41% said these opportunities were somewhat important (Figure 4-40). Among NPTSPs, fewer thought energy efficiency options were very important to their customers; 34% said it was very important and 59% rated energy efficiency as somewhat important when considering capital improvement projects.

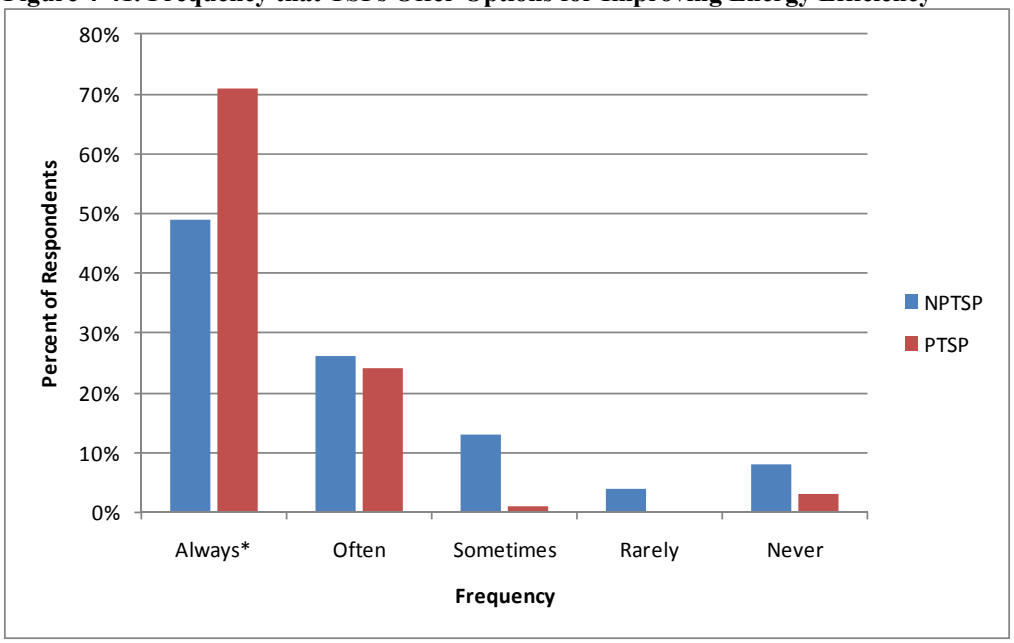
Figure 4-40. Importance of Energy Efficiency When EUCs Consider Capital Improvement Projects



Source: MCA data collection; n=140 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

There is agreement among all contractors, however, that the level of importance of energy efficiency has increased over the past five years. Eighty-four percent of PTSPs and 75% of NPTSPs said the level of importance had increased among their customers during this timeframe (Figure 4-41). Seven in ten (71%) PTSPs said they always offered their clients options for improving energy efficiency. This is a significantly significant difference from the 49% of NPTSPs who reported they always offer their clients these options.

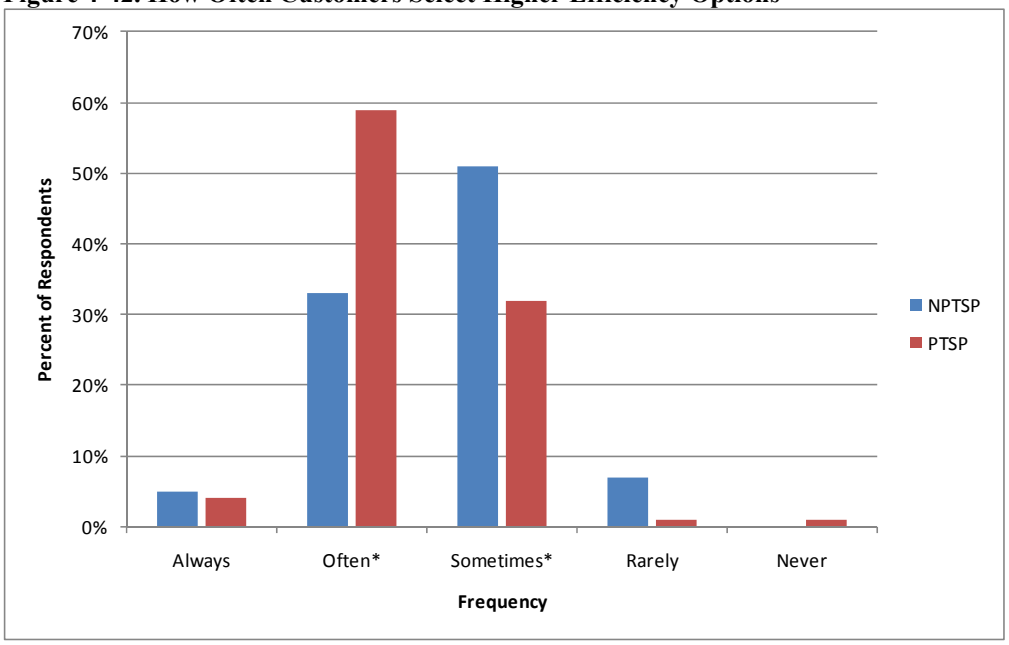
Figure 4-41. Frequency that TSPs Offer Options for Improving Energy Efficiency



Source: MCA data collection; n=140 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

Among those TSPs who offer their clients options for improving energy efficiency, the general view was that clients often or sometimes select these options. Participants were more likely than non-participants to indicate that their clients often selected the higher efficiency options (59% vs. 33%) (Figure 4-42). Half of NPTSPs said their clients selected higher efficiency options only sometimes (51%) compared with 32% of participating TSPs.

Figure 4-42. How Often Customers Select Higher Efficiency Options



Source: MCA data collection; n=123 for NPTSPs and 68 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

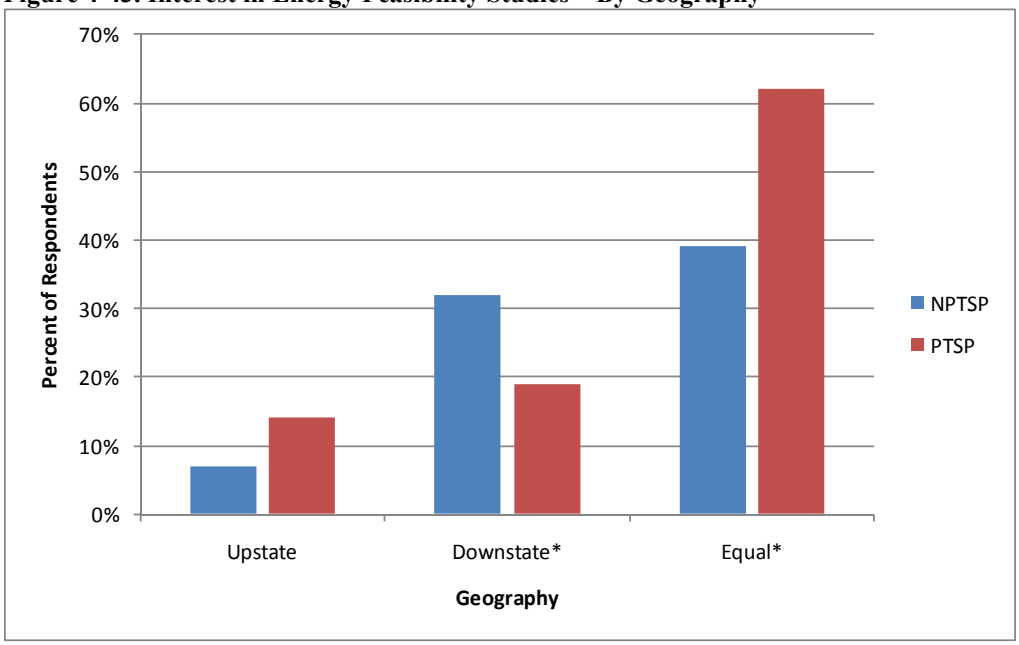
4.2.4 TSPs: Customer Interest in FlexTech Studies

Understanding which types of customers have particular interest in energy feasibility studies will be valuable for targeting FlexTech marketing efforts to high value customers. Toward this end, TSP perceptions of which clients are most interested in energy feasibility studies were examined. Both TSP groups were asked whether customer interest in these studies differs by geographic areas of the state or by customer market sectors.

PTSPs who serve both upstate and downstate areas were more likely than NPTSPs who serve both areas to feel that customer interest was about the same in the two areas (62% vs. 39%) and were less likely to perceive downstate customers as more interested (19% vs. 32%) (Figure 4-43). Neither TSP group viewed upstate customers as most interested in energy feasibility studies.[65]

[65] Note: The sample sizes for these questions are small so caution should be used in interpreting these results.

Figure 4-43. Interest in Energy Feasibility Studies – By Geography



Source: MCA data collection; n=28 for NPTSPs and 21 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

Interest in energy feasibility studies varies somewhat by market sector, and participating and non-participating TSPs held somewhat different perceptions of customer interest by market sector.

Among PTSPs who serve each sector, the largest percentages indicated that colleges and universities (76%), health care facilities (69%), government facilities (64%), and pre-kindergarten through 12 schools (62%) were very interested in these studies. Smaller percentages of PTSPs who serve each sector indicated that industrial processing and manufacturing (41%) and commercial real estate (37%) were very interested in energy feasibility studies.

Among NPTSPs who serve each sector, the pattern is somewhat similar, but overall NPTSPs tended to be less likely to indicate strong interest in these studies among their customers. Nevertheless, 71% of NPTSPs who serve the college and university sector indicated that these customers were very interested in these studies. More than half of those who serve each sector indicated that government (59%) and health care facility (55%) customers were very interested in these studies, and 50% of those who work with industrial processing and manufacturing customers said they were very interested.

Schools and commercial real estate customers were viewed by the NPTSPs who work with them as less likely than other types of customers to be interested in energy feasibility studies – 32% of NPTSPs who work with them say their school customers were very interested and 43% of NPTSPs who work with commercial real estate customers say they were very interested.

For each of these markets, participating contractors were asked about the influence of the FlexTech Program on customer interest in energy feasibility studies and nearly two-thirds (64%) believed that the program was a major influence. The biggest influence they perceived among the different market sector customers was for colleges and universities; seven in ten (70%) PTSPs believed that the FlexTech Program had been a big influence on customers in this market. Six in ten (62%) said that the program had been a big influence on health care facilities, and half saw a big influence of the program on government (53%), primary and secondary schools (53%), and commercial real estate (50%). Fewer participating

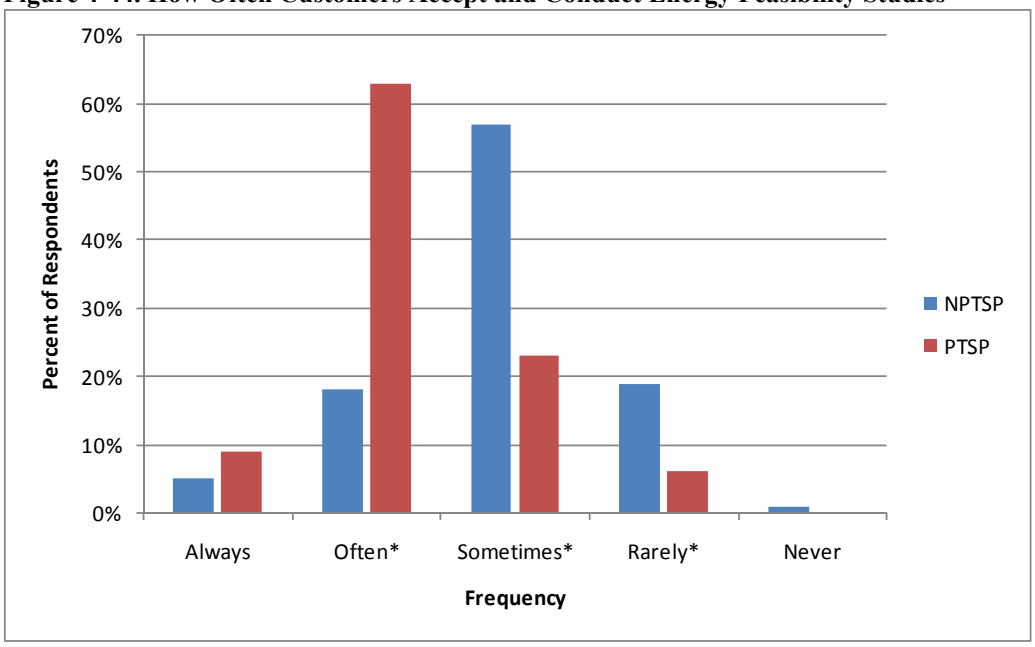
contractors saw a program influence on customer interest in these studies in the industrial processing and manufacturing sector (37%).[66]

TSPs: Customer Interest in Energy Feasibility Studies

In addition to perceptions of customers' general interest in energy feasibility studies, both groups of TSPs were also asked more specifically about their customers who conduct these studies and about implementation of measures from the studies. Not surprisingly, there were significant differences between participating and non-participating TSPs in their reports of customer behavior.

A majority of PTSPs indicated that, when offered, their customers accept and conduct an energy feasibility study (Figure 4-44). Nearly three quarters of PTSPs indicated that their customers always (9%) or often (63%) decided to conduct the study when it is offered. In contrast, more than half (57%) of NPTSPs said that their customers only sometimes conduct studies and two in ten say they rarely (19%) or never (1%) do.

Figure 4-44. How Often Customers Accept and Conduct Energy Feasibility Studies



Source: MCA data collection; n=83 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

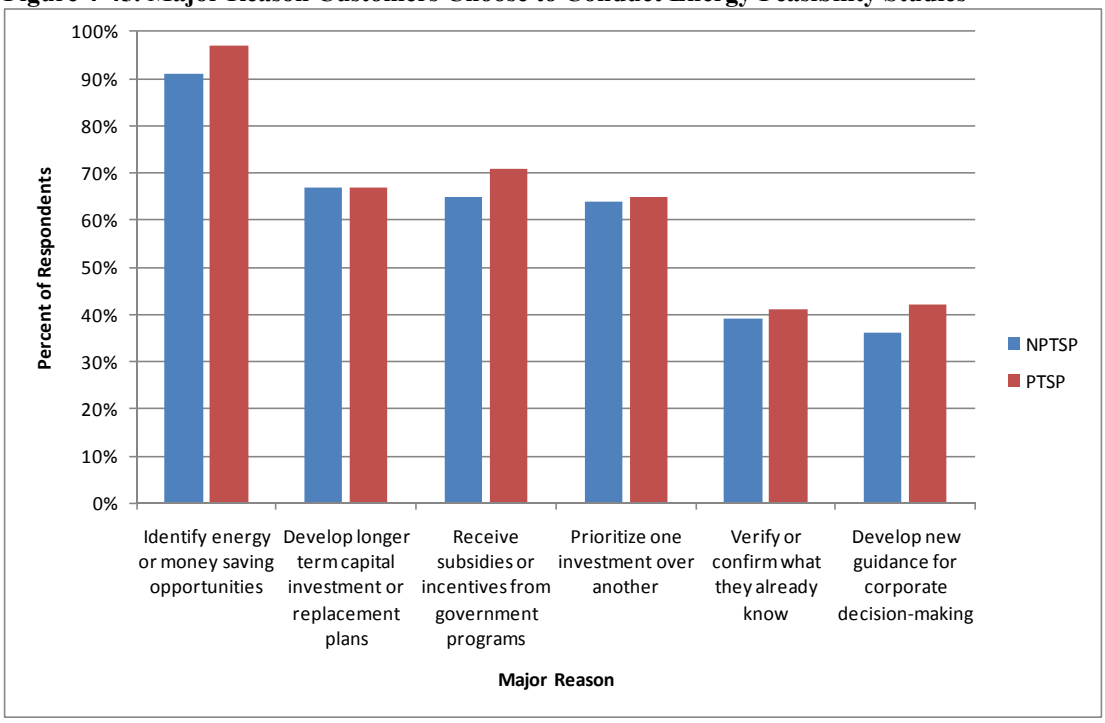
TSPs: Reasons for Customers to Conduct Studies

With respect to the reasoning behind customers' decisions to conduct energy feasibility studies, TSPs were asked to rate several reasons as major, minor, or not a reason. In a similar vein to the customers' responses, many of the TSPs cited financial reasons as the major criteria for conducting these studies. Participating and non-participating TSPs did not differ in their views about the reasons customers have for conducting these studies.

[66] The sample sizes for these questions are small, ranging from 27 to 33, so caution should be used when interpreting these results.

Nearly all TSPs, both participating and non-participating, indicated that identifying money/energy saving opportunities was a major reason their customers conduct these types of studies (Figure 4-45). Roughly seven in ten said major reasons customers do these studies were to get subsidies or incentives, to develop a long term capital investment or equipment replacement plan, or to prioritize one investment over another. Less important reasons for customers were to confirm what they already know or to develop guidance for corporate decision-making.

Figure 4-45. Major Reason Customers Choose to Conduct Energy Feasibility Studies

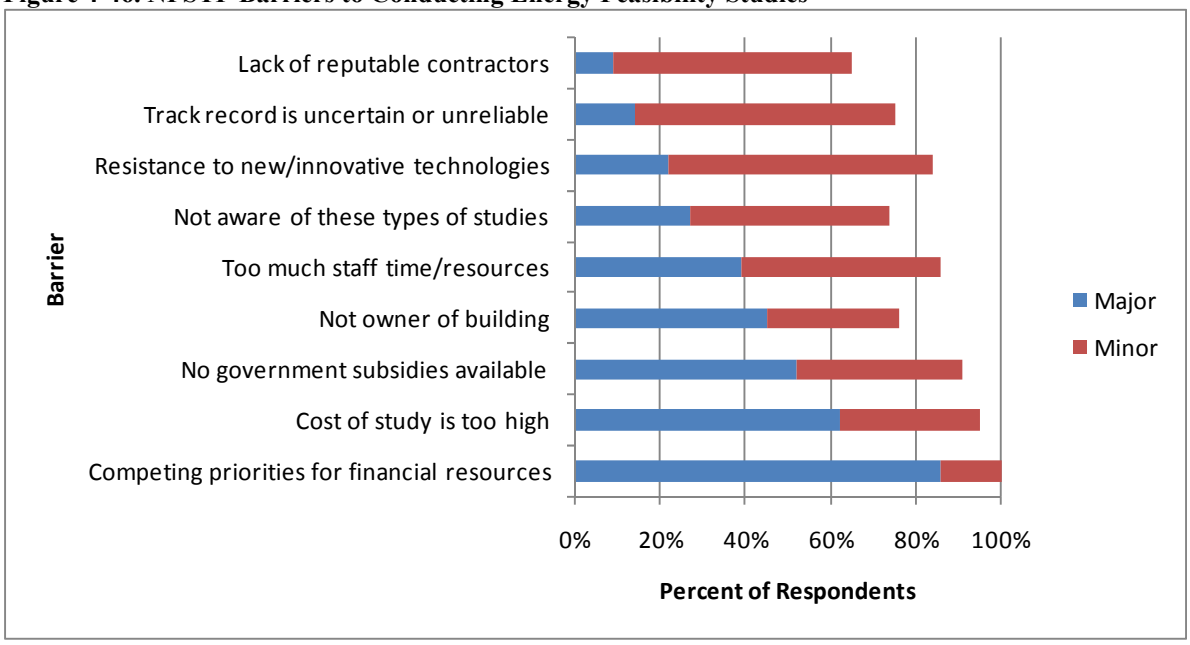


Source: MCA data collection; n=66 for NPTSPs and 66 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

TSPs: Barriers to Conducting Energy Feasibility Studies

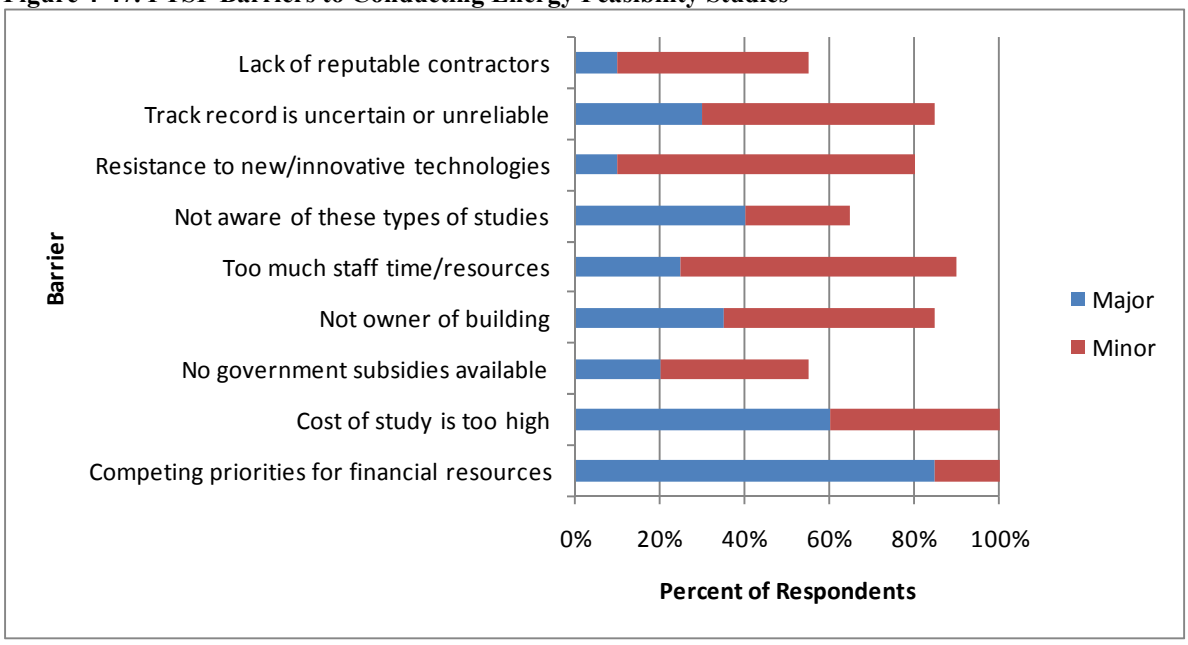
Perceptions about the barriers customers face in decisions to conduct energy feasibility studies differ somewhat between participating and non-participating TSPs. While both groups viewed cost and financial issues as major barriers for their customers, there were differences on other barriers (Figure 4-46 and Figure 4-47). NPTSPs were more likely than PTSPs to say that lack of government subsidies was a barrier (52% vs. 20%). Differences that were large but not statistically significant included not being the building owner and lack of awareness of these studies. Interestingly, the lack of reputable TSPs was viewed similarly by both groups as a minor or non-existent barrier.

Figure 4-46. NPSTP Barriers to Conducting Energy Feasibility Studies



Source: MCA data collection; n=64.
Note: Base is NPTSPs that conduct energy feasibility studies on a regular basis.
* Difference is statistically significant at the 95% confidence interval.

Figure 4-47. PTSP Barriers to Conducting Energy Feasibility Studies



Source: MCA data collection; n=70.
* Difference is statistically significant at the 95% confidence interval.

Non-participants perceived cost issues as major barriers for their customers (Figure 4-48). Eighty-six percent said competing financial priorities were a major barrier and 62% said that the cost of the study was a major barrier. About half (52%) thought that a lack of government subsidies was a major barrier for their customers. NPTSPs were somewhat divided in their perceptions of how much of a barrier lack of

awareness, not being a building owner, and staff time and resources were for their customers. Resistance to new technology and an unreliable track record were both viewed as minor barriers, and lack of reputable TSPs was viewed as a minor barrier (56%) or not a barrier at all (34%).

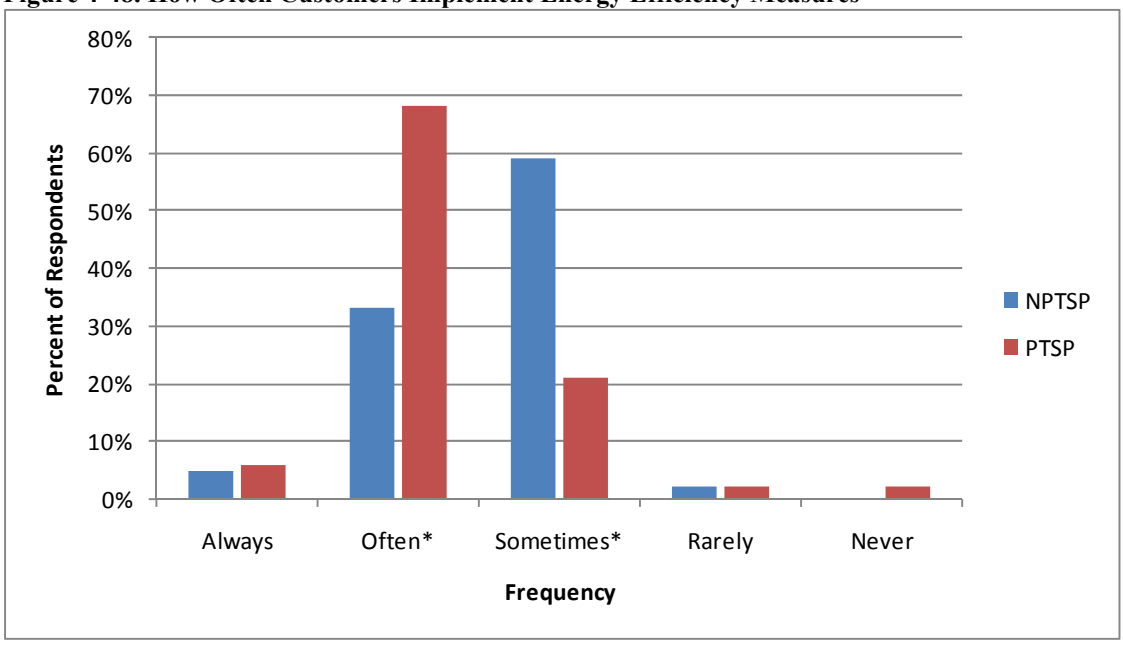
As with NPTSPs, participants viewed costs and financial issues as major barriers for their customers in deciding to conduct energy efficiency studies (Figure 4-47). Eighty-five percent indicated that competition for financial resources was a major barrier, and six in ten (60%) said that a major barrier was their customers' perception that the cost of the study is too high. Resistance to new technologies was viewed as a minor barrier by 70% of PTSPs, as was the amount of staff time required to conduct the study (65%), and uncertainty of the study's track record (55%). Notably, the lack of reputable TSPs and lack of government subsidies were cited as not being barriers by 45% of PTSPs.

4.2.5 TSPs: Implementation of Measures Recommended in Energy Efficiency Studies

Implementation of measures identified in the studies is a key step in the overall goal of reducing energy use in the marketplace and PTSPs are seeing more of this happen among their customers than are NPTSPs.

A majority of PTSPs responded that their customers always (6%) or often (68%) implement the measures detailed in their energy feasibility studies and an additional 21% said their customers sometimes implement these measures (Figure 4-48). Among NPTSPs, 5% said their customers always implement measures, one third (33%) said they often do but more than half (59%) indicated that their customers only sometimes implement measures.

Figure 4-48. How Often Customers Implement Energy Efficiency Measures



Source: MCA data collection; n=66 for NPTSPs and 66 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

PTSPs were asked about the typical timeframe for their customers to implement measures from the energy feasibility studies and 59% indicated the timeframe to be one year or less, 29% said it was one to two years, and another 10% indicated some other type of timeframe (*e.g.*, as funding allows).

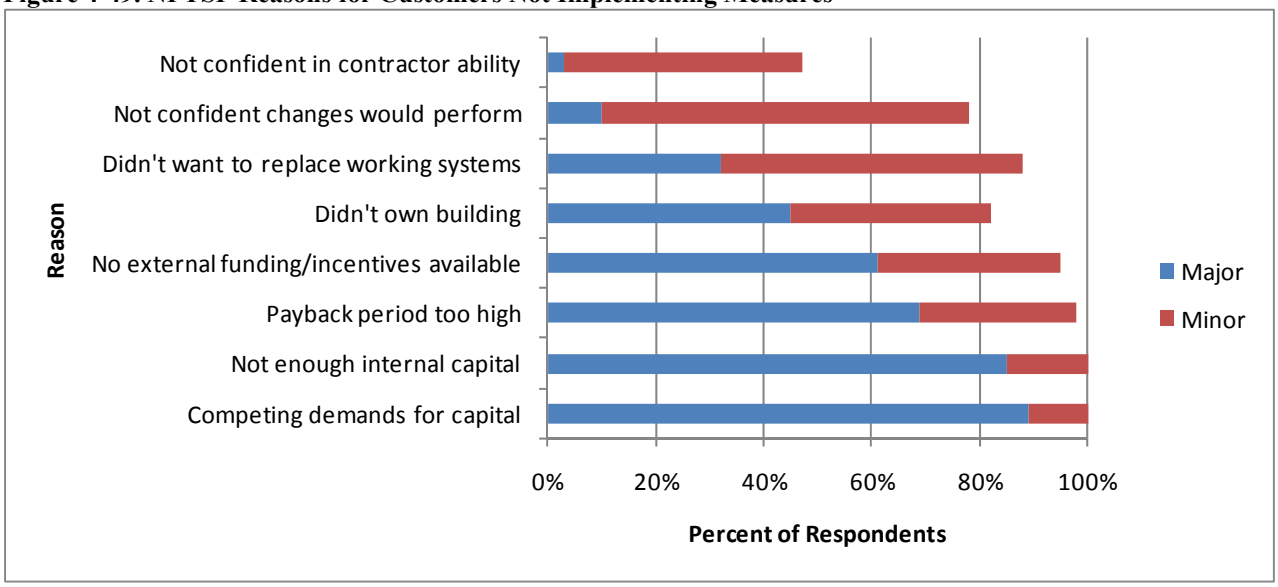
TSPs: Barriers to Implementation of Recommended Measures

TSPs were asked about barriers to implementation of the recommended measures for their customers. Again, most of these reasons centered on financial criteria, with TSPs often citing that customers have a difficult time setting aside capital for energy efficiency measures in the face of competing needs for capital.

For the most part, participating and non-participating TSPs hold similar views about the importance of these reasons as barriers that prevent customers from implementing measures (Figure 4-49 and Figure 4-50). Competing demands for capital and not enough internal capital were viewed as major barriers to implementation by eight in ten or more TSPs. Lack of confidence that measures would perform as expected or in the technical capabilities of TSPs were mostly viewed as minor barriers or not being barriers by both participating and non-participating TSPs.

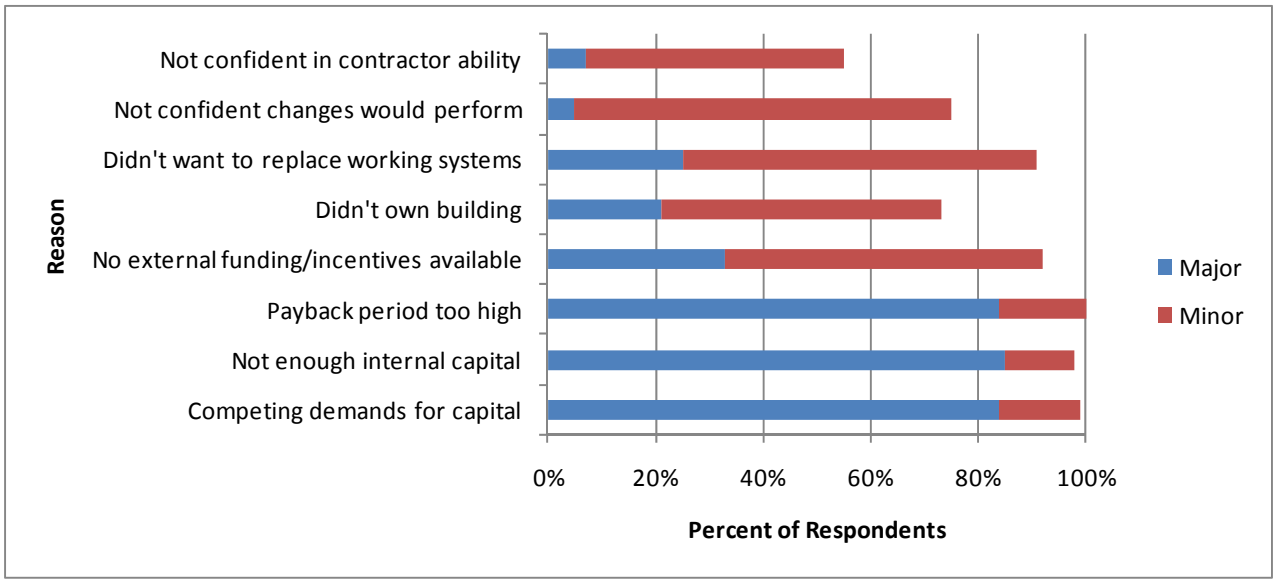
There were several differences between the two groups with respect to barriers to implementation. PTSPs were more likely than NPTSPs to say that high payback periods were a major barrier (84% vs. 69%) and they were less likely to think that lack of external funding (33% vs. 61%) and not owning the building (21% vs. 45%) were major barriers.

Figure 4-49. NPTSP Reasons for Customers Not Implementing Measures



Source: MCA data collection; n=62.
* Difference is statistically significant at the 95% confidence interval.

Figure 4-50. PTSP Reasons for Customers Not Implementing Measures



Source: MCA data collection; n=61.
* Difference is statistically significant at the 95% confidence interval.

4.2.6 TSPs: Marketing, Program Participation, and Customer Awareness

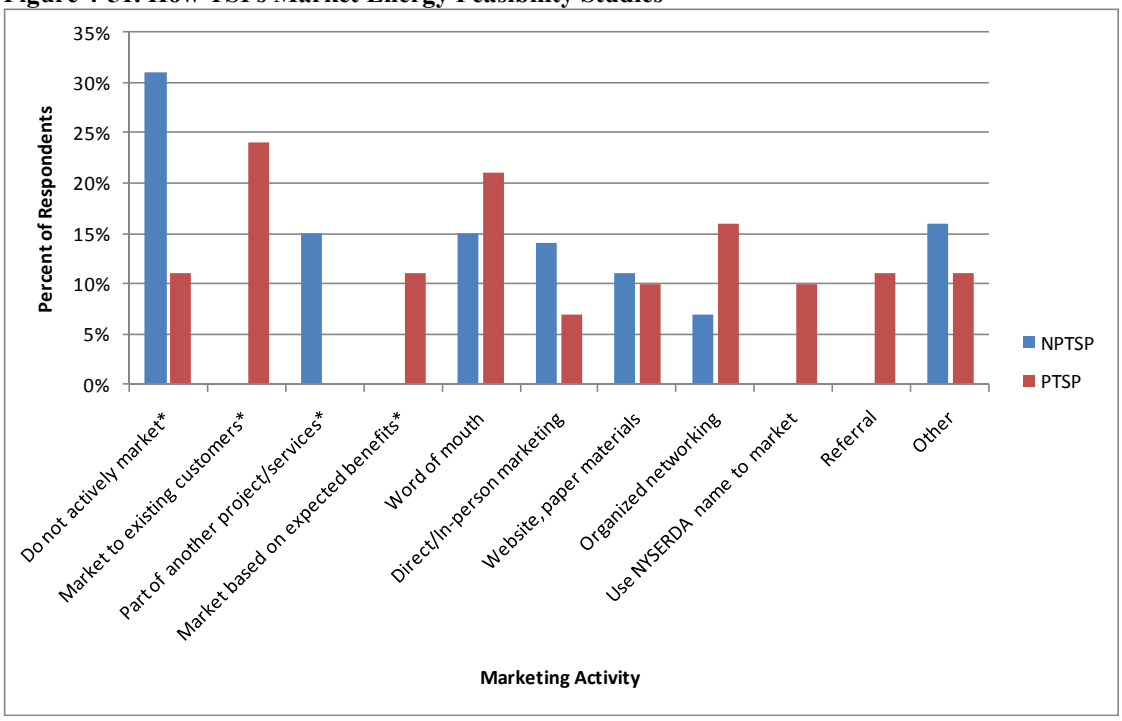
After investigating the complete process of conducting the energy efficiency studies, gauging customer interest and market opportunity, and identifying issues with implementation, non-participating TSPs were asked a series of questions to assess their familiarity with FlexTech while participating TSPs were asked about factors that may have led to their participation in an energy efficiency study sponsored by FlexTech, and why they might have participated in studies outside of FlexTech. Participating TSPs were also asked about how they use their participation in the program to market these studies. All TSPs were asked to evaluate their customers' familiarity with NYSERDA and the FlexTech Program.

TSPs: Marketing of Energy Efficiency Studies

The majority of both participating and non-participating TSPs market their energy feasibility studies in some way but participating TSPs were more likely to actively market the studies. Three in ten non-participating TSPs indicated that they do not market these studies but rather respond to customer inquiries; only one in ten participating TSPs reported the same (Figure 4-51).

Among participants, the most common methods for marketing energy feasibility studies were through marketing to existing customers (24%), through word of mouth (21%), or through organized networking such as conferences or trade shows (16%). Roughly one in ten indicated that their marketing was through other avenues such as referrals (11%), website (10%), or by using the NYSERDA or FlexTech name (10%). Among non-participating contractors, the most common marketing approaches for energy feasibility studies were as part of another project or service (15%), through word of mouth (15%), or through direct or in-person marketing (14%). Only 7% of NPTSPs used organized networking.

Figure 4-51. How TSPs Market Energy Feasibility Studies

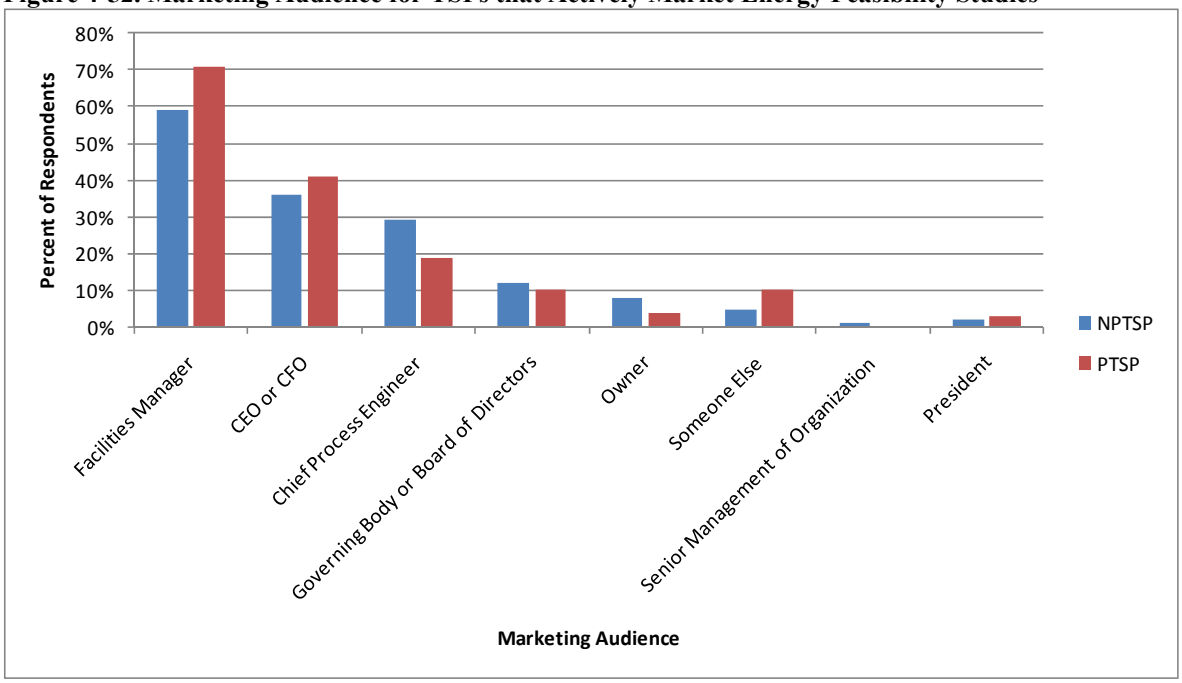


Source: MCA data collection; n=110 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.
Note: Multiple responses allowed.

TSPs: Energy Study Marketing Audience

Of the TSPs who do market their studies, most focus on the facilities managers and CEOs of the targeted businesses (Figure 4-52). Seven in ten (71%) PTSPs and 59% of NPTSPS who market these studies mentioned that they targeted the facilities managers, while 41% of PTSPs and 36% of NPTSPs targeted the CEO or CFO.

Figure 4-52. Marketing Audience for TSPs that Actively Market Energy Feasibility Studies

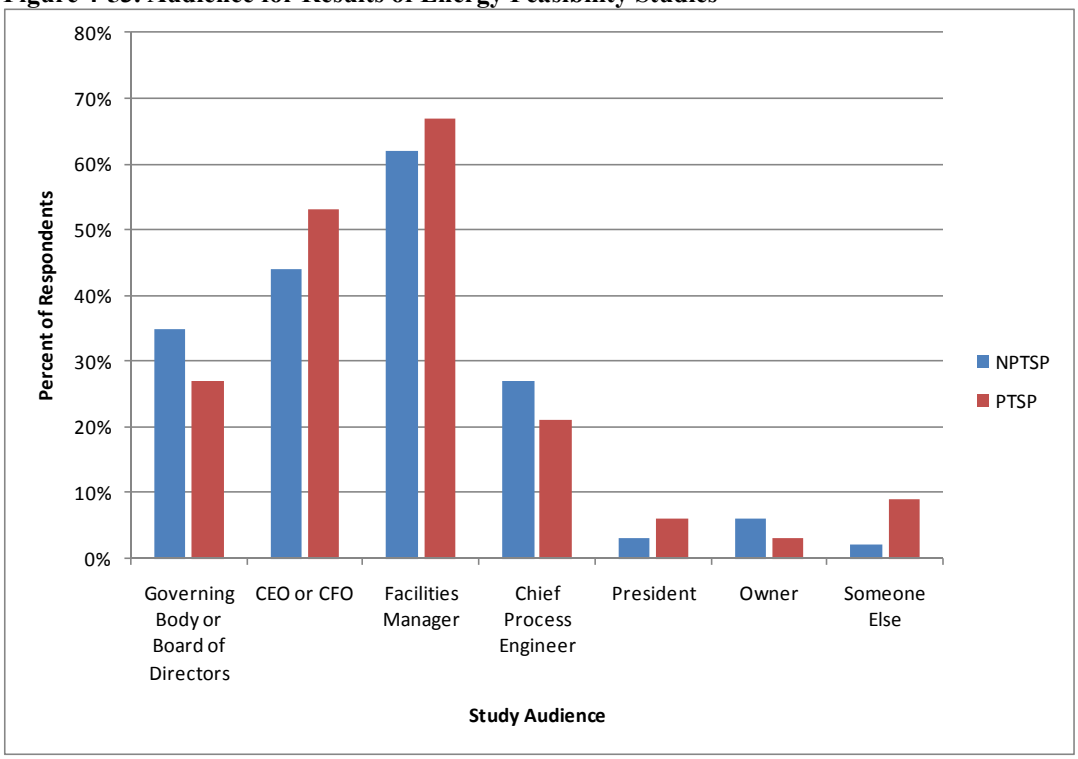


Source: MCA data collection; n=83 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.
Note: Multiple responses allowed.

TSPs: Audience for Results of Energy Study

The facilities manager was the most commonly cited recipient of study results, mentioned by about two thirds of participating (67%) and non-participating (62%) TSPs (Figure 4-53). About half of the TSPs indicated that they present results to the CEO or CFO (53% of PTSPs and 44% of NPTSPs). Fewer TSPs reported results to the governing body or board of directors (27% of PTSPs and 35% of NPTSPs) or chief process engineer (21% of PTSPs and 27% of NPTSPs).

Figure 4-53. Audience for Results of Energy Feasibility Studies



Source: MCA data collection; n=66 for NPTSPs and 66 for PTSPs.
Note: Base is firms who customers at least sometimes conduct studies.
* Difference is statistically significant at the 95% confidence interval.

Nearly 40% of PTSPs indicated that they use NYSERDA or FlexTech in their marketing efforts. One quarter (24%) said that program participation has had no effect on the way in which their firms market energy feasibility studies. An additional quarter (23%) said that they market these studies based on cost sharing.

The most commonly mentioned competitive advantage of program participation noted by participating TSPs was that their clients get some money back. Four in ten participating TSPs mentioned this when asked if their firm's participation in the program had resulted in any competitive advantages. One quarter (26%) found the NYSERDA recognition and prequalification to be a competitive advantage, and two in ten (19%) mentioned the advantage of having an additional service to provide to their customers. The only competitive disadvantage mentioned was the time for processing, which was mentioned by fewer than one in ten (7%) participating TSPs.

TSPs: Studies Completed Outside Of FlexTech

Fifty-two percent of participating contractors have completed half or more of their energy studies through the FlexTech Program, but three in ten (30%) have completed less than 25% of their studies through the program. A large majority (86%) have completed at least some studies outside of FlexTech.

The most common reason given for completing studies outside of the program was that they (*i.e.*, the TSP) were out of state (37%). Two in ten indicated that they conducted studies outside of the program in order to move quickly (22%) or because the customer was not eligible for program funding (18%). Other reasons were much less commonly mentioned such as customer perception that program funding was not needed (13%), the study was completed through another agency (7%), or that the study was done through an ESCO or utility (5%).

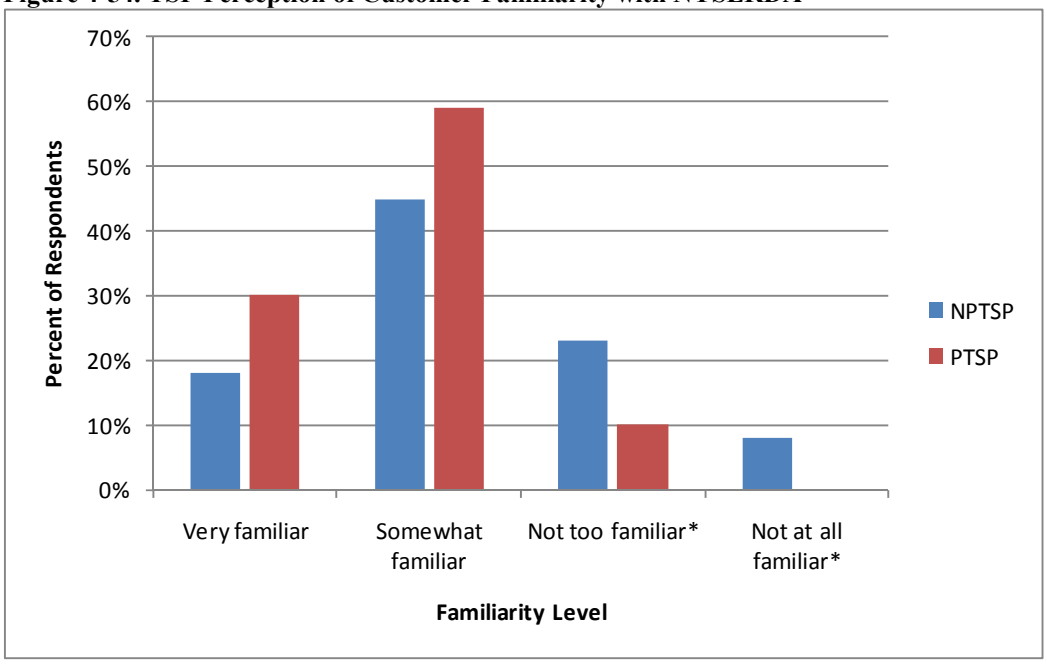
Among NYSERDA certified consultants (n=37), 14% said they obtained most project referrals from program staff or the website, 24% said they obtained some referrals this way, 38% said they obtained few referrals this way, and 19% said none of their FlexTech studies came from program or website referrals.

4.2.7 TSPs: View of Customer Awareness of NYSERDA and the FlexTech Program

Both participating and non-participating TSPs were asked for their perceptions of their customers' familiarity with NYSERDA and with the FlexTech Program in particular. While TSP perception of customer familiarity with NYSERDA was fairly high (and not surprisingly higher among participating than non-participating TSPs), familiarity with FlexTech was low among the customers of both groups of TSPs.

Among PTSPs, three in ten (30%) said their customers were very familiar with NYSERDA and an additional six in ten (59%) said their customers were somewhat familiar (Figure 4-54). Among NPTSPs, who themselves are familiar with NYSERDA, perception of customer familiarity with NYSERDA was lower but still fairly high. Two in ten (18%) said their customers were very familiar with NYSERDA and 45% believed their customers were somewhat familiar. However, about a third of NPTSPs perceived their customers to be not too familiar (23%) or not at all (8%) familiar with NYSERDA.[67]

Figure 4-54. TSP Perception of Customer Familiarity with NYSERDA



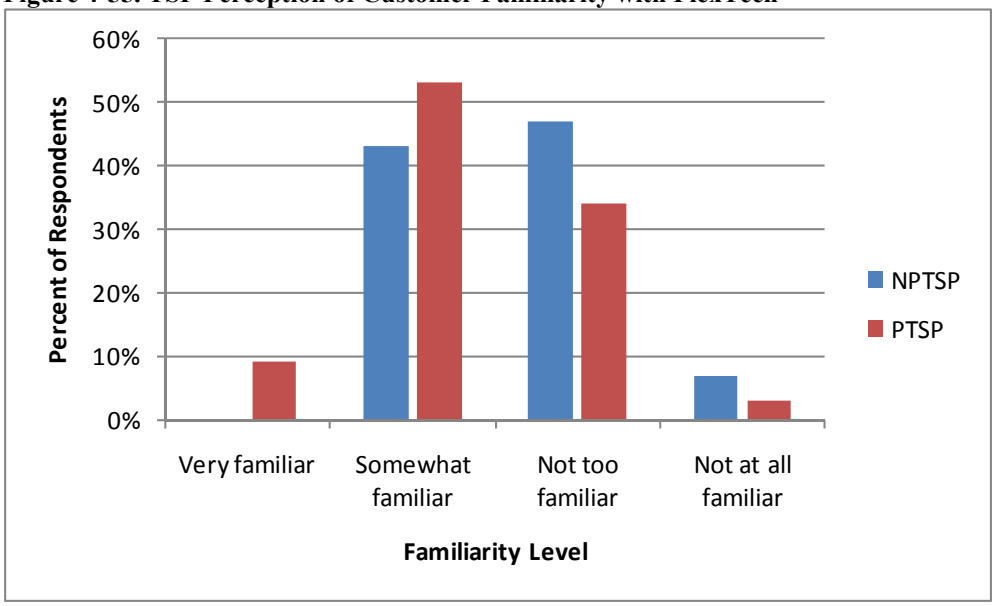
Source: MCA data collection; n=119 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.
Note: NPTSPs who indicated that they were unfamiliar with NYSERDA (n=21) were not asked about their customers' familiarity with NYSERDA.

Perceived familiarity with FlexTech was lower than perceived familiarity with NYSERDA for customers of both groups of TSPs. Among PTSPs, only 9% said that their customers were very familiar with FlexTech, while more than half (53%) thought that their customers were somewhat familiar (Figure 4-55). NPTSPs revealed an even bigger opportunity for increasing awareness. None of the NPTSPs thought that

[67] Among NPTSPs, n=21 (15%) are not familiar with NYSERDA so they were not asked for their perceptions of their customers' familiarity.

their customers were very familiar with FlexTech. Forty-three percent said that their customers were somewhat familiar, but 47% said that they were not too familiar.

Figure 4-55. TSP Perception of Customer Familiarity with FlexTech



Source: MCA data collection; n=58 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.
Note: NPTSPs who indicated that they were unfamiliar with NYSERDA (n=21) were not asked about their customers' familiarity with NYSERDA.

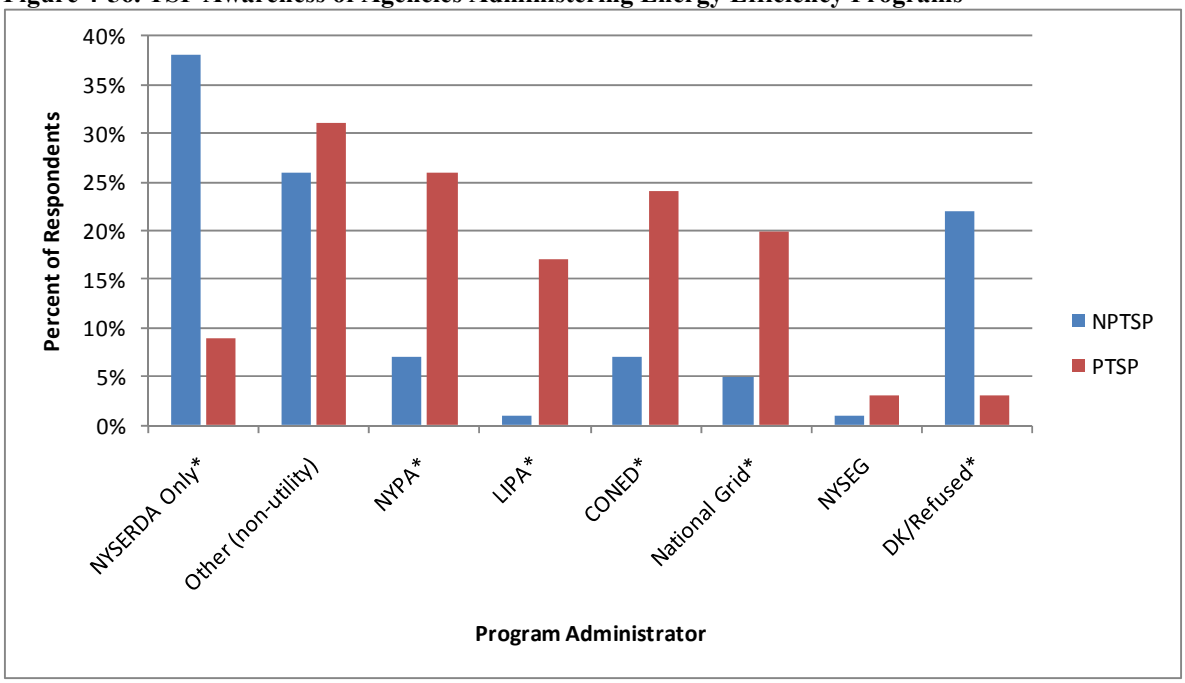
4.2.8 TSPs: Other Agencies Administering Energy Efficiency Programs

All TSPs were asked if they were aware of other agencies administering energy efficiency programs in New York and if so, they were asked several follow-up questions about how they perceive these agencies working together in this arena. Participating TSPs were also asked if they had worked with any of these other agencies and for their views about stand-out characteristics of these agencies.

PTSPs were more likely than NPTSPs to identify other agencies administering energy efficiency programs in New York (Figure 4-56). Nine in ten (88%) PTSPs were aware of other agencies in New York that administer energy efficiency programs. Only 9% thought that NYSERDA was the only one and 3% could not answer the question. Of the agencies mentioned, many were utilities; 26% identified New York Power Authority (NYPA), 24% identified Consolidated Edison (CONED), 20% identified National Grid, 17% identified Long Island Power Authority (LIPA), and 3% identified New York State Electric and Gas (NYSEG). Three in ten (31%) mentioned another agency (not a utility).

Among NPTSPs, nearly four in ten (38%) thought that NYSERDA was the only agency administering energy programs in the state. One quarter (26%) mentioned a non-utility agency and one in ten or fewer mentioned each of the utilities. Two in ten (22%) could not answer the question.

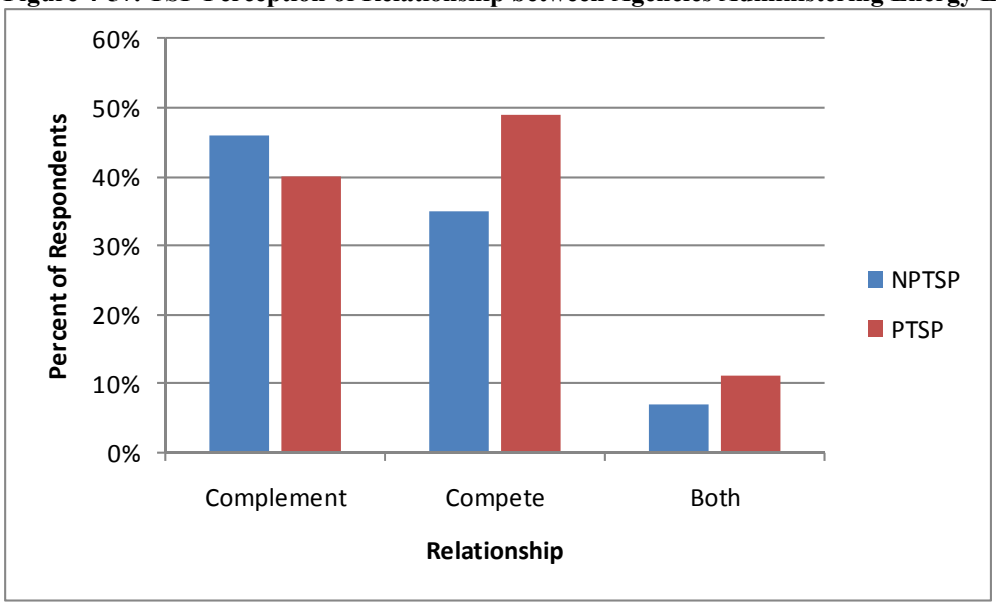
Figure 4-56. TSP Awareness of Agencies Administering Energy Efficiency Programs



Source: MCA data collection; n=140 for NPTSPs and 70 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

Virtually half (49%) of the PTSPs who were aware of other agencies running energy efficiency programs believed that the agencies compete with each other while four in ten (40%) thought that these different agencies complement each other (Figure 4-57). Among NPTSPs who were aware of other agencies running energy efficiency programs, nearly half (46%) believed that these agencies complement each other and one third (35%) believed that these agencies compete with each other. One in ten (12%) said that they don't know how these agencies work with each other.

Figure 4-57. TSP Perception of Relationship between Agencies Administering Energy Efficiency Programs



Source: MCA data collection; n=59 for NPTSPs and 63 for PTSPs.
* Difference is statistically significant at the 95% confidence interval.

Among PTSPs who were aware of other agencies (n=63), 59% indicated that their firm has served as a TSP for the other agency– most commonly mentioned were National Grid (32%), ConEd (22%), NYPA (16%), and LIPA (14%). Four in ten (44%) thought that one agency in particular did a better job than the others and 82% of these PTSPs thought that NYSERDA was the agency that stands above the others. The features of this stand-out agency that make it unique include: infrastructure (25%), experience (25%), technical expertise (25%), less bureaucracy (14%) or better marketing (14%).[68]

4.3 RELATIONSHIP TO SELECT RESEARCHABLE ISSUES

Results generated during the market characterization and market assessment efforts can be related back to Researchable Issues (RI) presented in the program logic model to validate the reasonableness of program design and help inform program staff and stakeholders of program progress achieved to date as well as potential areas for program refinement. It is important to note that not all researchable issues presented in the program logic model relate directly to the MCA evaluation effort; rather, some researchable issues relate to the Impact and Process evaluations being conducted for NYSERDA by other evaluation contractor teams. The discussion that follows is organized around the researchable issues most relevant to the MCA evaluation.

It is also important to note that several of the researchable issues have an implied causality component to them. The MCA results can inform the discussion of these topics; however, formal program causality evaluations are conducted by NYSERDA's impact evaluation contractor and are therefore beyond the scope of the MCA study.

RI-1. How aware are targeted market actors of the program opportunity?

End-use customers reported being more aware of NYSERDA than of the FlexTech Program, results that are consistent with those presented in previous MCA evaluations. Nearly 90% of NPEUCs were aware of NYSERDA while nearly 40% were aware of FlexTech. In addition, less than 30% of NPEUCs were very or somewhat familiar with the FlexTech Program. These results generally align with technical service provider perceptions of customer awareness and familiarity with the program. Taken together, the results imply that opportunities remain to increase target market awareness of FlexTech Program offerings. For example, 46% of NPEUCs conduct energy feasibility studies on a regular basis but have not participated in the FlexTech Program to date. In addition, a majority of end-use customers perceived financial barriers (*e.g.*, competing financial priorities) to be strong deterrents to conducting energy feasibility studies, noting that the availability of energy efficiency program incentives/rebates and other outside funding sources were critical inputs to the decision-making process for energy-related investments, including energy efficient equipment. Targeted marketing of the program to these customer segments would likely drive additional program participation and generate increased market awareness of program benefits and opportunities. Marketing efforts should target the key sources for investment ideas within customer organizations – primarily senior management and facilities management staff – as well as the final project decision-makers – primarily the organizations' boards of directors and senior management.

RI-2. Do end-users feel that they have a commitment to implement the projects because they paid a cost-share on the FlexTech services?

While various factors may have influenced program participation, the most important factor noted by PEUCs was the cost-sharing aspect of the program. Eighty-one percent of PEUCs indicated that the program cost-sharing mechanism was a major reason for their initial program participation and 34% of

[68] The sample size for this question is small (n=28) so caution should be used when interpreting these results. Additionally, not all of these responses are associated with NYSERDA, as 5 of the 28 cases indicate that some other agency or group stands out above the others.

participants stated that the mechanism was the most influential reason. PEUCs were not explicitly asked whether they felt a commitment to implement projects as a result of the program's cost-sharing mechanism; however, given the importance PEUCs placed on the mechanism as a driver of program participation as well as the fact that less than 5% of PEUCs reported they had no plans to implement any measures recommended in the FlexTech study (primarily due to limited availability of capital in the current economic environment), it appears likely that the cost-sharing approach does generate some level of commitment within participating customer organizations. At a minimum, the cost-sharing mechanism appears to be effective at drawing participants into the program, thereby exposing them to the information they need to identify and prioritize energy efficiency investment opportunities such that some or all of the measures recommended in the FlexTech studies are eventually implemented. This view is supported by nearly three-quarters of PTSPs who noted that their customers always or often implemented the efficiency measures presented in completed energy feasibility studies. It is further supported by the PTSP view that the most common competitive advantage of program participation for their customers was to receive money back (*i.e.*, realize financial value) through the cost-sharing mechanism.

RI-3. Do end-users perceive the FlexTech services as enhancing their understanding of the energy and non-energy benefits and their capability to enact energy efficiency and demand response on their own?

Sixty-one percent of PEUCs said the FlexTech Program is a major reason for their increased awareness and familiarity with energy efficiency products and services over the past five years. In addition, a large majority (86%) of PEUCs who have implemented measures recommended in a FlexTech study has realized benefits as a result of implementing those measures, with the most commonly cited benefits being reduced energy use (98%), improved economic performance (86%), and non-energy benefits (74%). Taken together, these results imply that the FlexTech Program is having a positive influence on participating customers' experience with energy efficient equipment as well as their understanding of the benefits associated with energy efficiency upgrades.

RI-4. Do technical consultants across the state increase their capability for energy efficiency and demand response project identification and development as a result of the FlexTech services?

RI-5. Is FlexTech contributing to a more competitive energy efficiency and technology market?

RI-4 and RI-5 are similar in nature and the discussion that follows relates to both researchable issues. The common perception among end-use customers and technical service providers, both participants and non-participants, was that the number of TSPs active in the marketplace had increased over the past five years. Fewer, but still majorities, of respondents within these groups also believed that the technical capabilities of TSPs had increased during this timeframe. Indeed, very few (<20% across respondent groups) end-use customers and technical service providers stated that a lack of knowledgeable and reputable TSPs was a barrier to conducting energy feasibility studies or making energy efficiency capital investments. The reasons given for the perceived increases in the number and capabilities of TSPs include increased market demand for their services, rising energy prices, and an increasing desire among customer organizations to be seen as environmentally friendly or "green." While none of these reasons directly mention NYSERDA's efforts, it is important to note that the FlexTech Program (as well as many other NYSERDA programs) is designed to build market demand and infrastructure for energy efficiency products and services and is likely a contributor to the observed market trends. This premise is supported by the following observations:

- Nearly two-thirds (64%) of PTSPs stated that the FlexTech Program was a major influence on customer interest in energy feasibility studies;

- A large majority (86%) of PTSPs had completed at least some energy feasibility studies outside of the FlexTech Program, which implies a diffusion of knowledge and technical capabilities derived from FlexTech into the broader market;
- Eight-five percent of PEUCs who use an external contractor to conduct energy feasibility studies used a certified FlexTech consultant;
- PTSPs were significantly more likely than NPTSPs to provide a broader suite of engineering services to their customers including different types of energy feasibility studies (*e.g.*, energy efficiency studies, energy procurement and generation studies); and
- Significantly more PTSPs (71%) than NPTSPs (49%) always offer their clients options for improving energy efficiency.

Given the recent program participation trend in which increasing numbers of PEUCs are using their own consultants to conduct energy feasibility studies through the FlexTech Program, thereby exposing a broader subset of the market to the goals and strategies promoted by the program, the evidence indicates that the program is influencing market development on an ongoing basis.

RI-6. Has the program seen an increase in the number of consultants? Are an equal number of consultants available to all regions in New York? What is the distribution of consultants with relation to number of projects completed?

As of December 31, 2009, more than 1,600 studies had been completed through the FlexTech Program and another 700+ studies were considered "in-process," meaning that they were in the program application phase or that a TSP had been engaged to conduct an energy feasibility study. An analysis of program participation patterns reveals that these studies are distributed across New York, with approximately one-quarter of the studies located in the downstate region and the remainder located in the more expansive upstate region. A TSP, or consultant, is associated with each of these studies; thus, the availability of required technical expertise does appear to cover the state. The current NYSERDA FlexTech consultants have corporate offices located in close proximity to major city centers including New York City, Buffalo, Rochester, Syracuse, and Albany. Through these offices, as well as branch offices located throughout the state, the NYSERDA FlexTech consultants are able to provide services across the state. In addition, a growing number of PEUCs are using their own TSPs (*i.e.*, non-NYSERDA FlexTech consultants) to complete studies through the FlexTech Program, which means that an increasing number of consultants is being exposed to the goals and strategies promoted by the program. The geographic distribution of these non-NYSERDA certified consultants is similar to that of the certified consultants and the ability to provide technical assistance services across the state appears to be robust.

RI-7. Are there any noticeable changes in end-user confidence in energy efficiency projects? What factors have led to these changes?

Energy efficiency opportunities are important to both participant and non-participant end-use customers and a large majority of each group indicated a significant increase in the level of importance of energy efficiency to their organizations over the last five years. In addition, the vast majority (~90%) of end-use customers indicated they were somewhat or very familiar with the benefits of energy efficient products and services in the marketplace and that their level of familiarity had increased in the last five years. Furthermore, energy efficiency was cited as a major decision-making criterion by ~80% of end-use customers when considering moving forward with capital improvement projects. These responses indicate that customers are becoming more confident in energy efficiency projects, a trend that is confirmed by the TSP perceptions that customers in general are fairly to highly confident in the performance of energy efficient equipment and that customer concern regarding the performance of energy efficient products and services is only a minor barrier to the installation of energy efficiency projects. The main reasons given as

drivers for these trends include additional information circulating in the marketplace, increased demand for reduced operating costs at customer organizations, and an increased focus on energy efficiency at many customer sites.

RI-8. Are end-users enacting energy efficiency projects independently? What are the factors contributing to this (*i.e.*, low transactions costs, high availability of contractors, high perceived value of energy efficiency, etc.)?

Energy efficiency opportunities are important to both participant and non-participant end-use customers and a large majority of each group perceived a significant increase in this level of importance in the last five years. It is therefore not surprising that substantial majorities of PEUCs (89%) and NPEUCs (75%) had made capital investments in energy efficiency products and services during this timeframe. These trends were corroborated by TSP perceptions that energy efficiency was becoming increasingly important to their customers and that customers generally accepted energy efficient options when they were presented with them. The reasons given for customers' strong interest in energy efficiency include increased demand for reduced operating costs which drove the customers' organizations to seek out energy efficient products/services, more information circulating in the industry, and increased focus on energy efficiency in customer organizations. Fewer end-use customers cited the presence of more suppliers or contractors, demand for increased non-energy benefits, or competition with other organizations as major drivers for efficiency projects. Similar to MCA research conducted previously, a strong majority (~80%) of end-use customers stated that financial issues (*e.g.*, up-front cost of energy efficient equipment, competing priorities for capital, and general economic uncertainty) were the largest barriers to incorporating energy efficiency into capital improvement projects. Issues related to lack of knowledge, experience, or information regarding energy efficiency products and services represented less significant barriers for end-use customers, both participating and non-participating. These results imply that the market is generally becoming more knowledgeable about energy efficiency project opportunities, which is driving sustained to growing levels of energy efficiency project activity. The TSP market infrastructure appears to be responding to this growing market demand as evidenced by the increasing numbers of contractor firms entering the market, the broad geographic coverage afforded by these firms, and the increasing level of technical capabilities within these firms.

Section 5:

SUMMARY OF KEY FINDINGS

The MCA team's goal is to provide data and intelligence to inform program-related decision-making. To this end, the Team has collected and analyzed a substantial amount of primary and secondary data to:

- Track program accomplishments and market share in terms of both project activity and interaction with key market actor groups.
- Assess changes in end-use customer and technical service provider awareness and understanding of efficiency practices promoted by the program.
- Develop a comprehensive understanding of participant motivations and decision-making criteria for completing energy feasibility studies and incorporating energy efficiency improvements into their capital improvement projects.

This section presents the MCA Team's key findings as derived from the current evaluation as well as actions for NYSERDA staff to consider as they contemplate program operations going forward.

5.1 SUMMARY OF KEY FINDINGS

Selected findings from the current evaluation include:

Market Characterization

- New York has approximately 520,000 commercial and industrial establishments and nearly 4 billion square feet of commercial and industrial building area. Approximately 40% of the total establishments and building area are located in the downstate region with the remainder of establishments and building area spread throughout the state.
- The market sectors active in New York buildings are diverse. By number of establishments, the largest market sector is retail trade (15%) followed by professional, scientific, and technical services (11%), and health care and social assistance (10%). The view is slightly different when looking at market sectors by building area. Nearly 20% of existing building area is occupied by offices or banks, while 16% of building area is occupied by stores or restaurants. Manufacturing accounts for approximately 15% of the total building area in New York.
- Electricity sales to the commercial sector in New York have increased by 21% between 1995 and 2009 while electricity sales to the industrial sector have decreased by 47% during this same time period. The price of electricity in New York has increased by 35% in the commercial sector and 55% in the industrial sector during these years.
- As of December 31, 2009, 1,622 studies had been completed through the FlexTech Program. Four-hundred seventy-two of those studies were completed between May 1, 2006 and December 31, 2009. An additional 711 studies were in-process as of year-end 2009, meaning that they were in the application phase or working with a technical service provider to complete an energy analysis.
- Approximately three-quarters of all completed FlexTech studies are located in upstate New York with the remainder of completed studies located downstate. In the upstate region, there appears to be more program activity around Albany and Buffalo than around Syracuse and Rochester.
- The market sectors with the highest number of completed studies between May 1, 2006 and December 31, 2009 include industrial/manufacturing, office and bank buildings, local

government, education- colleges and universities, health care, agriculture and forestry, and education- elementary and secondary schools. These market sectors comprise nearly 80% of the completed FlexTech studies by number.

- NYSERDA FlexTech consultants tend to be located near major city centers including New York City, Buffalo, Rochester, Syracuse, and Albany. In addition, a few NYSERDA FlexTech consultants are located outside of New York.[69] Participation data suggests that consultants participating in the FlexTech Program are reaching outside of their home city or region or using branch offices to market and complete studies across the state.
- An increasing number of customers participating in the FlexTech Program are using their own technical service providers. Sixty-one percent of customers with completed studies since program inception used a NYSERDA FlexTech consultant compared to 39% of customers who used their own consultant. By comparison, 55% of customers with completed studies since May 2006 used a NYSERDA FlexTech consultant compared to 45% of customers who used their own consultant.

Market Assessment

- A substantial majority of participating and non-participating end-use customers are making capital improvements despite the recent economic recession. The two most commonly cited major criteria for either group of end-use customers in deciding to move forward with capital improvement projects are concerns about the safety of employees and/or customers and financial considerations. Energy efficiency is the third most commonly cited major decision-making criterion.
- Energy efficiency opportunities are important to participant and non-participant end-use customers and a large majority of each group perceives a significant increase in this level of importance in the last five years. Not surprisingly, participating end-use customers are significantly more likely than non-participants to have made capital investments in energy efficiency products and services during this timeframe; however, three quarters of non-participating end-use customers report that they have made capital investments in energy efficiency products and services in the past five years.
- Customers state that financial concerns, including the up-front cost of energy efficient equipment, lack of capital, and economic uncertainty, are the largest barriers to incorporating energy efficiency into capital improvement projects. Issues related to lack of knowledge, experience, or information regarding energy efficient products and services represent less significant barriers for end-use customers. Technical service providers report similar findings in terms of barriers faced by customer organizations.
- Familiarity with energy efficient products and services is increasing for substantial majorities of participating and non-participating end-use customers. The reasons given for this increased familiarity include increased demand for reduced costs so the customer organizations search out energy efficient products/services, more information regarding energy efficiency circulating in the industry, and increased focus on energy efficiency in the customer organizations. Technical service providers also believe that energy efficiency is important to their customers and that it has become more so over the past five years.
- The common perception among end-use customers, both participating and non-participating, is that there has been an increase in the number of energy efficiency product and service contractors

[69] These out-of-state consultants may also have offices in New York.

active in the marketplace, driven mostly by increased market opportunity. Fewer end-use customers, but still a majority, see an increase in the capabilities of these providers. Participating and non-participating technical service providers have similar views of the market.

- Nearly 90% of non-participating end-use customers were aware of NYSERDA and nearly 40% were aware of the FlexTech Program. Among non-participating end-use customers who regularly conduct energy feasibility studies, roughly half (49%) were aware of the FlexTech Program.
- Nearly two-thirds of participating technical service providers believe that the FlexTech Program is a major influence on customer interest in energy feasibility studies. A majority of participating technical service providers indicate that, when offered, their customers accept and conduct an energy feasibility study. In contrast, more than half of non-participating technical service providers say that their customers only sometimes conduct energy feasibility studies when offered.
- About half of participating technical service providers have completed half or more of their studies through the FlexTech Program and approximately (30%) have completed less than 25% through the program. A large majority of participating contractors (86%) have completed at least some energy feasibility studies outside FlexTech.

Relationship to Select Researchable Issues

Results generated during the market characterization and market assessment efforts can be related back to relevant researchable issues presented in the program logic model to validate the reasonableness of program design and help inform program staff and stakeholders of program progress achieved to date as well as potential areas for program refinement. The results of the current study indicate that the FlexTech Program, operating in concert with other NYSERDA programs, is positively influencing the market for energy efficiency in New York by contributing to the growth of a more robust market infrastructure (*e.g.*, an increased number of technical service providers, statewide coverage in terms of provision of technical assistance services, diffusion of knowledge and information into the marketplace) and increasing customer awareness of and confidence in energy efficiency project opportunities. Additional market opportunities for the program remain, however, including exploring options to build upon existing customer awareness of the program, particularly among the subset of non-participant end-use customers who regularly conduct energy feasibility studies, and promoting program outputs (*i.e.*, study results and technical assistance) as a potential remedy for the financial issues customers perceive as the largest barriers to incorporating energy efficiency into capital improvement projects. Given customers' current strong interest in energy efficiency and the increasing level of importance being placed on energy efficiency in many customer organizations, the market appears receptive to the goals and strategies promoted by the program.

5.2 ACTIONS FOR CONSIDERATION BY NYSERDA STAFF

Actions for consideration by NYSERDA staff include:

- Results from the current study indicate that end-use customers are increasingly receptive to energy efficiency products and service offerings and that opportunities exist to grow market awareness of the FlexTech Program as well as other NYSERDA program offerings. NYSERDA staff should continue efforts to refine existing general awareness and target marketing campaigns to drive additional program participation and generate increased market awareness of program benefits. Marketing efforts should target the key sources for investment ideas within customer organizations – primarily senior management and facilities management staff – as well as the final project decision-makers – primarily the organizations' boards of directors and senior

management. An initial focus of target marketing efforts could be those non-participating end-use customers who conduct energy feasibility studies on a regular basis.

- Financial barriers remain strong deterrents to conducting energy feasibility studies and broader investment in energy efficiency. Customers note that the availability of energy efficiency program incentives/rebates and other outside funding sources are critical inputs to the decision-making process for energy-related investments. NYSERDA staff should refine existing marketing collateral to clearly emphasize the availability of program incentives and other financial benefits of program participation (*e.g.*, likely payback terms for energy efficiency investments). In addition, NYSERDA should continue efforts to generate broader market awareness of its program offerings. A variety of methods could be used to enhance existing marketing strategies including reviews of publicly-available datasets that track statewide addition and alteration project activity on a sector-level basis (*e.g.*, the Dodge Construction Starts Database), networking by FlexTech staff as part of ongoing program outreach activities, and market intelligence gathering by other NYSERDA technical resources (*e.g.*, program implementation contractors) that interact with the targeted market sectors on a regular basis.

- FlexTech Program staff should encourage the trend of increasing use of customer-selected technical service providers. This trend generates broader service provider exposure to the goals and strategies promoted by the program. It also implies an increased likelihood of diffusion of knowledge and technical capabilities derived from FlexTech into the broader market (*e.g.*, spillover benefits that may be attributable to program activities). This suggestion assumes that the performance of customer-selected technical service providers is of similar quality to the pre-qualified FlexTech Consultants; an assumption that should be explored through research efforts conducted by NYSERDA's process evaluation contractor and/or impact evaluation contractor.

- The market is gaining awareness of the different energy efficiency program administrators and related program offerings available in New York; however, confusion exists regarding the relationships between the various administrators and programs. In addition, end-use customers and technical service providers are participating in non-NYSERDA energy efficiency programs, a situation which may impact participation in FlexTech and other NYSERDA programs going forward. NYSERDA staff should consider this activity when developing future marketing strategies and program participation forecasts. NYSERDA staff should also continue efforts to develop joint programmatic initiatives with the utilities (*e.g.*, the Energy Efficiency For Health initiative launched with National Grid) in which the FlexTech Program is used to identify efficiency opportunities at customer organizations which are then translated into a comprehensive menu of NYSERDA and utility program options for customers.

- The FlexTech Program is well positioned to assist market actors with meeting the requirements of the Greener, Greater Buildings Plan recently adopted by New York City. One of the four bills passed requires private buildings over 50,000 square feet to conduct energy audits once every ten years and to undertake retro-commissioning measures, while all city-owned buildings over 50,000 square feet are required to complete energy retrofits with a simple payback of seven years or less as identified in an energy audit. NYSERDA staff should consider conducting market research to identify those buildings that are eligible to participate in NYSERDA's programs and required to complete an energy audit in any given year and then target market FlexTech services to representatives of those buildings.

FLEXIBLE TECHNICAL ASSISTANCE EVALUATION
Non-Participating Owner Survey

Final Instrument with New Codes
April 13, 2011

OPENING
(market_sector_ID: COLL, HOSP)
Hello. [ASK TO SPEAK WITH FACILITIES MANAGER / DIRECTOR OF FACILITIES. RECORD NAME AND PHONE NUMBER. IF NECESSARY: THE FOLLOWING TITLES ARE ALSO ACCEPTABLE:
MANAGER/DIRECTOR OF BUILDINGS AND GROUNDS
MANAGER/DIRECTOR OF OPERATIONS]

(market_sector_ID: PK12)
Hello. [ASK TO SPEAK WITH SUPERINTENDENT. RECORD NAME AND PHONE NUMBER. IF NECESSARY: THE FOLLOWING TITLES ARE ALSO ACCEPTABLE:
FACILITIES MANAGER / DIRECTOR OF FACILITIES
MANAGER/DIRECTOR OF BUILDINGS AND GROUNDS]

(market_sector_ID: INPM)
Hello. [ASK TO SPEAK WITH DIRECTOR OF FACILITIES / FACILITIES MANAGER. RECORD NAME AND PHONE NUMBER. IF NECESSARY: THE FOLLOWING TITLES ARE ALSO ACCEPTABLE:
PLANT MANAGER/ENGINEER
ENGINEERING/OPERATIONS MANAGER

(market_sector_ID: GOVT, OFBB)
Hello. [ASK TO SPEAK WITH NAMED SAMPLE. IF NO LONGER WORKING THERE, ASK FOR GIVEN TITLE]

My name is [INTERVIEWER NAME], and I'm calling from OpinionAmerica on behalf of the New York State Energy Research and Development Authority, also known as NYSERDA. We are conducting research on the Flexible Technical Assistance Program, also known as FlexTech, in order to assess and improve NYSERDA programs that serve the **non-residential** building market.

[INTERVIEWER: DO NOT READ. TERMINATE IF RESPONDENT SAYS THEY ONLY SERVE RESIDENTIAL BUILDINGS.]
S0. ONLY RESIDENTIAL BUILDINGS?
01 YES **[TERMINATE]**
02 NO **[CONTINUE WITH INTRODUCTION]**
96 REFUSED **[CONTINUE WITH INTRODUCTION]**
97 DON'T KNOW **[CONTINUE WITH INTRODUCTION]**

[INSERTS FOR **INTRODUCTION**]
IF market_sector_ID=**COLL**, use "colleges and universities"
IF market_sector_ID=**PK12**, use "elementary and secondary schools"
IF market_sector_ID=**HOSP**, use "hospitals"
IF market_sector_ID=**INPM**, use "industrial processing and manufacturing companies"
IF market_sector_ID=**GOVT**, use "government facilities"
IF market_sector_ID=**OFBB**, use "non-residential buildings"

INTRODUCTION

As part of this study, we are contacting a sample of [INSERT] in New York State. Are you the appropriate person to discuss issues regarding energy-related capital improvements at this establishment?
[IF YES, CONTINUE WITH GENERAL INSTRUCTIONS.]
[IF 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.]

[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, Carole Nemore at 518-862-1090, ext. 3217, or by email at csn@nyserda.org]

[IF THE RESPONDENT WOULD LIKE FURTHER VALIDATION OF THE SURVEY, WE CAN EMAIL, FAX, OR MAIL THEM A LETTER.]

GENERAL INSTRUCTIONS

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.

SCREENER

S1. To the best of your knowledge, has your organization participated in any NYSERDA or **New York Energy $mart**[SM] programs in the past five years? [READ IF NECESSARY: NYSERDA = New York State Energy Research and Development Authority]
- 01 DID NOT PARTICIPATE IN ANY NYSERDA PROGRAMS
- 02 PARTICIPATED IN NYSERDA PROGRAMS
- 96 REFUSED
- 97 DON'T KNOW

[IF S1=02, READ S2, ELSE SKIP TO A1]

S2. Which NYSERDA Programs has your organization participated in? [DO NOT READ. MARK ALL THAT APPLY.]
- 01 FLEX TECH (FLEXIBLE TECHNICAL ASSISTANCE)
- 02 NEW CONSTRUCTION PROGRAM
- 03 EXISTING FACILITIES PROGRAM
- 04 BUSINESS PARTNERS
- 95 OTHER (SPECIFY)
- 96 REFUSED
- 97 DON'T KNOW

[IF S2=01, FLEX TECH, TERMINATE]

A. MARKET CHARACTERIZATION

A1. Now 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. Chief process engineer
d. Outside consultants, audits, or reports
e. Suppliers or contractors

01 PRIMARY
02 SECONDARY
03 NOT A SOURCE
96 REFUSED
97 DON'T KNOW

[IF A1a-A1e≠01, ASK A1f, ELSE SKIP TO A2]

A1f. 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.]

02 NO ONE
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

A2. Who makes the final decision to go forward with a capital improvement project? [DO NOT READ. PROBE TO CODE. ACCEPT ONE RESPONSE ONLY]

01 BOARD OF DIRECTORS/GOVERNING BODY
02 CHIEF EXECUTIVE OFFICER/CHIEF FINANCIAL OFFICER (CEO/CFO)
03 FACILITIES MANAGER
04 CHIEF PROCESS ENGINEER
05 PRESIDENT/VICE PRESIDENT
06 SENIOR MANAGEMENT OF ORGANIZATION
07 OWNER
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

A3. Now I'm going to read you a list of different types of capital improvement projects that establishments might invest in. For each, I'd like you to tell me if your establishment has made this type of capital improvement in the past 5 years. First have you made any investments or improvements to the… **[INSERT ITEMS a-c, THEN ASK d. IF MARKET_SECTOR_ID="INPM", READ A3b, ELSE SKIP TO A3c]**

a. Physical plant or facilities at this establishment – such as HVAC, lighting, or other building systems

[IF MARKET_SECTOR_ID="INPM" READ A3b, ELSE SKIP TO A3c]

b. Processing or manufacturing capabilities at this establishment

c. Equipment – not related to processing/manufacturing or to the physical plant, such as computers)

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

d. Are there other capital improvements you've made in the past 5 years that don't fit into these categories?

01 YES (SPECIFY)
02 NO
03 TRANSPORTATION RELATED (FLEET EQUIPMENT/TRUCKS/ETC)
96 REFUSED
97 DON'T KNOW

e. Transportation related (Fleet equipment/trucks, etc.)

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[INSERTS FOR A4]
If market_sector_ID=**COLL** use "students'"
If market_sector_ID=**PK12** use "students'"
If market_sector_ID=**HOSP** use "patients'"
If market_sector_ID=**INPM** use "customers'"
If market_sector_ID=**GOVT** use "customers (taxpayers)"
If market_sector_ID=**OFBB** use "customers'"

[FOR EACH YES IN A3, ASK A4]

A4. I'm going to read you a list of different factors organizations might consider when deciding to move forward with **[IF A3a=01, INSERT "physical plant"; IF A3b=01, INSERT "processing or manufacturing"; IF A3c=01, INSERT "equipment"; IF A3d=01, INSERT VERBATIM RESPONSE]** capital improvements. For each one, please tell me if it is a major, a minor, or not a factor you consider when making decisions about **[IF A3a=01, INSERT "physical plant"; IF A3b=01, INSERT "processing or manufacturing"; IF A3c=01, INSERT "equipment"; IF A3d=01, INSERT VERBATIM RESPONSE]** capital improvements. First, do you consider [INSERT ITEMS]: ROTATE ITEMS
[READ IF NECESSARY: Is this a major, a minor, or not a factor you consider when making decisions about **[IF A3a=01, INSERT "physical plant"; IF A3b=01, INSERT "processing or manufacturing"; IF A3c=01, INSERT "equipment"; IF A3d=01, INSERT VERBATIM RESPONSE]** capital improvements.]

a. Financial criteria
b. Impact on your [INSERT] experience or comfort at your facility
c. Impact on the employees' productivity or job satisfaction
d. Service quality impact
e. Process or product improvement
f. Safety of employees or [INSERT]

g. Energy efficiency
   01 MAJOR FACTOR
   02 MINOR FACTOR
   03 NOT A FACTOR
   96 REFUSED
   97 DON'T KNOW

[READ A5 if A4a=01, ELSE SKIP TO A7]

A5. How important are the following financial factors when deciding to move forward with a capital improvement project? [FOR EACH a-c, READ] How is important is the [INSERT a-c]? Would you say it is a major, a minor, or not a factor when deciding to move forward with a capital improvement project? [READ IF NECESSARY: Is this a major, a minor, or not a factor when deciding to move forward with a capital investment project?]

a. Availability of internal funding or capital budget
b. Availability of other outside co-funding
c. Availability of rebates or program incentives
   01 MAJOR FACTOR
   02 MINOR FACTOR
   03 NOT A FACTOR
   96 REFUSED
   97 DON'T KNOW

[READ A6a if A4a=01, ELSE SKIP TO A7]

A6a. Now, assuming that funding is available, what is the main financial criterion you use when deciding to move forward with a capital improvement project? [DO NOT READ LIST. ACCEPT ONE ANSWER ONLY.]

01 PAYBACK
02 RETURN ON INVESTMENT (ROI)
03 INTERNAL RATE OF RETURN (IRR)
04 FIRST COST (INITIAL/UPFRONT COSTS)
05 LIFECYCLE COSTS (OPERATING/MAINTENANCE COSTS)
06 NET PRESENT VALUE/FUTURE CASH FLOW
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[READ A6b IF A6a=01, ELSE SKIP TO A6c]

A6b. In general, what is the payback threshold your organization uses before deciding to proceed with a major capital investment? [RECORD IN MONTHS OR YEARS]

01 ____ RECORD MONTHS
02 ____ RECORD YEARS
96 REFUSED
97 DON'T KNOW

[IF A6a=02 OR 03, ASK A6c, ELSE SKIP TO A7]

A6c. In general, what is the investment hurdle rate of return your organization uses before deciding to proceed with an investment? [READ IF NECESSARY: What is the hurdle rate your organization uses to measure the return on investment or internal rate of return?]

01 ____ RECORD %
96 REFUSED
97 DON'T KNOW

[READ] Now I'd like to talk about capital investments in ENERGY EFFICIENCY projects, specifically.

A7. In the past 5 years, has your organization made any capital investments in energy efficiency products or services?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

A8. 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 too important or not at all important?

01 VERY IMPORTANT
02 SOMEWHAT IMPORTANT
03 NOT TOO IMPORTANT
04 NOT AT ALL IMPORTANT
96 REFUSED
97 DON'T KNOW

A9. Would you say the importance of energy efficiency opportunities to your organization has increased, decreased, or stayed the same the past 5 years?

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

[INSERTS FOR A10]
If market_sector_ID=**COLL** use "students'"
If market_sector_ID=**PK12** use "students'"
If market_sector_ID=**HOSP** use "patients'"
If market_sector_ID=**INPM** use "customers'"
If market_sector_ID=**GOVT** use "customers (taxpayers)"
If market_sector_ID=**OFBB** use "customers'"

A10. Now, I'm going to read you a list of different factors organizations might consider when deciding to move forward with **energy efficiency** capital investments. For each one, please tell me if this is a major, a minor, or not a factor you consider when making decisions about energy efficiency capital investments. First, do you consider [INSERT ITEMS (a-g)]: ROTATE ITEMS
[READ IF NECESSARY: Is this a major, a minor, or not a factor you consider when making decisions about energy efficiency capital improvements?]

a. Financial criteria
b. Impact on your [INSERT] experience or comfort at your facility
c. Impact on the employees' productivity or job satisfaction of your employees
d. Service quality impact
e. Process or product improvement
f. Safety of employees or [INSERT]
g. Desire to be green or corporate sustainability

01 MAJOR FACTOR
02 MINOR FACTOR
03 NOT A FACTOR
96 REFUSED
97 DON'T KNOW

A10h. Are there any other **major** factors you consider when deciding to move forward with **energy efficiency** capital investments?

01 YES (SPECIFY)
02 NO
96 REFUSED
97 DON'T KNOW

[READ A11 if A10a=01, YES, ELSE SKIP TO A13]

A11. How important are the following financial factors when deciding to move forward with an energy efficiency investment? [FOR EACH a-d, READ] How is important is the [INSERT a-d]? Would you say it is a major, a minor, or not a factor when deciding to move forward with an energy efficiency investment?

a. Availability of internal funding or capital budget
b. Availability of other outside co-funding
c. Availability of rebates or program incentives
d. Price of energy

01 MAJOR FACTOR
02 MINOR FACTOR
03 NOT A FACTOR
96 REFUSED
97 DON'T KNOW

[ASK A12a if A10a=01, YES, ELSE SKIP TO A13]

A12a. Now, assuming that funding is available, what is the main financial criterion you use when deciding to move forward with an energy efficiency capital investment? [DO NOT READ LIST. ACCEPT ONE ANSWER ONLY.]

01 PAYBACK
02 RETURN ON INVESTMENT (ROI)
03 INTERNAL RATE OF RETURN (IRR)
04 FIRST COST (INITIAL/UPFRONT COSTS)
05 LIFECYCLE COSTS (OPERATING/MAINTENANCE COSTS)
06 NET PRESENT VALUE/FUTURE CASH FLOW
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[IF A12a=01, ASK A12b, ELSE SKIP TO A12c]

A12b. In general, what is the payback threshold your organization uses before deciding to proceed with an energy efficiency investment? [RECORD IN MONTHS OR YEARS]

01 ___ RECORD MONTHS
02 ___ RECORD YEARS
96 REFUSED
97 DON'T KNOW

[IF A12a=02 OR 03, ASK A12c, ELSE SKIP TO A13]

A12c. In general, what is the investment hurdle rate of return your organization uses before deciding to proceed with an energy efficiency investment? [READ IF NECESSARY: What is the hurdle rate your organization uses to measure the return on investment or internal rate of return?]

01 ____ RECORD %
96 REFUSED
97 DON'T KNOW

A13. Does your organization have a formal policy or procedure requiring the purchase of energy efficient products and services?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[ASK A14 IF A13=01, ELSE SKIP TO A16]

A14. I'm going to read you a list of statements. For each one please tell me if it describes your organization's policy or procedures regarding energy efficiency products and services. [READ LIST.] ROTATE (a-f)

a. We have loose guidelines on the efficiency of products/services
b. We have a requirement to purchase only ENERGY STAR equipment
c. We have different requirements for different types of purchases
d. We must seek out the most efficient equipment available
e. We must abide by LEED standards
f. We must abide by ASHRAE and/or the New York State Energy code

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[ASK A15 IF A13=01, ELSE SKIP TO A16]

A15. How has this policy changed over the past five years? Would you say your organization's policies regarding energy efficiency products and services have become more strict, less strict, or have stayed the same over the past five years?

01 MORE STRICT
02 LESS STRICT
03 STAYED THE SAME
04 DEVELOPED POLICY IN PAST FIVE YEARS (VOL)
96 REFUSED
97 DON'T KNOW

A16. I'm going to read you a list of potential barriers to incorporating energy efficiency equipment into capital improvement projects. For each one, please tell me if it is a major, a minor, or not a barrier to incorporating energy efficiency into capital improvement projects? [READ IF NECESSARY: Is this a major, a minor, or not a barrier to incorporating energy efficiency into capital improvement projects?]

a. Lack of knowledgeable service providers
b. Lack of information about energy efficient equipment
c. Lack of internal experience with energy efficient equipment
d. Lack of capital for investment
e. Concerns about performance or reliability of energy efficient equipment
f. Concerns about up-front cost of energy efficient equipment
g. Concern about economic uncertainty
h. Lack of incentive programs

01 MAJOR
02 MINOR
03 NOT A BARRIER
96 REFUSED
97 DON'T KNOW

A17a. In your experience, have you found that the **number** of energy efficiency product and service contractors active in the marketplace has **increased, decreased, or stayed the same** over the past five years?

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

[ASK A17b IF A17a=01, ELSE SKIP TO A17c]

A17b. Why do you think the number of active energy efficiency product and service contractors has **increased** over the past five years? [DO NOT READ. CODE ALL THAT APPLY]

01 INCREASED MARKET OPPORTUNITY
02 CONCERNS ABOUT CLIMATE CHANGE
03 INCREASED DESIRE TO BE GREEN
04 REGULATORY CHANGES (NYC)
05 AVAILABILITY OF REBATES
06 COST OF ENERGY/ECONOMICS
07 EE MARKETING EFFORTS
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[ASK A17c IF A17a=02, ELSE SKIP TO A18]

A17c. Why do you think the number of active energy efficiency product and service contractors has **decreased** over the past five years? [DO NOT READ. CODE ALL THAT APPLY]

01 DECREASED MARKET OPPORTUNITY
02 LACK OF CAPITAL FOR INVESMENT
03 PROGRAM CHANGES
04 PROGRAM BUREAUCRACY CHANGES
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

A18. In your experience, have you found that the **technical capabilities** of energy efficient product and service contractors have increased, decreased, or stayed the same over the past five years? [READ IF NECESSARY: By technical capabilities we mean things like scope of service offerings and work quality.]

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

B. MARKET INTERACTION WITH FLEX TECH

[READ] Now, I have a few questions about your awareness of the New York State Energy Research and Development Authority, also known as NYSERDA.

B1. Prior to this call, were you aware of NYSERDA?
- 01 YES
- 02 NO
- 96 REFUSED
- 97 DON'T KNOW

[ASK B2 IF B1=01 OR 96, ELSE SKIP TO STATEMENT]

B2. Prior to this call, were you aware of the NYSERDA FlexTech Program?
[READ IF NECESSARY: FlexTech = Flexible Technical Assistance Program]
- 01 YES
- 02 NO **[Skip to STATEMENT]**
- 96 REFUSED **[Skip to STATEMENT]**
- 97 DON'T KNOW **[Skip to STATEMENT]**

[ASK B3 IF B2=01, ELSE SKIP TO STATEMENT]

B3. How familiar would you say you are with NYSERDA's FlexTech Program – very familiar, somewhat familiar, not too familiar or not at all familiar?
- 01 VERY FAMILIAR
- 02 SOMEWHAT FAMILIAR
- 03 NOT TOO FAMILIAR
- 04 NOT AT ALL FAMILIAR
- 96 REFUSED
- 97 DON'T KNOW

STATEMENT

The goal of NYSERDA's FlexTech Program is to use facility-specific technical evaluations to identify cost-effective, energy efficiency, peak-load curtailment and renewable generation projects.

B4. Does your organization conduct these types of technical analyses (i.e., energy efficiency technical evaluations, peak-load reduction studies, energy procurement analysis) on a regular basis, that is, once every 3-5 years or so?
- 01 YES
- 02 NO
- 96 REFUSED
- 97 DON'T KNOW

[ASK B5 IF B4 = 01, ELSE SKIP TO B11]

B5. I'm going to read you a list of ways in which organizations might use the results of these types of technical analyses. For each, please tell me if your organization uses results of these analyses in this way often, sometimes, rarely or never. First do you use results to [INSERT ITEMS a-e]: ROTATE
   a. Identify energy or money saving opportunities

b. Verify or confirm what you already know or verify an original assessment that something would save you energy
c. Prioritize one investment over another
d. Develop new guidance for corporate decision making
e. Develop longer term capital investment or equipment replacement plans

01 OFTEN
02 SOMETIMES
03 RARELY
04 NEVER
96 REFUSED
97 DON'T KNOW

B5f. Are there any other ways in which your organization uses the results of technical analyses that I have not mentioned?

01 YES (SPECIFY)
02 NO
96 REFUSED
97 DON'T KNOW

B6. Does your organization use in-house staff or an external contractor to complete these types of analyses?

01 IN HOUSE STAFF
02 EXTERNAL CONTRACTOR
03 BOTH
96 REFUSED
97 DON'T KNOW

[ASK B7 IF B6=02 OR 03]

B7. Which of the following statements best describes the relationship your organization has with the external contractor who conducts these types of analyses? [READ STATEMENTS 01 AND 02]

01 One - We have a long term relationship in place with the contractor and the analyses are one example of the many types of services the contractor completes for us
02 Two - We typically conduct these analyses on project-specific basis and select a contractor based on word of mouth or the contractor's marketing efforts.
95 OTHER (SPECIFY) – (VOL)
96 REFUSED
97 DON'T KNOW

B8. Has your organization realized any operational or other benefits as a result of the technical analyses completed to date?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[ASK B9 IF B8=01, ELSE SKIP TO B10]

B9. What benefits has your organization realized as a result of the technical analyses you've performed? Has your organization… [INSERT a-c]

a. Achieved a reduction in energy usage
b. Improved the economic performance of your organization
c. Achieved any non-energy benefits, such as improved worker health or productivity
   01 YES
   02 NO
   96 REFUSED
   97 DON'T KNOW

[**ASK B10 IF B8=02, ELSE SKIP TO C1]**

B10. Why do you think your organization has not realized any benefits as a result of the technical analyses you've performed? [DO NOT READ. MARK ALL THAT APPLY.]
   01 NOT ENOUGH TIME / TOO EARLY TO TELL
   02 HAVEN'T IMPLEMENTED ANY RECOMMENDATIONS
   03 CONSULTANT OVERSTATED/OVERESTIMATED RESULTS
   04 EQUIPMENT PERFORMED POORLY – INCREASED OPERATION AND MAINTENANCE COSTS
   95 OTHER (SPECIFY)
   96 REFUSED
   97 DON'T KNOW

[ASK B11 IF B4=02, ELSE SKIP TO C1]

B11. I'm going to read you a list of possible reasons organizations may not conduct these types of analyses. For each one, please tell me if it is a major reason, a minor reason or not a reason that your organization does not conduct this type of technical analysis on a regular basis. First…
[INSERT ITEMS (a-g)]: ROTATE ITEMS
[READ IF NECESSARY: Is this a major, a minor, or not a reason that you organization does not conduct these types of technical studies?]
   a. We are not aware of these types of studies or opportunities to do them
   b. Our organization perceives that the cost of these types of studies is too high
   c. These types of studies take too much staff time and resources
   d. The track record for these types of projects is uncertain or unreliable
   e. There is a lack of reputable technical service providers
   f. We must deal with competing priorities for financial resources
   g. There is a resistance to new and/or innovative technologies
      01 MAJOR REASON
      02 MINOR REASON
      03 NOT A REASON
      96 REFUSED
      97 DON'T KNOW

C. MARKET INTERACTION WITH ENERGY EFFICIENCY / NYSERDA

C1. How familiar would you say you are with the benefits of energy efficient products and services – would you say you are: very familiar, somewhat familiar, not too familiar or not at all familiar?

01 VERY FAMILIAR
02 SOMEWHAT FAMILIAR
03 NOT TOO FAMILIAR
04 NOT AT ALL FAMILIAR
96 REFUSED
97 DON'T KNOW

[ASK C2 IF C1≠96 OR C1≠97, ELSE SKIP TO C4]

C2. Over the past five years has your familiarity with the benefits of energy efficient products and services, increased, decreased or stayed about the same?

01 INCREASED
02 DECREASED
03 STAYED ABOUT THE SAME
96 REFUSED
97 DON'T KNOW

[ASK C3 IF C2=01, ELSE SKIP TO C4]

C3. I'm going to read you a list of possible reasons for your increased familiarity with the benefits of energy efficient products and services over the past five years. For each one, please tell me if this is a major reason a minor reason or not a reason for your increased awareness. First [INSERT ITEMS (a-f)]: ROTATE.

a. There is more information/education circulating in the industry about these benefits
b. There are more suppliers/contractors marketing these products and services
c. There is more demand to reduce costs so we went looking for such products
d. Other organizations in our sector were using energy efficient products and services
e. There is more demand to increase non-energy benefits, such as worker productivity or health
f. Our organization is more focused on energy efficiency, so we actively sought out more information

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

[ASK C3g IF B3=01 OR B3=02, ELSE SKIP TO C4]

C3g. Programs like NYSERDA's Flex Tech Program made us more aware of energy efficiency products and services.

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

C4. In general, would you say that energy efficient equipment performs better, worse or the same as standard efficiency equipment?

01 BETTER
02 WORSE
03 SAME
96 REFUSED
97 DON'T KNOW

[ASK C5 IF C4=01, 02, OR 03, ELSE SKIP TO C6]

C5. Why do you think that is?

01 [RECORD VERBATIM]
96 REFUSED
97 DON'T KNOW

[ASK C6 IF C4=01, ELSE SKIP TO C7]

C6. Has the improved performance of high efficiency equipment relative to standard efficiency equipment been a major reason, a minor reason, or not a reason for investment in energy efficiency products and services at your organization over the past five years?

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
04 NO INVESTMENT IN ENERGY EFFICIENCY (VOL)
96 REFUSED
97 DON'T KNOW

C7. As far as you know, are there other utilities or agencies that administer energy efficiency programs in New York or is NYSERDA the only group running these types of programs?

01 OTHER GROUPS (SPECIFY)
02 OTHER GROUPS (SPECIFY) BUT HAVE NOT HEARD OF NYSERDA
03 NYSERDA ONLY
04 NEW YORK POWER AUTHORITY (NYPA)
05 LONG ISLAND POWER AUTHORITY (LIPA)
06 CON EDISON (CONED)
07 NATIONAL GRID
08 NY STATE ELECTRIC AND GAS (NYSEG)
95 OTHER
96 REFUSED
97 DON'T KNOW

[ASK C8 IF C7=01, ELSE SKIP TO D1]

C8. Thinking about the different utilities or agencies that administer energy efficiency programs in New York, which of the following statements best describes the programs they offer?
[READ STATEMENTS 01-03]

01 They offer the same types of programs so the utilities or agencies are in competition with each other for clients
02 They offer complementary programs and are not really in competition with each other
03 They sometimes offer the same programs and sometimes offer complementary programs

96 REFUSED
97 DON'T KNOW

[ASK C9 IF C8=01, ELSE SKIP TO D1]

C9. In general, would you say that one of these utilities or agencies does a better job than the others of administering these energy efficiency programs or do you think they all do about the same?

01 ONE DOES BETTER
02 ALL ABOUT THE SAME
96 REFUSED
97 DON'T KNOW

[ASK C10 IF C9=01, ELSE SKIP TO D1]

C10. Which utility or agency does the best job of administering these energy efficiency programs?

01 [RECORD VERBATIM]
96 REFUSED
97 DON'T KNOW

D. FIRMOGRAPHIC INFORMATION

[READ] Last, I just have a few questions about your organization.

D1. How long has your organization been in business?
- 01 [NUMBER OF YEARS GIVEN]
- 02 [ESTABLISHMENT YEAR GIVEN]
- 96 REFUSED
- 97 DON'T KNOW

D2. Is your organization independent or part of a larger organization?
- 01 INDEPENDENT
- 02 PART OF LARGER ORGANIZATION
- 03 OTHER [SPECIFY]
- 96 REFUSED
- 97 DON'T KNOW

D3. Approximately how many full time employees does your organization employ at all of its locations in New York State?
- 01 [RECORD NUMBER]
- 96 REFUSED
- 97 DON'T KNOW

D4. Has this number increased, decreased or stayed about the same over the past five years?
- 01 INCREASED
- 02 DECREASED
- 03 STAYED THE SAME
- 96 REFUSED
- 97 DON'T KNOW

D5. What is the approximate electric load, in kilowatts, for the organization? [READ IF NECESSARY]
- 01 <25 kW
- 02 25-150 kW
- 03 151-400 kW
- 04 401-1,000 kW
- 05 1,001-5,000 kW
- 06 >5,000 kW
- 96 REFUSED
- 97 DON'T KNOW

CLOSING

Those are all the questions I have for you. Thank you for your time. Have a nice day/evening.

FLEXIBLE TECHNICAL ASSISTANCE EVALUATION
Participating End-Use Customer Survey

Final Instrument with New Codes
April 18, 2011

OPENING

Hello. My name is [INTERVIEWER NAME], and I'm calling from OpinionAmerica on behalf of NYSERDA (the New York State Energy Research and Development Authority). May I please speak with [NAME]?

We are conducting research on the Flexible Technical Assistance Program (also known as FlexTech), in order to assess and improve NYSERDA programs that serve the non-residential buildings market – you may have received a letter about this study. I have you down as **[ORG_NAME]**'s primary contact in terms of participation in the FlexTech program.

Q1. Are you the appropriate person to discuss issues related to your organization's participation in the FlexTech program?
- 01 YES
- 02 NO, WRONG PERSON **[ASK Q2]**
- 03 NO, HAVE NOT HEARD OF NYSERDA/FLEXTECH **[ASK Q2]**
- 96 REFUSED **[ASK Q2]**
- 97 DON'T KNOW **[ASK Q2]**

[IF Q1=02-97, ASK Q2, ELSE CONTINUE TO Q3]
Q2. Is there someone else at your company that can speak about your firm's participation in NYSERDA or the FlexTech Program?
- 01 [RECORD CONTACT INFORMATION: NAME, TITLE, PHONE NUMBER]
- 02 NO, HAVE NOT HEARD OF NYSERDA/FLEXTECH **[TERMINATE]**
- 96 REFUSED **[TERMINATE]**
- 97 DON'T KNOW **[TERMINATE]**

[FOR Q1 & Q2]
As part of our research, I'd like to ask you some questions about your experience with the FlexTech program and general decision making about capital improvements at your organization.

[READ IF NECESSARY – My questions should take about 30 minutes.]
[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 company. If you have questions, you can contact NYSERDA's project manager for evaluation, Carole Nemore at 518-862-1090, ext. 3217, or by email at csn@nyserda.org]

[IF THE RESPONDENT HAS NOT RECEIVED THE ADVANCE LETTER, WE CAN EMAIL, FAX, OR MAIL THEM A LETTER.]

GENERAL INSTRUCTIONS

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.

SCREENER

Q3. To the best of your knowledge, in addition to the FlexTech Program, has your organization participated in any other NYSERDA or **New York Energy $mart**[SM] programs in the past five years?

- 01 YES, PARTICIPATED IN OTHER NYSERDA PROGRAMS
- 02 NO, DID NOT PARTICIPATE IN ANY OTHER NYSERDA PROGRAMS
- 96 REFUSED **[TERMINATE]**
- 97 DON'T KNOW **[TERMINATE]**

[IF Q3=01, READ Q4, ELSE SKIP TO A1]

Q4. Which other NYSERDA Programs has your organization participated in? [DO NOT READ. MARK ALL THAT APPLY.]

- 01 NEW CONSTRUCTION PROGRAM
- 02 EXISTING FACILITIES PROGRAM
- 03 BUSINESS PARTNERS
- 04 LIGHTING PROGRAM
- 95 OTHER (SPECIFY)
- 96 REFUSED
- 97 DON'T KNOW

A. MARKET CHARACTERIZATION

First, I'd like to ask you some questions about how your organization makes decisions regarding capital improvement projects, in general.

A1. 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. Chief process engineer
d. Outside consultants, audits, or reports
e. Suppliers or contractors

- 01 PRIMARY
- 02 SECONDARY
- 03 NOT A SOURCE
- 96 REFUSED
- 97 DON'T KNOW

[IF A1a-A1e≠01, ASK A1f, ELSE SKIP TO A2]

A1f. 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.]

01 [RECORD VERBATIM]
96 REFUSED
97 DON'T KNOW

A2. Who makes the final decision to go forward with a capital improvement project? [DO NOT READ. PROBE TO CODE. ACCEPT ONE RESPONSE ONLY]
01 BOARD OF DIRECTORS/GOVERNING BODY
02 CHIEF EXECUTIVE OFFICER/CHIEF FINANCIAL OFFICER (CEO/CFO)
03 FACILITIES MANAGER
04 CHIEF PROCESS ENGINEER
05 PRESIDENT/VICE PRESIDENT
06 SENIOR MANAGEMENT OF ORGANIZATION
07 OWNER
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

A3. Now I'm going to read you a list of different types of capital improvement projects that establishments might invest in. For each, I'd like you to tell me if your establishment has made this type of capital improvement in the past 5 years. First have you made any investments or improvements to the… **[INSERT ITEMS a-c, THEN ASK d. IF MARKET_SECTOR_ID="INPM", READ A3b, ELSE SKIP TO A3c]**

a. Physical plant or facilities at this establishment – such as HVAC, lighting, or other building systems

[IF MARKET_SECTOR_ID="INPM" READ A3b, ELSE SKIP TO A3c]

b. Processing or manufacturing capabilities at this establishment
c. Equipment – not related to processing/manufacturing or to the physical plant, such as computers)
   01 YES
   02 NO
   96 REFUSED
   97 DON'T KNOW
d. Are there other capital improvements you've made in the past 5 years that don't fit into these categories?
   01 YES (SPECIFY)
   02 NO
   96 REFUSED
   97 DON'T KNOW

[FOR EACH YES IN A3, ASK A4]

A4. I'm going to read you a list of different factors organizations might consider when deciding to move forward with **[IF A3a=01, INSERT "physical plant"; IF A3b=01, INSERT "processing or manufacturing"; IF A3c=01, INSERT "equipment"; IF A3d=01, INSERT VERBATIM RESPONSE]** capital improvements. For each one, please tell me if it is a major, a minor, or not a factor you consider when making decisions about **[IF A3a=01, INSERT "physical plant"; IF A3b=01, INSERT "processing or manufacturing"; IF A3c=01, INSERT "equipment"; IF A3d=01, INSERT VERBATIM RESPONSE]** capital improvements. First, do you consider [INSERT ITEMS]: ROTATE ITEMS

[READ IF NECESSARY: Is this a major, a minor, or not a factor you consider when making decisions about **[IF A3a=01, INSERT "physical plant"; IF A3b=01, INSERT "processing or manufacturing"; IF A3c=01, INSERT "equipment"; IF A3d=01, INSERT VERBATIM RESPONSE]** capital improvements.]

a. Financial criteria
b. Impact on your customers' experience or comfort at your facility
c. Impact on the employees' productivity or job satisfaction
d. Service quality impact
e. Process or product improvement
f. Safety of employees or customers
g. Energy efficiency

01 MAJOR FACTOR
02 MINOR FACTOR
03 NOT A FACTOR
96 REFUSED
97 DON'T KNOW

[READ A5 if A4a=01, ELSE SKIP TO A7]

A5. How important are the following financial factors when deciding to move forward with a capital improvement project? [FOR EACH a-c, READ] How is important is the [INSERT a-c]? Would you say it is a major, a minor, or not a factor when deciding to move forward with a capital improvement project? [READ IF NECESSARY: Is this a major, a minor, or not a factor when deciding to move forward with a capital investment project?]

a. Availability of internal funding or capital budget
b. Availability of other outside co-funding
c. Availability of rebates or program incentives

01 MAJOR FACTOR
02 MINOR FACTOR
03 NOT A FACTOR
96 REFUSED
97 DON'T KNOW

[READ A6a if A4a=01, ELSE SKIP TO A7]

A6a. Now, assuming that funding is available, what is the main financial criterion you use when deciding to move forward with a capital improvement project? [DO NOT READ LIST. ACCEPT ONE ANSWER ONLY.]

01 PAYBACK
02 RETURN ON INVESTMENT (ROI)
03 INTERNAL RATE OF RETURN (IRR)
04 FIRST COST (INITIAL/UPFRONT COSTS)
05 LIFECYCLE COSTS (OPERATING/MAINTENANCE COSTS)
06 NET PRESENT VALUE/FUTURE CASH FLOW
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[READ A6b IF A6a=01, ELSE SKIP TO A6c]

A6b. In general, what is the payback threshold your organization uses before deciding to proceed with a major capital investment? [RECORD IN MONTHS OR YEARS]

01 ____ [RECORD MONTHS]
02 ____ [RECORD YEARS]
96 REFUSED
97 DON'T KNOW

[IF A6a=02 OR 03, ASK A6c, ELSE SKIP TO A7]

A6c. In general, what is the investment hurdle rate of return your organization uses before deciding to proceed with an investment? [READ IF NECESSARY: What is the hurdle rate your organization uses to measure the return on investment or internal rate of return?]

01 ____ [RECORD %]
96 REFUSED
97 DON'T KNOW

[READ] Now I'd like to talk about capital investments in **energy efficiency** projects, specifically.

A7. In the past 5 years, has your organization made any capital investments in energy efficiency products or services?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

A8. 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 too important or not at all important?

01 VERY IMPORTANT
02 SOMEWHAT IMPORTANT
03 NOT TOO IMPORTANT
04 NOT AT ALL IMPORTANT
96 REFUSED
97 DON'T KNOW

A9. Would you say the importance of energy efficiency opportunities to your organization has increased, decreased, or stayed the same the past 5 years?

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

A10. Now, I'm going to read you a list of different factors organizations might consider when deciding to move forward with **energy efficiency** capital investments. For each one, please tell me if this is a major, a minor, or not a factor you consider when making decisions about energy efficiency capital investments. First, do you consider [INSERT ITEMS (a-g)]: ROTATE ITEMS
[READ IF NECESSARY: Is this a major, a minor, or not a factor you consider when making decisions about energy efficiency capital improvements?]

a. Financial criteria
b. Impact on your customers' experience or comfort at your facility
c. Impact on the employees' productivity or job satisfaction of your employees

d. Service quality impact
e. Process or product improvement
f. Safety of employees or customers
g. Desire to be green or corporate sustainability

01 MAJOR FACTOR
02 MINOR FACTOR
03 NOT A FACTOR
96 REFUSED
97 DON'T KNOW

A10h. Are there any other **major** factors you consider when deciding to move forward with **energy efficiency** capital investments?

01 YES (SPECIFY)
02 NO
96 REFUSED
97 DON'T KNOW

[READ A11 if A10a=01, YES, ELSE SKIP TO A13]

A11. How important are the following financial factors when deciding to move forward with an energy efficiency investment? [FOR EACH a-d, READ] How is important is the [INSERT a-d]? Would you say it is a major, a minor, or not a factor when deciding to move forward with an energy efficiency investment?

a. Availability of internal funding or capital budget
b. Availability of other outside co-funding
c. Availability of rebates or program incentives
d. Price of energy

01 MAJOR FACTOR
02 MINOR FACTOR
03 NOT A FACTOR
96 REFUSED
97 DON'T KNOW

[ASK A12a if A10a=01, YES, ELSE SKIP TO A13]

A12a. Now, assuming that funding is available, what is the main financial criterion you use when deciding to move forward with an energy efficiency capital investment? [DO NOT READ LIST. ACCEPT ONE ANSWER ONLY.]

01 PAYBACK
02 RETURN ON INVESTMENT (ROI)
03 INTERNAL RATE OF RETURN (IRR)
04 FIRST COST (INITIAL/UPFRONT COSTS)
05 LIFECYCLE COSTS (OPERATING/MAINTENANCE COSTS)
06 NET PRESENT VALUE/FUTURE CASH FLOW
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[IF A12a=01, ASK A12b, ELSE SKIP TO A12c]

A12b. In general, what is the payback threshold your organization uses before deciding to proceed with an energy efficiency investment? [RECORD IN MONTHS OR YEARS]

01 ___ RECORD MONTHS
02 ___ RECORD YEARS
96 REFUSED
97 DON'T KNOW

[IF A12a=02 OR 03, ASK A12c, ELSE SKIP TO A13]

A12c. In general, what is the investment hurdle rate of return your organization uses before deciding to proceed with an energy efficiency investment? [READ IF NECESSARY: What is the hurdle rate your organization uses to measure the return on investment or internal rate of return?]

01 ____ RECORD %
96 REFUSED
97 DON'T KNOW

A13. Does your organization have a formal policy or procedure requiring the purchase of energy efficient products and services?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[ASK A14 IF A13=01, ELSE SKIP TO A16]

A14. I'm going to read you a list of statements. For each one please tell me if it describes your organization's policy or procedures regarding energy efficiency products and services. [READ LIST.] ROTATE (a-f)

a. We have loose guidelines on the efficiency of products/services
b. We have a requirement to purchase only ENERGY STAR equipment
c. We have different requirements for different types of purchases
d. We must seek out the most efficient equipment available
e. We must abide by LEED standards
f. We must abide by ASHRAE and/or the New York State Energy Construction Code

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[ASK A15 IF A13=01, ELSE SKIP TO A16]

A15. How has this policy changed over the past five years? Would you say your organization's policies regarding energy efficiency products and services have become **more strict**, **less strict**, or have **stayed the same** over the past five years?

01 MORE STRICT
02 LESS STRICT
03 STAYED THE SAME
04 DEVELOPED POLICY IN PAST FIVE YEARS (VOL)
96 REFUSED
97 DON'T KNOW

A16. I'm going to read you a list of potential barriers to incorporating energy efficiency equipment into capital improvement projects. For each one, please tell me if it is a major, a minor, or not a barrier to incorporating energy efficiency into capital improvement projects? [READ IF NECESSARY: Is this a major, a minor, or not a barrier to incorporating energy efficiency into capital improvement projects?]

a. Lack of knowledgeable service providers
b. Lack of information about energy efficient equipment
c. Lack of internal experience with energy efficient equipment
d. Lack of capital for investment
e. Concerns about performance or reliability of energy efficient equipment
f. Concerns about up-front cost of energy efficient equipment
g. Concern about economic uncertainty
h. Lack of incentive programs

01 MAJOR
02 MINOR
03 NOT A BARRIER
96 REFUSED
97 DON'T KNOW

A17a. In your experience, have you found that the **number** of energy efficiency product and service contractors active in the marketplace has **increased, decreased, or stayed the same** over the past five years?

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

[ASK A17b IF A17a=01, ELSE SKIP TO A17c]

A17b. Why do you think the number of active energy efficiency product and service contractors has **increased** over the past five years? [DO NOT READ. CODE ALL THAT APPLY]

01 INCREASED MARKET OPPORTUNITY
02 CONCERNS ABOUT CLIMATE CHANGE
03 INCREASED DESIRE TO BE GREEN
04 REGULATORY CHANGES (NYC)
05 AVAILABILITY OF REBATES
06 COST OF ENERGY/ECONOMICS
07 EE MARKETING EFFORTS/INCREASED AWARENESS
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[ASK A17c IF A17a=02, ELSE SKIP TO A18]

A17c. Why do you think the number of active energy efficiency product and service contractors has **decreased** over the past five years? [DO NOT READ. CODE ALL THAT APPLY]

01 DECREASED MARKET OPPORTUNITY
02 LACK OF CAPITAL FOR INVESMENT
03 PROGRAM CHANGES

04 PROGRAM BUREAUCRACY CHANGES
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

A18. In your experience, have you found that the **technical capabilities** of energy efficient product and service contractors have increased, decreased, or stayed the same over the past five years? [READ IF NECESSARY: By technical capabilities we mean things like scope of service offerings and work quality.]

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

B. MARKET INTERACTION WITH FLEX TECH

[READ] Now, I'd like to ask you questions specifically related to your experience with NYSERDA and the FlexTech Program.

STATEMENT

We have on record that your organization has participated in the FlexTech program for the following projects:

1. **[INSERT proj_name1]**
2. **[INSERT proj_name2]**
3. **[INSERT proj_name3]**
4. **[INSERT proj_name4]**
5. **[INSERT proj_name5]**

First, I'd like you to think about the **first** FlexTech study that your organization participated in.

B1. How did you **first** become aware of the FlexTech program? Was it through an… [READ LIST. MARK ONE RESPONSE ONLY.]

01 Electrical (or other) contractor or energy services company (ESCO)
02 Equipment vendor
03 Technical services provider or contractor
04 Utility customer service representative
05 Flex Tech program marketing materials
06 NYSERDA website
07 Other NYSERDA programs [SPECIFY]
08 Friend or colleague
09 Outside consultant
10 NYSERDA in general
11 Engineering firms
95 Or something else? [SPECIFY]
96 REFUSED
97 DON'T KNOW

B2. I'm going to read you a list of factors that may have influenced your initial decision to participate in NYSERDA's FlexTech program and would like you to tell me if it was a major, a minor, or not a reason you decided to participate in FlexTech. First… **[READ B2a-f]** Would you say this is a **major**, a **minor**, or **not a reason** you decided to participate in FlexTech?

a. Your organization had a positive experience working with NYSERDA in another program.
b. Your organization wanted to complete an energy feasibility study and wanted to use FlexTech to cost-share the study.
c. NYSERDA Staff presented convincing reasons to participate in FlexTech
d. Another organization recommended the program
e. A technical service provider or contractor recommended the program while marketing for energy feasibility studies
    01 MAJOR REASON
    02 MINOR REASON
    03 NOT A REASON
    96 REFUSED
    97 DON'T KNOW
f. Is there any other factor that was a major influence in your decision to participate in the FlexTech program?
    01 YES [RECORD VERBATIM]
    02 NO
    96 REFUSED
    97 DON'T KNOW
g. Financial reasons
h. Energy efficiency reasons
i. Incentives/grants/rebates
    01 MAJOR REASON
    02 MINOR REASON
    03 NOT A REASON
    96 REFUSED
    97 DON'T KNOW

B3. Who or what influenced you the most in your decision to participate in FlexTech? [READ ANSWER CHOICES IF NECESSARY]

01 [INSERT "Previous experience with NYSERDA in another program" if B2a=01]
02 [INSERT "Wanted FlexTech to cost-share study" if B2b=01]
03 [INSERT "NYSERDA Staff" if B2c=01]
04 [INSERT "Another organization's recommendation" if B2d=01]
05 [INSERT "Technical service provider or contractor's recommendation" if B2e=01]
06 [INSERT "B2f VERBATIM" if B2f=01]
07 Financial reasons
08 Energy efficiency reasons
09 Incentives/grants/rebates
96 REFUSED
97 DON'T KNOW

[READ]
Now, I'd like you to think about **all** of the FlexTech projects that your organization has participated in over the past 5 years.

B4. Did your organization use in-house staff or an external contractor to complete your FlexTech studies?
- 01 IN HOUSE STAFF
- 02 EXTERNAL CONTRACTOR
- 03 BOTH
- 96 REFUSED
- 97 DON'T KNOW

[ASK B5 IF B4=02 OR 03, ELSE SKIP TO B8]
B5. Was the external contractor you used a *"NYSERDA certified FlexTech consultant"*?
- 01 YES
- 02 NO
- 96 REFUSED
- 97 DON'T KNOW

[ASK B6 IF B5=01, ELSE SKIP TO B7]
B6. Did you do work with this contractor prior to participating in FlexTech?
- 01 YES
- 02 NO
- 96 REFUSED
- 97 DON'T KNOW

[ASK B7 IF B5=02 OR 97, ELSE SKIP TO B8]
B7. Which of the following statements best describes the relationship your organization has with the external contractor who conducts these types of analyses? [READ STATEMENTS 01 AND 02]
- 01 One - We have a long term relationship in place with the contractor and the analyses are one example of the many types of services the contractor completes for us
- 02 Two - We typically conduct these analyses on project-specific basis and select a contractor based on word of mouth or the contractor's marketing efforts.
- 95 OTHER (SPECIFY) – (VOL)
- 96 REFUSED
- 97 DON'T KNOW

B8. Thinking about **all** of the FlexTech projects that you have participated in over the past 5 years, have you already received the results of **any** energy feasibility studies?
- 01 YES
- 02 NO
- 96 REFUSED
- 97 DON'T KNOW

[READ B9 IF B8=01, ELSE SKIP TO C1]
In the next section, I'd like you to think about **all** of the FlexTech projects for which you have **already received** the results of the energy feasibility studies.

B9. I'm going to read you a list of ways in which organizations might use the results of these types of energy feasibility studies. For each, please tell me if your organization uses results of these analyses in this way often, sometimes, rarely or never. First do you use results to [INSERT ITEMS a-e]: ROTATE

a. Identify energy or money saving opportunities
b. Verify or confirm what you already know or verify an original assessment that something would save you energy
c. Prioritize one investment over another
d. Develop new guidance for corporate decision making
e. Develop longer term capital investment or equipment replacement plans

01 OFTEN
02 SOMETIMES
03 RARELY
04 NEVER
96 REFUSED
97 DON'T KNOW

B9f. Are there any other ways in which your organization uses the results of energy feasibility studies that I have not mentioned?

01 YES (SPECIFY)
02 NO
96 REFUSED
97 DON'T KNOW

B10. Has your organization implemented any of the changes recommended in **any** of the energy feasibility studies **completed** to date?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[ASK B11 IF B10=01, ELSE SKIP TO B15]

B11. For the implemented measures, did you use the contractor that completed the study to implement the measures, or did you use another contractor?

01 SAME CONTRACTOR
02 DIFFERENT CONTRACTOR
03 BOTH (VOL)
96 REFUSED
97 DON'T KNOW

B12. Has your organization realized any operational or other benefits as a result of implementing these recommended changes?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[ASK B13 IF B12=01, ELSE SKIP TO B14]

B13. What benefits has your organization realized as a result of implementing these changes? Has your organization… [INSERT a-c]

a. Achieved a reduction in energy usage
b. Improved the economic performance of your organization
c. Achieved any non-energy benefits, such as improved worker health or productivity

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[ASK B14 IF B12=02, ELSE SKIP TO C1]

B14. Why do you think your organization has not realized any benefits as a result of implementing these changes? [DO NOT READ. MARK ALL THAT APPLY.]

01 NOT ENOUGH TIME / TOO EARLY TO TELL
02 HAVEN'T IMPLEMENTED ANY SIGNIFICANT RECOMMENDATIONS
03 CONSULTANT OVERSTATED/OVERESTIMATED RESULTS
04 EQUIPMENT PERFORMED POORLY – INCREASED OPERATION AND MAINTENANCE COSTS
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[ASK B15 IF B10=02, NO, HAVE NOT IMPLEMENTED CHANGES]

B15. Does your organization currently have plans to implement any changes?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[ASK B16 IF B15=01, YES, ELSE SKIP TO B17]

B16. Will you use the same contractor who conducted the initial analysis to implement changes, or will you use another contractor?

01 SAME CONTRACTOR
02 DIFFERENT CONTRACTOR
03 BOTH (VOL)
96 REFUSED
97 DON'T KNOW

[ASK B17 IF B15=02, NO]

B17. I'm going to read a list of reasons why customers may not implement changes, and would like you to tell me if you think it is a **major**, a **minor**, or **not a reason** that your organization did not implement recommended changes after receiving the results of the energy feasibility study. First, [READ LIST] – do you think this is a **major**, a **minor**, or **not a reason** your customers do not implement any recommended changes?

a. There was not enough internal capital to implement the recommended changes.
b. There were competing demands for capital.
c. You didn't own the building and the owner was not interested.

d. There was not any external funding or incentives available to help implement changes.
e. The estimated payback period was too high.
f. Your organization did not have confidence that the changes would perform as predicted.
g. Your organization did not think any contractor had the technical ability to implement recommended changes.
h. Your organization did not want to replace systems that were still working.

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

C. MARKET INTERACTION WITH ENERGY EFFICIENCY / NYSERDA

C1. How familiar would you say you are with the benefits of energy efficient products and services – would you say you are: very familiar, somewhat familiar, not too familiar or not at all familiar?

01 VERY FAMILIAR
02 SOMEWHAT FAMILIAR
03 NOT TOO FAMILIAR
04 NOT AT ALL FAMILIAR
96 REFUSED
97 DON'T KNOW

[ASK C2 IF C1≠96 OR C2≠97, ELSE SKIP TO C4]

C2. Over the past five years has your familiarity with the benefits of energy efficient products and services, increased, decreased or stayed about the same?

01 INCREASED
02 DECREASED
03 STAYED ABOUT THE SAME
96 REFUSED
97 DON'T KNOW

[ASK C3 IF C2=01, ELSE SKIP TO C4]

C3. I'm going to read you a list of possible reasons for your increased familiarity with the benefits of energy efficient products and services over the past five years. For each one, please tell me if this is a major reason a minor reason or not a reason for your increased awareness. First [INSERT ITEMS (a-f)]: ROTATE.

a. There is more information/education circulating in the industry about these benefits
b. There are more suppliers/contractors marketing these products and services
c. There is more demand to reduce costs so we went looking for such products
d. Other organizations in our sector were using energy efficient products and services
e. There is more demand to increase non-energy benefits, such as worker productivity or health
f. Our organization is more focused on energy efficiency, so we actively sought out more information

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

C3g. NYSERDA's Flex Tech Program made us more aware of energy efficiency products and services.

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

C4. In general, would you say that energy efficient equipment performs better, worse or the same as standard efficiency equipment?

01 BETTER
02 WORSE
03 SAME
96 REFUSED
97 DON'T KNOW

[ASK C5 IF C4=01, 02, OR 03, ELSE SKIP TO C6]

C5. Why do you think that is?

01 [RECORD VERBATIM]
02 Uses less energy
03 New technology
04 More energy efficient
95 Other (Specify)
96 REFUSED
97 DON'T KNOW

[ASK C6 IF C4=01, ELSE SKIP TO C7]

C6. Has the improved performance of high efficiency equipment relative to standard efficiency equipment been a major reason, a minor reason, or not a reason for investment in energy efficiency products and services at your organization over the past five years?

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
04 NO INVESTMENT IN ENERGY EFFICIENCY (VOL)
96 REFUSED
97 DON'T KNOW

C7. As far as you know, are there other utilities or agencies that administer energy efficiency programs in New York or is NYSERDA the only group running these types of programs?

01 OTHER GROUPS (SPECIFY)
02 NYSERDA ONLY
04 NEW YORK POWER AUTHORITY (NYPA)
05 LONG ISLAND POWER AUTHORITY (LIPA)
06 CON EDISON (CONED)
07 NATIONAL GRID
08 NY STATE ELECTRIC AND GAS (NYSEG)
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[ASK C8 IF C7=01, ELSE SKIP TO C13]

C8. Have you participated in any energy efficiency programs run by any of these other entities (utilities or agencies)?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[ASK C8a if C8=01, ELSE SKIP TO C9]

C8a. Which other programs have you participated in?

01 [RECORD VERBATIM]
02 NYSERDA
04 NEW YORK POWER AUTHORITY (NYPA)
05 LONG ISLAND POWER AUTHORITY (LIPA)
06 CON EDISON (CONED)
07 NATIONAL GRID
08 NY STATE ELECTRIC AND GAS (NYSEG)
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[ASK C9 IF C7=01, ELSE SKIP TO C13]

C9. Thinking about all the different entities that administer energy efficiency programs in New York, which of the following statements best describes the programs they offer? [READ STATEMENTS 01-03]

01 They offer the same types of programs so the utilities or agencies are in competition with each other for clients
02 They offer complementary programs and are not really in competition with each other
03 They sometimes offer the same programs and sometimes offer complementary programs
96 REFUSED
97 DON'T KNOW

[ASK C10 IF C7=01, ELSE SKIP TO C13]

C10. In general, would you say that one of these entities does a better job than the others of administering these energy efficiency programs or do you think they all do about the same?

01 ONE DOES BETTER
02 ALL ABOUT THE SAME
96 REFUSED
97 DON'T KNOW

[ASK C11 IF C10=01, ELSE SKIP TO C13]

C11. Which entity does the best job of administering these energy efficiency programs?

01 [RECORD VERBATIM]
02 NYSERDA
04 NEW YORK POWER AUTHORITY (NYPA)
05 LONG ISLAND POWER AUTHORITY (LIPA)
06 CON EDISON (CONED)
07 NATIONAL GRID
08 NY STATE ELECTRIC AND GAS (NYSEG)
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[ASK C12 if C11=01, ELSE SKIP TO C13]

C12. What is unique or better about this entity?

01 [RECORD VERBATIM]
02 BETTER SERVICE
96 REFUSED
97 DON'T KNOW

[ASK ALL]

C13. Do you have any other comments you'd like to make about your experience with NYSERDA's Flex Tech program? [READ IF NECESSARY: The evaluation team will report all responses in the aggregate. Your responses will not be attributable to any individual respondent or organization, to the extent permitted by law.]

01 YES [RECORD VERBATIM]
02 NO
96 REFUSED
97 DON'T KNOW

D. FIRMOGRAPHIC INFORMATION

[READ] Last, I just have a few questions about your organization.

D1. How long has your organization been in business?
- 01 [NUMBER OF YEARS GIVEN]
- 02 [ESTABLISHMENT YEAR GIVEN]
- 96 REFUSED
- 97 DON'T KNOW

D2. Is your organization independent or part of a larger organization?
- 01 INDEPENDENT
- 02 PART OF LARGER ORGANIZATION
- 03 OTHER [SPECIFY]
- 96 REFUSED
- 97 DON'T KNOW

D3. Approximately how many full time employees does your organization employ at all of its locations in New York State?
- 01 [RECORD NUMBER]
- 96 REFUSED
- 97 DON'T KNOW

D4. Has this number increased, decreased or stayed about the same over the past five years?
- 01 INCREASED
- 02 DECREASED
- 03 STAYED THE SAME
- 96 REFUSED
- 97 DON'T KNOW

D5. What is the approximate electric load, in kilowatts, for the organization? [READ IF NECESSARY]
- 01 <25 kW
- 02 25-150 kW
- 03 151-400 kW
- 04 401-1,000 kW
- 05 1,001-5,000 kW
- 06 >5,000 kW
- 96 REFUSED
- 97 DON'T KNOW

CLOSING

Those are all the questions I have for you. Thank you for your time. Have a nice day/evening.

FLEXIBLE TECHNICAL ASSISTANCE EVALUATION
Non-Participating Contractor Survey

Final Instrument with New Codes
April 15, 2011

OPENING

Hello, my name is **[INTERVIEWER NAME]**, and I'm calling from OpinionAmerica, on behalf of the New York State Energy Research and Development Authority (also known as NYSERDA). May I please speak with **[NAME]**?

[IF NO NAME IS AVAILABLE, READ: May I please speak with someone familiar with your firm's engineering work?]

Our firm is conducting research for NYSERDA on the Flexible Technical Assistance Program (also known as FlexTech) to improve NYSERDA programs that provide energy feasibility studies and technical support for the commercial buildings market. As part of our research, we'd like to know more about companies that offer these types of studies and support.

Q1. Are you the appropriate person to discuss issues related to your firm's work conducting energy feasibility studies and/or technical support for non-residential buildings? [READ IF NECESSARY – IF COMPANY DOES NOT DO ENERGY FEASIBILITY: Are you the appropriate person to discuss your firm's engineering work?]

01 YES
02 NO, WRONG PERSON **[ASK Q2]**
03 NO, WE ONLY WORK IN RESIDENTIAL BUILDINGS **[TERMINATE]**
04 NO, WE ONLY DO ENGINEERING WORK NOT RELATED TO BUILDINGS **[TERMINATE]**
05 NO, WE DON'T DO ANY ENGINEERING WORK **[TERMINATE]**
96 REFUSED **[ASK Q2]**
97 DON'T KNOW **[ASK Q2]**

[IF Q1=02,96,97 ASK Q2, ELSE CONTINUE TO Q3]
Q2. Who at your firm can best speak about your firm's work?

01 [RECORD CONTACT INFORMATION: NAME, TITLE, PHONE NUMBER]
96 REFUSED **[TERMINATE]**
97 DON'T KNOW **[TERMINATE]**

[FOR Q1 & Q2]
[READ IF NECESSARY – My questions should only take about 15-20 minutes.]
[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 company. If you have questions, you can contact NYSERDA's project manager for evaluation, Carole Nemore at 518-862-1090, ext. 3217, or by email at csn@nyserda.org]

Q3. How familiar are you with NYSERDA – would you say you are: very familiar, somewhat familiar, not too familiar, or not at all familiar?

01 VERY FAMILIAR
02 SOMEWHAT FAMILIAR
03 NOT TOO FAMILIAR
04 NOT AT ALL FAMILIAR
96 REFUSED
97 DON'T KNOW

[IF Q3=01-03, ASK Q4, ELSE SKIP TO S1]

Q4. How familiar are you with NYSERDA's FlexTech program – would you say you are: very familiar, somewhat familiar, not too familiar, or not at all familiar?

01 VERY FAMILIAR
02 SOMEWHAT FAMILIAR
03 NOT TOO FAMILIAR
04 NOT AT ALL FAMILIAR
96 REFUSED
97 DON'T KNOW

Q5. To the best of your knowledge, has your firm participated in any NYSERDA or **New York Energy $mart**[SM] programs in the past five years? [READ IF NECESSARY: NYSERDA = New York State Energy Research and Development Authority]

01 YES, PARTICIPATED IN NYSERDA PROGRAMS
02 NO, DID NOT PARTICIPATE IN ANY NYSERDA PROGRAMS
96 REFUSED
97 DON'T KNOW

[IF Q5=01, READ Q6, ELSE SKIP TO S1]

Q6. Which NYSERDA programs has your organization participated in? [DO NOT READ. MARK ALL THAT APPLY.]

01 FLEX TECH (FLEXIBLE TECHNICAL ASSISTANCE PROGRAM)
02 NEW CONSTRUCTION PROGRAM
03 EXISTING FACILITIES PROGRAM
04 BUSINESS PARTNERS
05 LIGHTING PROGRAM
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[IF Q6=01, READ Q7, ELSE SKIP TO Q9]

Q7. In the past five years, did your firm participate in NYSERDA's FlexTech program as a certified consultant or as an independent consultant?

01 CERTIFIED CONSULTANT
02 INDEPENDENT CONSULTANT
96 REFUSED
97 DON'T KNOW

[IF Q4=01 OR 02, AND Q7≠01 ASK Q8, ELSE SKIP TO Q10]

Q8. Has your firm ever applied to be a certified FlexTech consultant?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[IF Q8=01, ASK Q9, ELSE SKIP TO Q10]

Q9. Can you tell me what happened to your application?

01 [RECORD VERBATIM]
96 REFUSED
97 DON'T KNOW

[IF Q5=01 AND Q6≠96 or 97, ASK Q10, ELSE SKIP TO S1]

Q10. Would you like to offer any comments about your organization's participation in the NYSERDA Program(s)?

01 [RECORD VERBATIM]
02 NO
96 REFUSED
97 DON'T KNOW

[IF Q6=01, TERMINATE SURVEY {DISPOSITION AS Q6 – INELIGIBLE}, ELSE READ S1]

Thank you very much for your time. We do not have any further questions for you at this time. Please be aware: in a few months, we will be conducting a survey effort for participating contractors, so your firm may be contacted again.

SCREENER 1 –BUILDING SERVICES

Read: First, just to confirm that we are talking to the right type of company, I have a few questions about your firm.

S1. Does your firm provide engineering services for… [READ LIST]
   a. Commercial or institutional buildings? [READ IF NECESSARY: This includes schools, health care or government facilities, as well as office or bank buildings, among others.]
   b. Industrial or manufacturing companies?
   c. Data centers?
      01 YES
      02 NO
      96 REFUSED
      97 DON'T KNOW

S2. Does your firm do work in **new construction** or in **existing facilities**?
   01 NEW CONSTRUCTION
   02 EXISTING FACILITIES
   03 BOTH (VOL)
   96 REFUSED
   97 DON'T KNOW

[IF {S1a≠01 AND S1b≠01 AND S1c≠01}, TERMINATE SURVEY {DISPOSITION AS S1 – INELIGIBLE}, ELSE READ A1]
Thank you very much for your time. We do not have any further questions for you at this time.

A. FIRM CHARACTERIZATION

TYPE OF ENGINEERING SERVICES – BUILDING SYTEMS

First, I would like to ask you some questions about the engineering services your firm furnishes for clients.

A1. Does your firm furnish engineering services for… [READ LIST]
   a. Mechanical systems and controls, including HVAC?
   b. Electrical systems and controls, including lighting?
   c. Plumbing systems and controls, including hot water?
   d. Building shell or envelope performance and retrofits?
   e. Industrial or manufacturing processes? **[IF S1b≠01, DO NOT ASK A1e]**
      01 YES
      02 NO
      96 REFUSED
      97 DON'T KNOW

[IF NO YES IN A1a-A1e, ASK A1f, ELSE SKIP TO A2]

A1f. What building systems do you furnish engineering services for?

01 [RECORD VERBATIM]
96 REFUSED **[TERMINATE]**
97 DON'T KNOW **[TERMINATE]**

A2. How much of your business revenue is attributable to delivering these engineering services – would you say all, most, some, a little, or none of it? [READ IF NECESSARY: By engineering services, I mean any MEP, building shell, or process-related engineering services.]

01 ALL
02 MOST
03 SOME
04 A LITTLE
05 NONE
96 REFUSED
97 DON'T KNOW

[IF ANY A1a-A1d or A1f=01, ASK A3, ELSE SKIP TO A4]

A3. When evaluating building systems, how often do you focus on more than one building system – would you say: always, often, sometimes, rarely, or never?

01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER
96 REFUSED
97 DON'T KNOW

[IF A1e=01, YES, ASK A4, ELSE SKIP TO A5]

A4. When evaluating industrial or manufacturing systems, how often do you include an analysis of other building systems – would you say: always, often, sometimes, rarely, or never?

01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER
96 REFUSED
97 DON'T KNOW

[ASK ALL]

A5. When you conduct any of these engineering studies, how often do you offer clients options for improving the energy efficiency of the system or process – would you say: always, often, sometimes, rarely, or never? [READ IF NECESSARY: By engineering services, I mean any MEP, building shell, or process-related engineering services.]

01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER
96 REFUSED
97 DON'T KNOW

[IF A5=01-03, ASK A6, ELSE SKIP TO A7]

A6. How often do clients select the higher efficiency option – would you say: always, often, sometimes, rarely, or never?

01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER
96 REFUSED
97 DON'T KNOW

A7. After you have completed an engineering study for a client, how would you characterize your typical involvement with the installation of the new systems or process? Would you say you typically… [READ LIST]

01 Are not involved with the installation
02 Act as a consultant for your client during installation
03 Are responsible for the installation
04 Partner with another firm who is responsible for the installation
05 Play multiple roles
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[IF A7=04, ASK A8, ELSE SKIP TO A9]

A8. What types of firms do you partner with? [PROBE TO CODE. MARK ALL THAT APPLY.]

01 ARCHITECTURE FIRMS
02 CONSULTANT FIRMS
03 CONTRACTORS / SPECIALTY CONTRACTORS (SPECIFY)
04 SUPPLIERS / DISTRIBUTORS
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

Now, I would like to ask you questions about engineering studies directly related to energy efficiency, procurement, and generation.

A9. Does your firm currently furnish any of the following services? Do you conduct… [READ LIST]

a. Retro-commissioning studies? [READ IF NECESSARY: Retro-commissioning studies are studies focused on maximizing the energy efficiency of existing building systems and controls.]
b. Energy efficiency feasibility studies? [READ IF NECESSARY: Energy feasibility studies aim to assist customers in making more informed energy decisions regarding capital improvements at their facilities.]
c. Industrial and process efficiency studies? [READ IF NECESSARY: Industrial and process efficiency studies may focus on increasing productivity, improving environmental performance, or minimizing waste for industrial or processing facilities.] **[IF S1b≠01, DO NOT ASK A9c]**

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[IF ANY A9a-A9c=01, YES, ASK A10, ELSE SKIP TO A11]

A10. How much of your business revenue is attributable to delivering these energy efficiency studies – would you say all, most, some, a little, or none? [READ IF NECESSARY: How much of your business' revenue is attributable to conducting retro-commissioning or energy efficiency feasibility studies?]

01 ALL
02 MOST
03 SOME
04 A LITTLE
05 NONE
96 REFUSED
97 DON'T KNOW

[ASK A11 IF ANY A9a-A9c=02 – NO, ELSE SKIP TO A12]

A11. I am going to read you a list of reasons why firms may not conduct these types of studies. For each, please tell me if it is a major, a minor, or not a reason your firm does not conduct these types of studies. [READ IF NECESSARY: Why does your firm not conduct **{INSERT ANY 02 – NO FROM A9a-c}**]

a. We don't have the technical skills needed to conduct these studies.
b. We don't have confidence in the results generated by these studies.
c. We don't think that these studies will be as profitable as our existing business.
d. We don't think that our clients would be interested in these studies.

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

[ASK ALL]

A12. Does your firm currently furnish any of the following services? Do you conduct… [READ LIST]

a. Energy procurement studies?
b. Peak-load curtailment studies?
c. Renewable generation feasibility studies?
d. Combined heat and power studies?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[IF ANY A12a-A12d=01, YES, READ A13, ELSE SKIP TO A14]

A13. About how much of your business' revenue is attributable to delivering these energy studies – would you say all, most, some, a little, or none? [READ IF NECESSARY: How much of your business' revenue is attributable to **{INSERT ANY YES FROM A12a-d}**]

01 ALL
02 MOST
03 SOME
04 A LITTLE
05 NONE
96 REFUSED
97 DON'T KNOW

[IF A12c=02 OR A12d=02, ASK A14 ELSE SKIP TO A15]

A14. I am going to read you a list of reasons why firms may not conduct energy generation or cogeneration feasibility studies. For each, please tell me if it is a major, a minor, or not a reason your firm does not conduct these types of studies. First… [READ a-d]

a. We don't have the technical skills needed to conduct these studies.
b. We don't have confidence in the results generated by these studies.
c. We don't think that these studies will be as profitable as our existing business.
d. We don't think that our clients would be interested in these studies.

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

A15. In your experience, have you found that the **number** of firms furnishing **energy feasibility studies** in the marketplace has increased, decreased, or stayed the same over the past five years?

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

A16. In your experience, have you found that the **technical capabilities** of firms furnishing **energy feasibility studies** in the marketplace have increased, decreased, or stayed the same over the past five years?

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

B. CUSTOMERS – MARKET CHARACTERIZATION

Next, I have some questions about the customers that you serve.

B1. Do you primarily serve **downstate** New York (the 5 boroughs of New York City plus the Westchester area) or **upstate** New York?

01 DOWNSTATE
02 UPSTATE
03 BOTH (VOL)
96 REFUSED
97 DON'T KNOW

B2. What are your customers' primary business activities? [MARK ALL THAT APPLY. PROBE TO CODE.]

01 EDUCATION – PRIMARY & SECONDARY SCHOOLS
02 EDUCATION – COLLEGES & UNIVERSITIES
03 HEALTH CARE
04 INDUSTRIAL PROCESSING & MANUFACTURING
05 GOVERNMENT
06 OFFICE AND BANKING (COMMERCIAL REAL ESTATE)
07 RETAIL
08 UTILITIES
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[IF Q3=01 OR 02, VERY OR SOMEWHAT FAMILIAR WITH NYSERDA, READ B3, ELSE SKIP TO B4]

B3. To the best of your knowledge, how familiar are your customers with NYSERDA – would you say they are: very familiar, somewhat familiar, not too familiar, or not at all familiar?

01 VERY FAMILIAR
02 SOMEWHAT FAMILIAR
03 NOT TOO FAMILIAR
04 NOT AT ALL FAMILIAR
96 REFUSED
97 DON'T KNOW

[IF Q4=01 OR 02, VERY OR SOMEWHAT FAMILIAR WITH FLEX TECH, READ B4, ELSE SKIP TO B5]

B4. To the best of your knowledge, how familiar are your customers with the FlexTech program – would you say they are: very familiar, somewhat familiar, not too familiar, or not at all familiar?

01 VERY FAMILIAR
02 SOMEWHAT FAMILIAR
03 NOT TOO FAMILIAR
04 NOT AT ALL FAMILIAR
96 REFUSED
97 DON'T KNOW

B5. Based on your experience, how confident are your customers that high efficiency equipment will perform better than standard efficiency equipment – would you say they are: very, somewhat, not too, or not at all confident?

01 VERY CONFIDENT
02 SOMEWHAT CONFIDENT
03 NOT TOO CONFIDENT
04 NOT AT ALL CONFIDENT
96 REFUSED
97 DON'T KNOW

B6. In general, how important are energy efficiency opportunities to your customers when they consider capital improvement projects – would you say: very important, somewhat important, not too important, or not at all important?

01 VERY IMPORTANT
02 SOMEWHAT IMPORTANT
03 NOT TOO IMPORTANT
04 NOT AT ALL IMPORTANT
96 REFUSED
97 DON'T KNOW

B7. Has this level of importance increased, decreased, or stayed about the same over the past five years?

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

B8. Based on your experience, how many of your customers have a formal policy or procedure requiring the purchase of energy efficient systems and practices? Would you say all, most, some, few, or none of them?

01 ALL
02 MOST
03 SOME
04 FEW
05 NONE
96 REFUSED
97 DON'T KNOW

B9. Has this amount increased, decreased, or stayed the same over the past five years? [READ IF NECESSARY: The percentage of your customers who have a formal policy or procedure requiring the purchase of energy efficient systems and practices?]

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

C. CUSTOMERS – FLEXTECH EVALUATION CHARACTERIZATION

FLEXTECH STATEMENT

The goal of NYSERDA's FlexTech Program is to provide objective and customized information to help customers make informed energy decisions. Program participants receive cost-shared analyses targeting their particular energy and business needs. The Program uses energy efficiency technical evaluations, peak-load curtailment studies, energy procurement analyses, combined heat and power and renewable generation feasibility studies to accomplish its goal.

[FOR C1-C13: READ IF NECESSARY: By "energy feasibility studies", we are referring to energy efficiency, energy procurement, or energy generation feasibility studies.]

[IF B1=03, BOTH UPSTATE/DOWNSTATE ASK C1, ELSE SKIP TO C2]

C1. In your experience, are businesses in downstate or upstate New York more interested in these types of energy feasibility studies? [READ IF NECESSARY: By downstate New York, we mean the 5 boroughs of New York City plus the Westchester area.]

01 DOWNSTATE
02 UPSTATE
03 EQUAL
96 REFUSED
97 DON'T KNOW

C2. Please rate the following types of organizations on their interest in these types of energy feasibility studies. Would you say [INSERT ITEMS (a-f): ROTATE] are very interested, somewhat interested, not too interested, or not at all interested in these types of studies?

a. Primary and Secondary Schools **[ASK C2a IF B2=01]**
b. Colleges and Universities **[ASK C2b IF B2=02]**
c. Health Care Facilities **[ASK C2c IF B2=03]**
d. Industrial Processing and Manufacturing Companies **[ASK C2d IF B2=04]**
e. Government Facilities **[ASK C2e IF B2=05]**
f. Commercial Real Estate (such as Offices and Bank Buildings) **[ASK C2f IF B2=06]**

01 VERY INTERESTED
02 SOMEWHAT INTERESTED
03 NOT TOO INTERESTED
04 NOT AT ALL INTERESTED
05 NEITHER INTERESTED NOR DISINTERESTED (VOL)
96 REFUSED
97 DON'T KNOW

[IF B2=01-06, ASK C2g, ELSE SKIP TO C2h]

C2g. Are there any other types of businesses or organizations that you think are particularly interested in these types of energy feasibility studies?

01 [RECORD VERBATIM]
02 NO
96 REFUSED
97 DON'T KNOW

[IF B2=95-97, ASK C2h, ELSE SKIP TO C3]

C2h. Are there any types of businesses or organizations that you think are particularly interested in these types of energy feasibility studies?

01 [RECORD VERBATIM]
02 NO
96 REFUSED
97 DON'T KNOW

[ASK C3 IF ANY A9a-A9c OR A12a-A12d=01, YES, ELSE SKIP TO D1]

C3. How does your firm market these types of energy feasibility studies to potential customers? [MARK ALL THAT APPLY]

01 [RECORD VERBATIM]
02 DO NOT ACTIVELY MARKET
03 CUSTOMER/CLIENT SEEKS US OUT
04 PART OF ANOTHER PROJECT/SERVICES
05 WORD OF MOUTH
06 ORGANIZED NETWORKING (CONFERENCES, TRADE SHOWS)
07 WEBSITE, MATERIALS
08 DIRECT MARKETING/IN-PERSON MARKETING
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[IF C3=01, READ C4-C5, ELSE SKIP TO C6]

C4. What is the typical title or position of the customer contact your firm tries to engage through its marketing efforts? Would you say it's the… [READ LIST. MARK ALL THAT APPLY]

01 Governing Body or Board of Directors
02 CEO or CFO
03 Facilities Manager/Building Management
04 Chief Process Engineer/Operations Engineer/Manager
05 President/Vice President
06 Senior Management of Organization
07 Owner
95 Someone else (SPECIFY)
96 REFUSED
97 DON'T KNOW

C5. When you market this type of energy feasibility study, how often do your customers decide to conduct the study – would you say: always, often, sometimes, rarely, or never?

01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER
96 REFUSED
97 DON'T KNOW

[IF C5=03-05, ASK C6, ELSE SKIP TO C8]

C6. We'd like to understand why some businesses or organizations don't conduct these studies. I'm going to read you a list of possible reasons and would like you to tell me if it is a **major**, a **minor**, or **not a reason** that your customers do not have this type of study conducted.

a. They are not aware of these types of studies or opportunities to do them.
b. They perceive the cost of the study is too high.
c. These types of studies take too much staff time and resources.
d. They must deal with competing priorities for financial resources.
e. They don't own the building and the owner won't pay for it.
f. The track record for these types of projects is uncertain or unreliable.
g. They believe there is a lack of reputable technical service providers.
h. There is a resistance to new and/or innovative technologies.
i. There are no government subsidies available to mitigate the cost of the study.

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

[ASK C7 if C6b=01, ELSE SKIP TO C8]

C7. You indicated that you think cost is a major reason businesses or organizations choose not to conduct an energy feasibility study. In your opinion, is there a cost sharing arrangement that would help stimulate customer interest in these types of energy feasibility studies?

01 [RECORD VERBATIM]
96 REFUSED
97 DON'T KNOW

[ASK C8 if C5=01-03, ELSE SKIP TO D1]

C8. I'm going to read you a list of reasons why businesses organizations may **choose to have** these types of studies conducted. For each, please tell me if you think this is a **major**, a **minor**, or **not a reason** your customers might conduct these types of energy feasibility studies.

a. To identify energy or money saving opportunities
b. To verify or confirm what they already know or to verify an original assessment that something would save them energy
c. To prioritize one investment over another
d. To develop new guidance for corporate decision making
e. To develop their longer term capital investment or equipment replacement plans
f. To receive subsidies or incentives from government programs

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

g. Are there any other **major** reasons organizations might conduct this type of study?

01 YES [RECORD VERBATIM]
02 NO
96 REFUSED
97 DON'T KNOW

C9. After your firm completes an energy feasibility study, what is the title or position of the persons who review the results? Would you say it's the… [READ LIST. MARK ALL THAT APPLY]

01 Governing Body or Board of Directors
02 CEO or CFO
03 Facilities Manager/Building Management
04 Chief Process Engineer/Operations Engineer/Manager
05 President/Vice President
06 Senior Management of Organization
07 Owner
95 Other (Specify)
96 REFUSED
97 DON'T KNOW

C10. After receiving the results of the study, how often do your customers implement any recommended changes – would you say always, often, sometimes, rarely, or never?

01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER

96 REFUSED
97 DON'T KNOW

[IF C10=02-05, READ C11, ELSE SKIP TO D1]

C11. I'm going to read a list of reasons why customers may not implement changes, and would like you to tell me if you think it is a **major**, a **minor**, or **not a reason** that your customers do not implement recommended changes after receiving the results of an energy feasibility study. First, [READ LIST] – do you think this is a **major**, a **minor**, or **not a reason** your customers do not implement any recommended changes?

a. They did not have enough internal capital to implement the recommended changes.
b. There were competing demands for capital.
c. They didn't own the building and the owner was not interested.
d. There was not any external funding or incentives available to help implement changes.
e. The estimated payback period was too high.
f. They did not have confidence that the changes would perform as predicted.
g. They did not think any contractor had the technical ability to implement recommended changes.
h. They did not want to replace systems that were still working.

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

D. AWARENESS OF ENERGY EFFICIENCY PROGRAMS

D1. How familiar are you with the New York State Energy Conservation Construction Code – would you say you are: very, somewhat, not too, or not at all familiar with the code?

01 VERY FAMILIAR
02 SOMEWHAT FAMILIAR
03 NOT TOO FAMILIAR
04 NOT AT ALL FAMILIAR
96 REFUSED
97 DON'T KNOW

D2. As far as you know, are there other groups or agencies that administer energy efficiency programs in New York or is NYSERDA the only group running these types of programs?

01 OTHER GROUPS (SPECIFY)
02 OTHER GROUPS (SPECIFY) BUT HAVE NOT HEARD OF NYSERDA
03 NYSERDA ONLY
04 NEW YORK POWER AUTHORITY (NYPA)
05 LONG ISLAND POWER AUTHORITY (LIPA)
06 CON EDISON (CONED)
07 NATIONAL GRID

08 NY STATE ELECTRIC AND GAS (NYSEG)
95 OTHER GROUPS (SPECIFY)
96 REFUSED
97 DON'T KNOW

[ASK D3 IF D2=01, ELSE SKIP TO E1]

D3. Thinking about all of the different groups and agencies that administer energy efficiency programs in New York, do you think the programs **complement** each other or **compete** with each other?
01 COMPLEMENT
02 COMPETE
03 BOTH (VOL)
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

E. Firmographic Information

Last, I just have a few questions about your firm.

E1. How long has your firm been in business?
01 [NUMBER OF YEARS GIVEN]
02 [YEAR ESTABLISHED]
96 REFUSED
97 DON'T KNOW

E2. Is your company independent or part of a larger company?
01 Independent
02 Part of larger company
03 OTHER [SPECIFY]
96 REFUSED
97 DON'T KNOW

E3. Approximately how many full time employees does your company employ at all of its locations in New York State?
01 [NUMBER OF EMPLOYEES GIVEN]
96 REFUSED
97 DON'T KNOW

E4. Has this number increased, decreased, or stayed the same over the past five years?
01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

FLEXIBLE TECHNICAL ASSISTANCE EVALUATION
Participating Contractor Survey

Final Instrument with New Codes
April 15, 2011

OPENING

Hello, my name is **[INTERVIEWER NAME]**, and I'm calling from OpinionAmerica, on behalf of NYSERDA (the New York State Energy Research and Development Authority). May I please speak with **[NAME]**?

Our firm is conducting research for NYSERDA on the Flexible Technical Assistance Program (also known as FlexTech) to improve NYSERDA programs that provide energy feasibility studies and technical support for the commercial buildings market.

I have you listed as **[ORG_NAME]**'s primary contact for interactions with the FlexTech Program.

Q1. Are you the appropriate person to discuss issues related to your company's participation in the FlexTech Program?
- 01 YES
- 02 NO, WRONG PERSON **[ASK Q2]**
- 03 NO, HAVE NOT HEARD OF NYSERDA/FLEXTECH **[ASK Q2]**
- 96 REFUSED **[ASK Q2]**
- 97 DON'T KNOW **[ASK Q2]**

[IF Q1=02-97, ASK Q2, ELSE CONTINUE TO Q3]
Q2. Who at your company can best speak about your firm's participation in NYSERDA's FlexTech Program?
- 01 [RECORD CONTACT INFORMATION: NAME, TITLE, PHONE NUMBER]
- 96 REFUSED **[TERMINATE]**
- 97 DON'T KNOW **[TERMINATE]**

[FOR Q1 & Q2]
As part of our research, I'd like to ask you some questions about your company's work and your experience with the FlexTech program.

[READ IF NECESSARY – My questions should take about 30 minutes.]
[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 company. If you have questions, you can contact NYSERDA's project manager for evaluation, Victoria Engel-Fowles at 518-862-1090, ext. 3207, or by email at vse@nyserda.org]

[IF CONSULTANT=NYSERDA, SKIP TO Q5]
[IF CONSULTANT=OTHER, ASK Q3]

Q3. My records show that you participated in FlexTech as an independent contractor. Has your firm ever been or applied to be a certified FlexTech consultant?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[IF Q3=01, ASK Q4, ELSE SKIP TO Q5]

Q4. Can you tell me what happened to your application? [READ IF NECESSARY: Can you tell me why you are not currently a certified FlexTech consultant?]

01 [RECORD VERBATIM]
02 WERE NOT SELECTED/DENIED
03 APPROVED/RECEIVED CONTRACT
96 REFUSED
97 DON'T KNOW

Q5. To the best of your knowledge, in addition to the FlexTech Program, has your firm participated in any other NYSERDA or **New York Energy $mart**[SM] programs in the past five years?

01 YES, PARTICIPATED IN OTHER NYSERDA PROGRAMS
02 NO, DID NOT PARTICIPATE IN ANY OTHER NYSERDA PROGRAMS
96 REFUSED
97 DON'T KNOW

[IF Q5=01, READ Q6, ELSE SKIP TO S1]

Q6. Which other NYSERDA programs has your organization participated in? [DO NOT READ. MARK ALL THAT APPLY.]

01 NEW CONSTRUCTION PROGRAM
02 EXISTING FACILITIES PROGRAM
03 BUSINESS PARTNERS
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

SCREENER 1 –BUILDING SERVICES

Read: First, I have a few questions about your firm.

S1. Does your firm provide engineering services for… [READ LIST]
   a. Commercial or institutional buildings? [READ IF NECESSARY: This includes schools, health care or government facilities, as well as office or bank buildings, among others.]
   b. Industrial or manufacturing companies?
   c. Data centers?
      01 YES
      02 NO
      96 REFUSED
      97 DON'T KNOW

S2. Does your firm do work in **new construction** or in **existing facilities**?
   01 NEW CONSTRUCTION
   02 EXISTING FACILITIES
   03 BOTH (VOL)
   96 REFUSED
   97 DON'T KNOW

A. FIRM CHARACTERIZATION

TYPE OF ENGINEERING SERVICES – BUILDING SYTEMS

Now, I would like to ask you some questions about the engineering services your firm furnishes for clients.

A1. Does your firm furnish engineering services for… [READ LIST]
   a. Mechanical systems and controls, including HVAC?
   b. Electrical systems and controls, including lighting?
   c. Plumbing systems and controls, including hot water?
   d. Building shell or envelope performance and retrofits?
   e. Industrial or manufacturing processes? **[IF S1b≠01, DO NOT ASK A1e]**
      01 YES
      02 NO
      96 REFUSED
      97 DON'T KNOW

[IF NO YES IN A1a-A1e, ASK A1f, ELSE SKIP TO A2]
A1f. What building systems do you furnish engineering services for?
   01 [RECORD VERBATIM]
   96 REFUSED
   97 DON'T KNOW

A2. How much of your business revenue is attributable to delivering these engineering services – would you say all, most, some, a little, or none of it? [READ IF NECESSARY: By engineering services, I mean any MEP, building shell, or process-related engineering services.]

01 ALL
02 MOST
03 SOME
04 A LITTLE
05 NONE
96 REFUSED
97 DON'T KNOW

[IF ANY A1a-A1d or A1f=01, ASK A3, ELSE SKIP TO A4]

A3. When evaluating building systems, how often do you focus on more than one building system – would you say: always, often, sometimes, rarely, or never?

01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER
96 REFUSED
97 DON'T KNOW

[IF A1e=01, YES, ASK A4, ELSE SKIP TO A5]

A4. When evaluating industrial or manufacturing processes or systems, how often do you include an analysis of other building systems – would you say: always, often, sometimes, rarely, or never?

01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER
96 REFUSED
97 DON'T KNOW

[ASK ALL]

A5. When you conduct any of these engineering studies, how often do you offer clients options for improving the energy efficiency of the system or process – would you say: always, often, sometimes, rarely, or never? [READ IF NECESSARY: By engineering services, I mean any MEP, building shell, or process-related engineering services.]

01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER
96 REFUSED
97 DON'T KNOW

[IF A5=01-03, ASK A6, ELSE SKIP TO A7]

A6. How often do clients select the higher efficiency option – would you say: always, often, sometimes, rarely, or never?

01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER
96 REFUSED
97 DON'T KNOW

A7. After you have completed an engineering study for a client, how would you characterize your typical involvement with the installation of the new systems or process? Would you say you typically… [READ LIST]

01 Are not involved with the installation
02 Act as a consultant for your client during installation
03 Are responsible for the installation
04 Partner with another firm who is responsible for the installation
05 Play multiple roles
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[IF A7=04, ASK A8, ELSE SKIP TO A9]

A8. What types of firms do you partner with? [PROBE TO CODE. MARK ALL THAT APPLY.]

01 ARCHITECTURE FIRMS
02 CONSULTANT FIRMS
03 CONTRACTORS / SPECIALTY CONTRACTORS (SPECIFY)
04 SUPPLIERS / DISTRIBUTORS
05 ENGINEERING FIRMS
06 CONSTRUCTION
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

Now, I would like to ask you questions about engineering studies directly related to energy efficiency, procurement, and generation.

A9. Does your firm currently furnish any of the following services? Do you conduct… [READ LIST]

a. Retro-commissioning studies? [READ IF NECESSARY: Retro-commissioning studies are studies focused on maximizing the energy efficiency of existing building systems and controls.]
b. Energy efficiency feasibility studies? [READ IF NECESSARY: Energy feasibility studies aim to assist customers in making more informed energy decisions regarding capital improvements at their facilities.]
c. Industrial and process efficiency studies? [READ IF NECESSARY: Industrial and process efficiency studies may focus on increasing productivity, improving environmental

performance, or minimizing waste for industrial or processing facilities.] **[IF S1b≠01, DO NOT ASK A9c]**

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[IF ANY A9a-A9c=01, YES, ASK A10, ELSE SKIP TO A11]

A10. How much of your business revenue is attributable to delivering these energy efficiency studies – would you say all, most, some, a little, or none? [READ IF NECESSARY: How much of your business' revenue is attributable to conducting retro-commissioning or energy efficiency feasibility studies?]

01 ALL
02 MOST
03 SOME
04 A LITTLE
05 NONE
96 REFUSED
97 DON'T KNOW

[ASK A11 IF ANY A9a-A9c=02 – NO, ELSE SKIP TO A12]

A11. I am going to read you a list of reasons why firms may not conduct these types of studies. For each, please tell me if it is a major, a minor, or not a reason your firm does not conduct these types of studies. [READ IF NECESSARY: Why does your firm not conduct **{INSERT ANY 02 – NO FROM A9a-c}**]

a. We don't have the technical skills needed to conduct these studies.
b. We don't have confidence in the results generated by these studies.
c. We don't think that these studies will be as profitable as our existing business.
d. We don't think that our clients would be interested in these studies.

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

[ASK ALL]

A12. Does your firm currently furnish any of the following services? Do you conduct… [READ LIST]

a. Energy procurement studies?
b. Peak-load curtailment studies?
c. Renewable generation feasibility studies?
d. Combined heat and power studies?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[IF ANY A12a-A12d=01, YES, READ A13, ELSE SKIP TO A14]

A13. About how much of your business' revenue is attributable to delivering these energy studies – would you say all, most, some, a little, or none? [READ IF NECESSARY: How much of your business' revenue is attributable to **{INSERT ANY YES FROM A12a-d}**]

01 ALL
02 MOST
03 SOME
04 A LITTLE
05 NONE
96 REFUSED
97 DON'T KNOW

[IF A12c=02 OR A12d=02, ASK A14 ELSE SKIP TO A15]

A14. I am going to read you a list of reasons why firms may not conduct energy generation or cogeneration feasibility studies. For each, please tell me if it is a major, a minor, or not a reason your firm does not conduct these types of studies. First… [READ a-d]

a. We don't have the technical skills needed to conduct these studies.
b. We don't have confidence in the results generated by these studies.
c. We don't think that these studies will be as profitable as our existing business.
d. We don't think that our clients would be interested in these studies.

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

[IF A9a-c=01 OR A12a-d=01, CONTINUE WITH SURVEY, ELSE TERMINATE]

A15. You said your firm conducts the following energy feasibility studies: **{INSERT ANY YES FROM A9a-c OR A12a-d}**. In a typical year, about what percent of the energy feasibility studies that your firm conducts is completed through NYSERDA's FlexTech program?

01 PERCENT GIVEN [RECORD VERBATIM]
96 REFUSED
97 DON'T KNOW

[IF A15_01≠100, ASK A16, ELSE SKIP TO A17]

A16. Can you tell me the reasons why you have completed energy feasibility studies outside of the NYSERDA's FlexTech program? **[SELECT ALL THAT APPLY.]**

01 COMPLETE STUDIES THROUGH UTLITY OR ESCO [ESCO=ENERGY SERVICE COMPANY]
02 COMPLETE STUDIES THROUGH OTHER AGENCY
03 CUSTOMER PERCEIVED FLEXTECH FUNDING WAS NOT NEEDED
04 CUSTOMER NOT ELIGIBLE FOR FLEXTECH
05 OUT OF STATE
06 MOVE QUICKLY/AVOID BUREAUCRACY OF NYSERDA
95 OTHER [SPECIFY]
96 REFUSED
97 DON'T KNOW

[IF CONSULTANT=01, CERTIFIED, ASK A17, ELSE SKIP TO A18]

A17. Of the projects that you have completed through NYSERDA's FlexTech program, how many came as a result of a referral from the FlexTech program staff or website – would you say all, most, some, few, or none?

01 ALL
02 MOST
03 SOME
04 FEW
05 NONE
96 REFUSED
97 DON'T KNOW

A18. In your experience, have you found that the **number** of firms furnishing **energy feasibility studies** in the marketplace has increased, decreased, or stayed the same over the past five years?

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

A19. In your experience, have you found that the **technical capabilities** of firms furnishing **energy feasibility studies** in the marketplace have increased, decreased, or stayed the same over the past five years?

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

B. CUSTOMERS – MARKET CHARACTERIZATION

Next, I have some questions about the customers that you serve.

B1. Do you primarily serve **downstate** New York (the 5 boroughs of New York City plus the Westchester area) or **upstate** New York?

01 DOWNSTATE
02 UPSTATE
03 BOTH (VOL)
96 REFUSED
97 DON'T KNOW

B2. What are your customers' primary business activities? [MARK ALL THAT APPLY. PROBE TO CODE.]

01 EDUCATION – PRIMARY & SECONDARY SCHOOLS
02 EDUCATION – COLLEGES & UNIVERSITIES
03 HEALTH CARE
04 INDUSTRIAL PROCESSING & MANUFACTURING
05 GOVERNMENT
06 OFFICE AND BANKING (COMMERCIAL REAL ESTATE)

95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

B3. To the best of your knowledge, how familiar are your customers with NYSERDA – would you say they are: very familiar, somewhat familiar, not too familiar, or not at all familiar?
01 VERY FAMILIAR
02 SOMEWHAT FAMILIAR
03 NOT TOO FAMILIAR
04 NOT AT ALL FAMILIAR
96 REFUSED
97 DON'T KNOW

B4. To the best of your knowledge, how familiar are your customers with the FlexTech program – would you say they are: very familiar, somewhat familiar, not too familiar, or not at all familiar?
01 VERY FAMILIAR
02 SOMEWHAT FAMILIAR
03 NOT TOO FAMILIAR
04 NOT AT ALL FAMILIAR
96 REFUSED
97 DON'T KNOW

B5. Based on your experience, how confident are your customers that high efficiency equipment will perform better than standard efficiency equipment – would you say they are: very, somewhat, not too, or not at all confident?
01 VERY CONFIDENT
02 SOMEWHAT CONFIDENT
03 NOT TOO CONFIDENT
04 NOT AT ALL CONFIDENT
96 REFUSED
97 DON'T KNOW

B6. In general, how important are energy efficiency opportunities to your customers when they consider capital improvement projects – would you say: very important, somewhat important, not too important, or not at all important?
01 VERY IMPORTANT
02 SOMEWHAT IMPORTANT
03 NOT TOO IMPORTANT
04 NOT AT ALL IMPORTANT
96 REFUSED
97 DON'T KNOW

B7. Has this level of importance increased, decreased, or stayed about the same over the past five years?
01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

B8. Based on your experience, how many of your customers have a formal policy or procedure requiring the purchase of energy efficient systems and practices? Would you say all, most, some, few, or none of them?

01 ALL
02 MOST
03 SOME
04 FEW
05 NONE
96 REFUSED
97 DON'T KNOW

B9. Has this amount increased, decreased, or stayed the same over the past five years? [READ IF NECESSARY: The percentage of your customers who have a formal policy or procedure requiring the purchase of energy efficient systems and practices?]

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW

C. CUSTOMERS – FLEXTECH EVALUATION CHARACTERIZATION

FLEXTECH STATEMENT

As you may know, the goal of NYSERDA's FlexTech Program is to provide objective and customized information to help customers make informed energy decisions. Program participants receive cost-shared analyses targeting their particular energy and business needs. The Program uses energy efficiency technical evaluations, peak-load curtailment studies, energy procurement analyses, combined heat and power and renewable generation feasibility studies to accomplish its goal.

[FOR C1-C14: READ IF NECESSARY: By "energy feasibility studies", we are referring to energy efficiency, energy procurement, or energy generation feasibility studies.]

[IF B1=03, BOTH UPSTATE/DOWNSTATE ASK C1, ELSE SKIP TO C2]

C1. In your experience, are businesses in downstate or upstate New York more interested in these types of energy feasibility studies? [READ IF NECESSARY: By downstate New York, we mean the 5 boroughs of New York City plus the Westchester area.]

01 DOWNSTATE
02 UPSTATE
03 EQUAL
96 REFUSED
97 DON'T KNOW

[IF B2=01-06, ASK C2 & C2g, ELSE SKIP TO C2h]

C2. Please rate the following types of organizations on their interest in these types of energy feasibility studies. Would you say [INSERT ITEMS (a-f): ROTATE] are very interested, somewhat interested, not too interested, or not at all interested in these types of studies?

a. Primary and Secondary Schools **[ASK C2a IF B2=01]**

b. Colleges and Universities **[ASK C2b IF B2=02]**
c. Health Care Facilities **[ASK C2c IF B2=03]**
d. Industrial Processing and Manufacturing Companies **[ASK C2d IF B2=04]**
e. Government Facilities **[ASK C2e IF B2=05]**
f. Commercial Real Estate (such as Offices and Bank Buildings) **[ASK C2f IF B2=06]**
i. Everybody/No one more than another
j. Data centers
k. Multi-family

01 VERY INTERESTED
02 SOMEWHAT INTERESTED
03 NOT TOO INTERESTED
04 NOT AT ALL INTERESTED
05 NEITHER INTERESTED NOR DISINTERESTED (VOL)
96 REFUSED
97 DON'T KNOW

C2g. Are there any other types of businesses or organizations that you think are particularly interested in these types of energy feasibility studies?

01 [RECORD VERBATIM]
02 NO
96 REFUSED
97 DON'T KNOW

[IF C2g=01,02,96,97, SKIP TO C3]

C2h. Are there any types of businesses or organizations that you think are particularly interested in these types of energy feasibility studies?

01 [RECORD VERBATIM]
02 NO
96 REFUSED
97 DON'T KNOW

C3. In your experience, how has the presence of NYSERDA's FlexTech program influenced customer interest in these types of energy feasibility studies **in general** – would you say it has had a **big**, a **small**, or **no influence** on your customers' interest in these types of study?

01 BIG INFLUENCE
02 SMALL INFLUENCE
03 NO INFLUENCE
96 REFUSED
97 DON'T KNOW

C4. For the following types of organizations, please tell me if FlexTech has had a big, a small, or no influence on their interest in these types of studies. First, for [INSERT ITEMS (a-f): ROTATE] – would you say FlexTech has had a **big**, a **small**, or **no influence** on their interest in these types of energy feasibility studies?

a. Primary and Secondary Schools **[ASK C4a IF B2=01]**
b. Colleges and Universities **[ASK C4b IF B2=02]**
c. Health Care Facilities **[ASK C4c IF B2=03]**
d. Industrial Processing and Manufacturing Companies **[ASK C4d IF B2=04]**

e. Government Facilities **[ASK C4e IF B2=05]**
f. Commercial Real Estate (such as Offices and Bank Buildings) **[ASK C4f IF B2=06]**
g. **[INSERT C2g]**
h. **[INSERT C2h]**
i. **Everybody/No one more than another**
j. **Data centers**
k. **Multi-family**

01 BIG INFLUENCE
02 SMALL INFLUENCE
03 NO INFLUENCE
96 REFUSED
97 DON'T KNOW

C5. How does your firm market these types of energy feasibility studies to potential customers? **[SELECT ALL THAT APPLY.]**

01 MARKET USING NYSERDA OR FLEXTECH NAME
02 MARKET SERVICES TO EXISTING CUSTOMERS/CLIENTS
03 DON'T MARKET, RESPOND TO CUSTOMER/CLIENT INQUIRIES
04 MARKET BASED ON EXPECTED BENEFITS
05 WORD OF MOUTH
06 REFERRAL
07 ORGANIZED NETWORKING (CONFERENCES, TRADE SHOWS)
08 WEBSITE, MATERIALS
09 DIRECT MARKETING/IN PERSON MARKETING
95 OTHER [SPECIFY]
96 REFUSED
97 DON'T KNOW

[IF C5=01,02,03,04,95, READ C6, ELSE SKIP TO C7]

C6. How has your involvement with the FlexTech Program affected the way your firm markets these types of energy feasibility studies?

01 USE NYSERDA OR FLEXTECH NAME TO MARKET
02 NO EFFECT
03 MARKET BASED ON COST SHARING AND REDUCED COSTS
95 OTHER [SPECIFY]
96 REFUSED
97 DON'T KNOW

C7. What is the typical title or position of the customer contact your firm tries to engage through its marketing efforts? Would you say it's the… [READ LIST. MARK ALL THAT APPLY]

01 Governing Body or Board of Directors
02 CEO or CFO
03 Facilities Manager**/Building Management**
04 Chief Process Engineer**/Operations Engineer/Manager**
05 President/Vice President
06 Senior Management of Organization

07 Owner
95 Someone else (SPECIFY)
96 REFUSED
97 DON'T KNOW

C8. When you offer this type of energy feasibility study, how often do your customers decide to conduct the study – would you say: always, often, sometimes, rarely, or never?
01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER
96 REFUSED
97 DON'T KNOW

[IF C8=03-05, ASK C9, ELSE SKIP TO C11]

C9. We'd like to understand why some businesses or organizations **do not** conduct these types of studies. I'm going to read you a list of possible reasons and would like you to tell me if it is a **major**, a **minor**, or **not a reason** that your customers do not have this type of study conducted.
a. They are not aware of these types of studies or opportunities to do them.
b. They perceive the cost of the study is too high.
c. These types of studies take too much staff time and resources.
d. They must deal with competing priorities for financial resources.
e. They don't own the building and the owner won't pay for it.
f. The track record for these types of projects is uncertain or unreliable.
g. They believe there is a lack of reputable technical service providers.
h. There is a resistance to new and/or innovative technologies.
i. They perceive that there are no government subsidies available to mitigate the cost of the study.
01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

[ASK C10 if C9b=01, ELSE SKIP TO C11]

C10. You indicated that you think cost is a major reason a business or organization chooses not to conduct an energy feasibility study. In your opinion, is there a cost sharing arrangement that is **different from the FlexTech Program** that you think would help stimulate customer interest in these types of energy feasibility studies?
01 YES [RECORD VERBATIM]
02 NO

96 REFUSED
97 DON'T KNOW

[ASK C11 if C8=01-03, ELSE SKIP TO D1]

C11. I'm going to read you a list of reasons why businesses or organizations may **choose to have** these types of studies conducted. For each, please tell me if you think this is a **major**, a **minor**, or **not a reason** your customers might conduct these types of energy feasibility studies.

a. To identify energy or money saving opportunities
b. To verify or confirm what they already know or to verify an original assessment that something would save them energy
c. To prioritize one investment over another
d. To develop new guidance for corporate decision making
e. To develop their longer term capital investment or equipment replacement plans
f. To receive subsidies or incentives from energy efficiency programs
h. **Laws/Legal reasons/Code**
i. **To be more environmentally friendly/Corporate green initiative**

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

g. Are there any other **major** reasons organizations might conduct this type of study?

01 YES [RECORD VERBATIM]
02 NO
96 REFUSED
97 DON'T KNOW

C12. After your firm completes an energy feasibility study, what is the title or position of the persons who review the results? Would you say it's the… [READ LIST. MARK ALL THAT APPLY]

01 Governing Body or Board of Directors
02 CEO or CFO
03 Facilities Manager **/ Building Management**
04 Chief Process Engineer **/ Operations Engineer / Manager**
05 President / Vice President
06 Senior Management of Organization
07 Owner
95 Someone else (SPECIFY)
96 REFUSED
97 DON'T KNOW

C13. After receiving the results of the study, how often do your customers implement any recommended changes – would you say always, often, sometimes, rarely, or never?

01 ALWAYS
02 OFTEN
03 SOMETIMES
04 RARELY
05 NEVER
96 REFUSED
97 DON'T KNOW

[IF C13=01-02, ASK C14, ELSE SKIP TO C15]

C14. What is the timeframe it takes for your customers to implement the recommended changes? Would you say they implement changes… [READ LIST. MARK ONE RESPONSE ONLY.]

01 Within 6 months
02 Between 6 months and a year
03 Between 1 to 2 years
04 Greater than 2 years
95 Or, another time frame? [SPECIFY]
96 REFUSED
97 DON'T KNOW

[IF C13=02-05, ASK C15, ELSE SKIP TO D1]

C15. I'm going to read a list of reasons why customers may not implement changes, and would like you to tell me if you think it is a **major**, a **minor**, or **not a reason** that your customers do not implement recommended changes after receiving the results of an energy feasibility study. First, [READ LIST] – do you think this is a **major**, a **minor**, or **not a reason** your customers do not implement any recommended changes?

a. They did not have enough internal capital to implement the recommended changes.
b. There were competing demands for capital.
c. They didn't own the building and the owner was not interested.
d. There was not any external funding or incentives available to help implement changes.
e. The estimated payback period was too high.
f. They did not have confidence that the changes would perform as predicted.
g. They did not think any contractor had the technical ability to implement recommended changes.
h. They did not want to replace systems that were still working.

01 MAJOR REASON
02 MINOR REASON
03 NOT A REASON
96 REFUSED
97 DON'T KNOW

D. AWARENESS OF ENERGY EFFICIENCY PROGRAMS

D1. How familiar are you with the Energy Conservation Construction Code of New York– would you say you are: very, somewhat, not too, or not at all familiar with the code?

01 VERY FAMILIAR
02 SOMEWHAT FAMILIAR
03 NOT TOO FAMILIAR
04 NOT AT ALL FAMILIAR
96 REFUSED
97 DON'T KNOW

D2. As far as you know, are there other groups or agencies that administer energy efficiency programs in New York or is NYSERDA the only group running these types of programs? **[MARK ALL THAT APPLY.]**

01 OTHER GROUPS (SPECIFY)
02 NYSERDA ONLY
04 NEW YORK POWER AUTHORITY (NYPA)
05 LONG ISLAND POWER AUTHORITY (LIPA)
06 CON EDISION (CONED)
07 NATIONAL GRID
08 NY STATE ELECTRIC AND GAS (NYSEG)
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

[IF D2=01, ASK D3, ELSE SKIP TO D8]

D3. Has your firm served as a technical service provider or contractor in any energy efficiency programs run by any of these other entities?

01 YES
02 NO
96 REFUSED
97 DON'T KNOW

[ASK D3a IF D3=01, YES, ELSE SKIP TO D4]

D3a. Which programs have you participated in? **[MARK ALL THAT APPLY.]**

01 OTHER GROUPS (SPECIFY)
02 NYSERDA ONLY
04 NEW YORK POWER AUTHORITY (NYPA)
05 LONG ISLAND POWER AUTHORITY (LIPA)
06 CON EDISION (CONED)
07 NATIONAL GRID
08 NY STATE ELECTRIC AND GAS (NYSEG)
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

D4. Thinking about all of the different groups and agencies that administer energy efficiency programs in New York, do you think the programs **complement** each other or **compete** with each other?

01 COMPLEMENT

02 COMPETE
03 BOTH (VOL)
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

D5. In general, would you say that one of the utilities or agencies does a better job than the others of administering these energy efficiency programs, or do you think they all do about the same?
01 ONE DOES BETTER
02 ALL ABOUT THE SAME
96 REFUSED
97 DON'T KNOW

[IF D5=01, ASK D6, ELSE SKIP TO D8]
D6. Which group, utility, or agency does the best job of administering these energy efficiency programs?
01 [RECORD VERATIM]
02 NYSERDA ONLY
04 NEW YORK POWER AUTHORITY (NYPA)
05 LONG ISLAND POWER AUTHORITY (LIPA)
06 CON EDISION (CONED)
07 NATIONAL GRID
08 NY STATE ELECTRIC AND GAS (NYSEG)
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

D7. What is unique or better about this entity? **[MARK ALL THAT APPLY.]**
01 [RECORD VERATIM]
02 INFRASTRUCTURE, LONGEVITY
03 EXPERIENCE, TECHNICAL EXPERTISE
04 LESS BUREAUCRACY
05 BETTER MARKETING
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

D8. Have you found that your firm's experience providing energy feasibility studies through NYSERDA's FlexTech Program has resulted in any competitive advantages to your firm? **[MARK ALL THAT APPLY.]**
01 [RECORD VERATIM]
02 RECOGNIZE NYSERDA NAME/WE CAN HELP NAVIGATE NYSERDA/PREQUALIFIED
03 ADDITIONAL SERVICE FOR SALE
04 GET CLIENTS MONEY BACK / REBATES / COST SHARING
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

D9. Have you found that your firm's experience providing energy feasibility studies through NYSERDA's FlexTech Program has resulted in any competitive disadvantages to your firm? **[MARK ALL THAT APPLY.]**

01 [RECORD VERATIM]
02 TIME FOR PROCESSING/TURNOVER
95 OTHER (SPECIFY)
96 REFUSED
97 DON'T KNOW

E. Firmographic Information

Last, I just have a few questions about your firm.

E1. How long has your firm been in business?

01 [NUMBER OF YEARS GIVEN]
02 [YEAR ESTABLISHED GIVEN]
96 REFUSED
97 DON'T KNOW

E2. Is your company independent or part of a larger company?

01 Independent
02 Part of larger company
03 OTHER [SPECIFY]
96 REFUSED
97 DON'T KNOW

E3. Approximately how many full time employees does your company employ at all of its locations in New York State?

01 [NUMBER OF EMPLOYEES GIVEN]
96 REFUSED
97 DON'T KNOW

E4. Has this number increased, decreased, or stayed the same over the past five years?

01 INCREASED
02 DECREASED
03 STAYED THE SAME
96 REFUSED
97 DON'T KNOW