

New York State Energy Research and Development Authority

NYSERDA's Energy Efficiency Portfolio Standard Program

Quarterly Report to the Public Service Commission
Quarters 1 & 2, Ending June 30, 2012

Final Report
August 14, 2012

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1 INTRODUCTION

This quarterly report reflects progress on Energy Efficiency Portfolio Standard (EEPS) Program evaluation activities administered by the New York State Energy Research and Development Authority (NYSERDA). This report contains summaries of recently-completed evaluations and updates on evaluation recommendations and status through June 30, 2012. Information contained within this report comports with the guidance received from the New York State Department of Public Service (DPS) and discussed by the EEPS Evaluation Advisory Group (EAG) in July 2012.

NYSERDA did not file a first quarter 2012 report as guidance on report format and content requirements was still being developed by DPS. Therefore, this quarterly report covers both the first and second quarters of 2012.

2 Evaluation Reports Completed

NYSERDA finalized the following five evaluation contractor reports in the first and second quarters of 2012:

1. Existing Facilities Program Process Evaluation, Research Into Action, February 2012
2. Flexible Technical Assistance Program Impact Evaluation, Megdal & Associates with Energy & Resource Solutions as Lead Investigators, March 2012
3. Industrial and Process Efficiency Program Market Characterization and Assessment Evaluation, Navigant Consulting with GDS Associates as Lead Investigators, May 2012
4. EmPower NY Program Impact Evaluation Megdal & Associates with Kathryn Parlin of West Hill Energy Lead Investigator, April 2012
5. Workforce Development Program Process Evaluation, Research Into Action, June 2012

Additionally, in the latter half of 2011, the following three reports were finalized:

1. Flexible Technical Assistance Program Market Characterization and Assessment, Navigant Consulting, August 2011
2. Industrial and Process Efficiency Program Process Evaluation, Research Into Action, November 2011
3. New Construction Program Process Evaluation, Research Into Action, December 2011

See Appendix A of this report for a high-level summary of each study listed above. The full evaluation reports can be found on NYSERDA's website.

3 *Evaluation Status Update*

Table 1 and Table 2 provide the anticipated schedule and status of current and upcoming impact, process and market evaluation activities by program. As applicable, table notes provide further clarification and information about study timing. Planned evaluation projects and timing may change based on input from internal and external stakeholders, and program progress. Likewise, evaluation project schedules are subject to change based on progress in administering the evaluation studies themselves. Future quarterly reports will highlight any timeline revisions.

Table 1. Impact Evaluation Schedule and Status

EEPS Program	Impact Evaluation Schedule					
	Detailed Eval Plan Submittal	Project Kick Off	Data Collection Complete	Draft Report	Final Report	Notes
Industrial & Process Efficiency (Phase 2)	Q3 - 2012	Q3 -2012	Q2 - 2013	Q3 - 2013	Q3 - 2013	Phase 1 evaluation of 2009 and 2010 participants expected to be complete in August 2012. Pre-retrofit evaluation advisement is ongoing.
Existing Facilities	Late 2013	TBD	TBD	TBD	Late 2014	Current evaluation of 2007 - 2009 participants expected to be complete in September 2012.
Agriculture	Late 2013	TBD	TBD	TBD	Late 2014	Dependent on timing of completed installations.
New Construction	2014	TBD	TBD	TBD	2015	Current evaluation of 2007 and 2008 participants expected to be complete in September 2012. Given programmatic changes underway, the next evaluation should not occur for a year or more since project time line is long and program changes require time to assess.
Agriculture Disaster	Q1 - 2013	Q1 - 2013	Q3/4 - 2013	Q3/4 - 2013	Q3/4 - 2013	Dependent on timing of completed installations.
Flex Tech	2014	TBD	TBD	TBD	2015	Last evaluation completed in March 2012. Evaluation contractors recommend studying the program every three years. Near term results are not expected to vary from study recently completed.
Benchmarking	TBD	TBD	TBD	TBD	TBD	Current evaluation of the SBC Focus/Vertical Outreach Program benchmarking activities in schools and commercial real estate expected to be complete in September 2012. EEPS Benchmarking Program launched in December 2011.
Non-Participant Spillover Study	completed	completed	completed	August 2012	September 2012	Covers commercial existing buildings.

EEPS Program	Impact Evaluation Schedule					
	Detailed Eval Plan Submittal	Project Kick Off	Data Collection Complete	Draft Report	Final Report	Notes
Multifamily Performance Program	Q3 - 2012	Q3 -2012	Q2/3 - 2013	Q3/4 - 2013	Q3/4 - 2013	
Point of Sale Lighting	Q3 - 2012	Q3 - 2012	Q3 - 2013	Q3/4 - 2013	Q4 - 2013	
EmPower New York	Q4 - 2012	Q4 - 2012	Q1 - 2013	Q2 -2013	Q2 -2013	Last evaluation completed in April 2012.
Home Performance with Energy Star	2012	TBD	TBD	TBD	2013	Current evaluation of 2007-2009 program years under review; expect final report completion in September 2012.
New York ENERGY STAR Homes	2013	TBD	TBD	TBD	2014	Current evaluation of 2007 and 2008 participants expected to be complete in September 2012.

Table 2. Process and Market Evaluation Schedule and Status

EEPS Program	Process and Market Evaluation Schedule					
	Detailed Eval Plan Submittal	Project Kick Off	Data Collection Complete	Draft Report	Final Report	Notes
Industrial & Process Efficiency	TBD	TBD	TBD	TBD	TBD	Last process evaluation completed in November 2011. Last market evaluation completed in May 2012.
Existing Facilities	completed	completed	completed	Q2 - 2012	Q3 - 2012	Current market evaluation expected to be complete in September 2012. Last process evaluation completed in February 2012.
Agriculture	TBD	TBD	TBD	TBD	TBD	
New Construction	Q4 - 2012	Q1 - 2013	Q3 - 2013	Q4 - 2013	Q4 - 2013	Intensive two-phase process evaluation completed in December 2011. Near term results not expected to vary. Study planned in 2012-2013 is a market evaluation only.
Agriculture Disaster	Q4 - 2011	Q4 - 2011	Q3 - 2012	Q3 - 2012	Q3 - 2012	Current evaluation expected to be complete in September 2012.
Flex Tech	Q3/4 - 2012	Q4 - 2012	Q4 - 2013	Q1 - 2014	Q2 - 2014	Last market evaluation completed in August 2011. Study planned in 2012-2014 is a process evaluation only.
Benchmarking	Q3 - 2012	Q4 - 2012	Q4 - 2013	Q1 - 2014	Q2 - 2014	Included in the Flex Tech evaluation.
Multifamily Performance Program	Q3 - 2012	Q3 - 2012	Q3 - 2013	Q3/4 - 2013	Q3/4 - 2013	
Point of Sale Lighting	Q3 - 2012	Q3 - 2012	Q3 - 2013	Q3/4 - 2013	Q4 - 2013	
EmPower New York	TBD	TBD	TBD	TBD	TBD	Last process evaluation completed in July 2010.
Home Performance w/ENERGY STAR	TBD	TBD	TBD	TBD	TBD	Evaluation plans are pending based on forthcoming results from the Green Jobs/Green NY Small Homes Evaluation. Evaluation will coordinate with Statewide

EEPS Program	Process and Market Evaluation Schedule					
	Detailed Eval Plan Submittal	Project Kick Off	Data Collection Complete	Draft Report	Final Report	Notes
						Residential Baseline.
ENERGY STAR Homes	TBD	TBD	TBD	TBD	TBD	Evaluation plans are pending based on forthcoming plans for the Statewide Residential Baseline.
Workforce Development MCA	completed	completed	completed	Q3 – 2012	Q3 - 2012	
C/I Natural Gas Market Characterization	completed	completed	completed	Q2 – 2012	Q3 – 2012	

New Recommendations

Recommendations generated from the recently-completed (Quarter 1 and 2, 2012) evaluation studies described in the Evaluation Reports Completed section are listed in Table 3 along with their status. The status of each recommendation is characterized as rejected, implemented, or pending based on input from NYSERDA program implementation staff. Rejected recommendations are those that will not be implemented by NYSERDA; implemented recommendations are those that have been incorporated into the NYSERDA program; and pending recommendations are those still awaiting a decision on implementation or rejection. In addition to characterizing new recommendations as rejected, implemented or pending, NYSERDA program staff's response and rationale for those characterizations is also provided.

Table 3. New Recommendations as of June 30, 2012

Program	Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
Existing Facilities Program (EFP)	Research Into Action, Process Evaluation, February 2012	Focus on providing incentive application status updates to service providers most affected by processing delays. Consider providing automated project status updates to free up program staff resources for other purposes. Support service providers by publicizing the typical length of time for each stage of NYSERDA review	Pending	<p>NYSERDA is currently integrating its database systems and revising its business process. The new system is planned to include enhanced workflow and applicant communications that will allow service providers access to project status and automate communications at key business process toll gates. NYSERDA is also developing the following to better manage the expectations of its customers and service providers:</p> <ul style="list-style-type: none"> • A description of the EFP verification process at each toll gate: Energy Analysis Review, which includes the pre-installation inspection, Project Installation Review and Measurement and Verification • A one page pictorial summary of the verification process that includes a description of deliverables and an estimated timeframe for each toll gate review <p>These one page descriptions will be reviewed by Marketing, attached to each contract, handed out at kick-off meetings and posted on the Existing Facilities website.</p>
		Provide all participating end users and service providers with marketing collateral designed to inform participants of the variety of incentives available. Increase marketing to non-participant service providers, clearly describing the performance-based incentive approach.	Implemented	An integrated, multi-tiered marketing program has been implemented statewide to drive awareness and participation in NYSERDA's portfolio of Commercial & Industrial programs (including EFP). This marketing program delivers general C&I and program specific content through a combination of media including print , online and direct response tactics (email and direct mail) to key participating and prospect C&I audiences. For EFP specific efforts, promoting performance based opportunities are a priority. A new EFP

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				program brochure is currently in development that will deliver core value messaging and incentive offerings in a simple, compelling manner and will be distributed through the marketing program. NYSERDA plans to launch a targeted marketing campaign to non-participating service providers.
		Improve program branding through marketing collateral, descriptive information, and application forms, that clearly convey NYSERDA's leadership in energy efficiency and standards for assuring that project savings meet expectations. Continue to offer assistance with project development to end users and service providers.	Pending	NYSERDA's leadership in energy efficiency, technical expertise and assurances for quality standards as indicated through statewide quantitative research are core foundational messages and are incorporated into all marketing communications materials/activities. The EFP is expanding its project development assistance by adding outreach contractor resources through a new RFP and developing a team of Key Account Managers assigned to specific end users and service providers.
		Simplify and clarify EFP descriptions and application forms. Compare EFP materials with utility program materials to identify potential areas for improvement, find opportunities to highlight EFP and NYSERDA compared to utility programs. Have nontechnical staff at NYSERDA review and provide feedback on the materials.	Implemented	Customers interested in participating in the NYSERDA EFP now apply through the Consolidated Funding Application. In some cases, NYSERDA requires additional information to evaluate and process project activity. These supporting worksheets and all marketing materials have been streamlined and simplified for ease of use by the marketing department. EFP and the Marketing team are currently working on a re-designed program brochure and website.
		Program objectives should explicitly include providing service providers with excellent quality of service, including prompt responses, when interacting with them. Convey through words and actions NYSERDA's appreciation and gratitude for their support. This market stance can become part of NYSERDA's brand.	Implemented	NYSERDA understands the important role of service providers to customers and their contributions to NYSERDA's successes are recognized through project case studies and public relations efforts (in some cases these partners participate in our events in addition to recognition in press releases). Through collateral materials, NYSERDA also recognizes the extended "team" of technical experts who support NYSERDA and our customers. The EFP team has dedicated staff to

Program	Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
				manage service provider relationships. This team has identified key service providers and meets with them regularly to solicit feedback on the program and discuss upcoming opportunities
Flexible Technical Assistance	Megdal & Associates, Impact Evaluation, March 2012	<p>Update NYSERDA's FlexTech study database system (buildings portal) to:</p> <p>a. Allow energy savings recommendation entries for more than one fuel type</p> <p>b. Include findings from impact evaluation studies, such as tracking peak demand savings that are consistent with New York Department of Public Service (NY DPS) reporting requirements and capturing interactive savings associated with central cooling and heating plants</p> <p>c. Incorporate premise identifiers</p> <p>d. Retain electronically the data, analysis and supporting documentation from the FlexTech studies including PDFs of the final studies, Excel analysis files, building model input files, baseline/pre-retrofit billing data and HVAC trend data from the end use customers.</p>	Parts 'a, b, & d' are being implemented while part 'c' is expected to be addressed at the higher organizational level.	<p>a. Database changes will be made.</p> <p>b. Program is based on a market-based 50% cost share by customers to obtain information customers find valuable for making decisions to move forward with energy efficiency projects. Differing and sometimes no methods of assessing demand impact or interactive heating and cooling savings are valuable to customers providing the 50% cost share. Also, prescribed demand reporting methods evolve over time.</p> <p>Program will work with study providers and customers to better report demand savings by currently prescribed DPS methodology and better assess significant heating/cooling interactions.</p> <p>c. This recommendation is pertinent at the portfolio level. NYSERDA is developing methods to provide this tracking.</p> <p>d. Database and storage process changes will be made.</p>
		Focus marketing on controls studies/vendors. The MAR survey results indicated that controls measures had the highest adoption rate of all technology groups. Aggressive promotion of this particular type of study could increase the overall cost-effectiveness of the Program by increasing the MAR. Additional investigation regarding why controls measures have such a high adoption rate could lead to lessons learned, which could be applied to studies associated with other technologies.	Implemented	<p>Most commercial/industrial marketing is conducted at:</p> <ul style="list-style-type: none"> - portfolio level; not program level - facility, building, or portfolio level; not measure or system level <p>When FlexTech alone is marketed at measure-specific levels, additional emphasis will be placed on controls.</p>

Program	Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
		Investigate and develop a more reliable method for the estimation of outside spillover.	Implemented	Estimating spillover is one of the most challenging aspects of impact evaluation. NYSERDA will work with its evaluation contractors to address this issue in future studies. NYSERDA will also continue working with Department of Public Service Staff and the Evaluation Advisory Group, to examine whether other methods, such as “top down” assessments of market impacts can complement or supplement current study methods related to spillover.
		Select studies no older than five years in the next evaluation cycle.	Implemented	The next Impact Evaluation of the FlexTech program is scheduled for 2014. Should the 2014 impact evaluation pick up where this evaluation left off, it will need to select studies that were completed as far back as 2010, which will not be more than five years old.
Industrial and Process Efficiency (IPE) Program	Navigant Consulting, Market Characterization and Assessment Evaluation, May 2012	Consider increasing efforts focused on improving the technical capabilities and qualifications of process efficiency service providers. A significant population of both customers and the Technical Service Providers (TSPs) themselves are not very confident in the technical capabilities or qualifications of the TSPs to perform industry and process efficiency improvements. Key to the success of this program is for TSPs to be given the information and resources to properly identify and implement process efficiency improvements. In this way, customers may begin to recognize the capabilities and qualifications of these TSPs and the TSPs will have greater confidence in these projects themselves.	Implemented	The focus of the IPE Program is to target large electric consumers, with complex process improvement projects. As customers make the connection between process improvements and energy, they develop their technical service providers. At NYSERDA Industrial Stakeholder Meetings participants have repeatedly informed NYSERDA of the need for customer engagement and driving of process project participation in the program. In addition, NYSERDA will be issuing a new RFP for technical service providers to support NYSERDA programs. As part of the TEP process and contract execution, emphasis will be put on process expertise.
		Consider broadening the marketing channels being used to promote the Industrial and Process Efficiency Program. One year following the initial Industrial and Process Efficiency Program	Implemented	The IPE Program will use a number of channels to market the program including: NYSERDA wide Integrated Marketing Campaign, Vertical Outreach Contractors, partnerships with key

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		<p>launch, 50% of eligible end use customers, data centers, and TSPs were aware of the Program. Respondents that were aware of the Program found out about it through a variety of different channels, with no one channel representing a particularly large portion. As financial criteria are shown to be so important to moving forward with a process improvement project, eligible customers may not consider efficiency improvements at all based on competing capital needs, but could have very inefficient processes that could yield high returns</p>		<p>stakeholders and NYSERDA staff key account management.</p>
		<p>Thorough documentation of program impacts, through site-specific and broader measurement and verification activities could be valuable, from both a marketing perspective and for identifying and implementing program changes as necessary. Subsequent impact evaluation studies and market progress assessments should be conducted and compared to this original baseline assessment to determine the Program's success on key program performance indicators. This may reveal areas where minor modifications to delivery strategies could result in increased likelihood of goal achievement. In addition, distribution of targeted impact evaluation results (e.g., case studies could help to increase awareness of process efficiency improvement benefits and ultimate program uptake)</p>	<p>Implemented</p>	<p>Impact evaluation activities document site-specific findings as well as broader measurement and verification findings to identify recommendations for program improvement. Case studies and other promotional materials can be prepared using these findings to increase awareness of process efficiency improvement benefits and participation. In addition, future market evaluation activities will continue to assess the market served by IPE to compare findings to this baseline analysis and to measure the program's success in achieving key performance indicators.</p>
<p>EmPower NY</p>	<p>Megdal and Associates, EmPower Impact Evaluation, April 2012</p>	<p>Methods for estimating savings for envelope measures (both natural gas and electric) and replacement refrigerators should be evaluated.</p>	<p>Pending</p>	<p>July 2007 changes to improve the accuracy of EmPower savings estimates will have a greater impact in the post-evaluation period in the areas of: 1) Attic insulation: increased the estimated R-value of pre-existing fiberglass insulation in poor condition; 2) Wall insulation: lowered savings estimates to account for wall studs, window framing, and estimated 4% voids; 3) EmPower</p>

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				<p>initiated a system for flagging and correcting high estimated savings as appropriate.</p> <p>In 2010, the program discontinued the use of fiberglass to insulate rim joists in favor of spray foam for both air leakage reduction and insulation.</p> <p>In 2011, the program initiated a practice of core-sampling wall insulation to ensure appropriate density.</p> <p>Moving forward, EmPower plans to initiate:</p> <ul style="list-style-type: none"> • Introduction of an advanced air sealing protocol and system for calculating savings based on air leakage reduction. Contractor training is in progress. • Adjustments to energy use thresholds for refrigerator and freezer replacements.
		<p>Review policies for CFL installation to assess how to assist participants and achieve cost-effective savings, and monitor change in CFL market to determine whether it is necessary to modify the approach to the installation of CFLs further as CFLs gain greater market acceptance.</p>	<p>Pending</p>	<p>In 2008, EmPower began adjusting the estimated hours of daily usage ;the approach is more conservative proposed in the NY State Tech Manual or the system recently proposed by DPS staff. Also in 2008 EmPower tightened enforcement of the installation of CFLs and scoring of contractors' Quality Assurance with positive results</p> <p>The program is monitoring CFL market penetration; however, at this time finds that many opportunities remain for assisting low income households through the installation of CFLs.</p>
		<p>Review the fields in the database and data collection processes to assess whether additional information, such as the presence of working air conditioning, could be added to the tracking system. Review the coding of measure</p>	<p>Pending</p>	<p>EmPower will consider adding data fields to assist future evaluations, including:</p> <ul style="list-style-type: none"> • Secondary heating systems • Separate fields for attic and wall

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		descriptions to make it easier to identify fuel switching measures and differentiate attic and wall insulation. Improve error checking methods and frequency to correct tracking system errors in a timely manner.		insulation savings <ul style="list-style-type: none"> • Air conditioning The program has enhanced the process of data checking by the Program Implementer
		<p>Consider including indicators of Non-Energy Benefits into future evaluation efforts, a lower cost option than full monetization studies, to aid policy makers' ability to have a more complete viewpoint when decisions are being made regarding low income Programs.</p> <p>Monitor ongoing efforts that seek to quantify NEBs so these may be referenced within impact evaluations. This type of referral and indicators of the importance of NEBs to NYSERDA's participants may offer a low cost approach to ensure a socially responsible perspective is not lost in the reporting of savings estimates from sophisticated quantitative impact evaluations.</p>	Pending	NYSERDA will attempt to include more non-energy impacts, to the extent possible, in future evaluations.
		Work with utilities to ensure that billing data is complete, useful and properly interpreted.	Pending	Great progress has been made in working with utilities on billing data questions since the time data were requested to conduct this study. NYSERDA is currently working with DPS and the utilities to determine whether an existing system for exchanging data between utilities and energy service companies can be used to more readily provide access to utility data needed by NYSERDA in the future.
		Although the Net-To-Gross component of the evaluation may not need to be conducted with every evaluation cycle, continuing to measure net effects for EmPower in the future is warranted.	Pending	NYSERDA will discuss the merits of continuing to assess NTG in future EmPower evaluations with DPS. Since most low income evaluations do not address NTG, and this study found the NTG to be nearly a 1.0, NYSERDA will weigh the benefits and costs of collecting such information in future studies.

Program	Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
		Continue to use survey instruments to inform the billing analysis, assess non-energy benefits and NTG factors	Pending	This recommendation will be considered when designing the next evaluation
Workforce Development	Research Into Action, Process Evaluation, June 2012	<p>NYSERDA should work with Career Pathways (CP) training partners to clearly identify and define the “career path” that each course fits into, to ensure that trainers and trainees understand how the course fits into that career path, and to incorporate consistent and comprehensive job-search skill training and post-training support into their curricula.</p>	Pending	<p>In future solicitations and CP contracts, NYSERDA will ask proposers/partners to better demonstrate to students how the course fits into a career pathway and to provide available information on training and certifications. NYSERDA will work with NYSDOL to provide information to CP students on assistance related to job search skills, employment opportunities and post-training support available through NYS DOL and the One-Stop Centers.</p>
		<p>NYSERDA should continue to facilitate meetings to bring together employers, training organizations, unions, and other stakeholders, and use those meetings to identify and develop a concrete career pipeline for CP trainees based on existing career pathways best practices and to facilitate connections between training partners and union apprenticeship programs.</p>	Implemented	<p>NYSERDA will continue to look for opportunities for meetings, webinars and other forums to bring stakeholders together as appropriate. NYSERDA recently brought stakeholders together to brainstorm training needs in the renewable energy sector. Additionally, a recent webinar solicited suggestions for how NYSERDA can best support educators and industry in developing and expanding clean energy internships. CBO training outreach contractors are also working closely with training organizations and employers through the GJGNY program. Finally, NYSERDA has conducted regional focus groups, including contractors and training providers, as part of the GJGNY curriculum and needs assessment project with Pace University. PON 2033, Category A, provides opportunities for NYS registered apprenticeship programs to incorporate energy efficiency and solar thermal training into their curriculum (GJGNY).</p>
		<p>NYSERDA should work with its training partners to identify Technical Training (TT) courses (e.g.,</p>	Pending	<p>In future training solicitations, NYSERDA will require its training partners to perform more</p>

Program	Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
		<i>eQUEST</i> modeling) that should be taught at beginning and intermediate-advanced levels.		detailed trainee screening to better assess skills prior to technical training and better identify prerequisites to technical training, (e.g. The <i>eQUEST</i> modeling training exists for beginning, intermediate, advanced-level, and online training, yet the provider can better assess and screen participants prior to enrollment to direct the student to the appropriate level training).
		NYSERDA should work with its training partners to ensure that all trainers be given training in evidence-based adult education techniques	Pending	NYSERDA will look for ways to educate training providers in evidence-based learning techniques as necessary. Instructor experience is evaluated when workforce training proposals are reviewed.
		NYSERDA may consider providing training partners with some assistance to support additional hands-on training, such as by paying for a teaching assistant in a classroom, who could assist students as they work on hands-on activities, and by helping training partners identify sources of funds to purchase equipment.	Implemented	NYSERDA is providing funding opportunities for hands-on training and instruction under PON 2033 and has provided training partners and contractors with over \$5 million in reprogrammed ARRA funds for training equipment over the past six months. Several training partners, including the unions, have had success in working with manufacturers to provide or donate training equipment.

4 *Pending Recommendations*

Recommendations from previous evaluations that have not yet been characterized as implemented or rejected in prior reporting are listed, by program, in Table 4 through Table 8. These tables also provide NYSERDA program staff's response and rationale for the characterization. Note this section does not cover all EEPS programs NYSERDA administers; only programs with recommendations not previously reported as implemented or rejected are included in these tables.

Table 4. Pending Recommendations: New Construction Program

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
RIA, New Construction Program (NCP) Process Evaluation, December 2011	The NCP should continue its efforts to ensure that projects are enrolled at the optimal time and that early participation steps are streamlined and as timely as possible.	Pending	<p>NCP will continue existing efforts to streamline the program. Previous initiatives included a simplified task work order template, a standardized Technical Assistance (TA) report format and establishing regular TA conference calls to discuss items of mutual interest.</p> <p>Initiatives also included periodic review of the elapsed time between each program step from application to the notice to proceed, with a goal of reducing the time at each step by eliminating inefficiencies and unnecessary processes. The first follow up review showed an average improvement of approximately 40 workdays. NCP responded to timing challenges associated with the new Consolidated Funding Application (CFA) process by revisiting and adjusting application intake activities and procedures, in conjunction with the CFA operations team, to ensure that Outreach Project Consultants continue to engage with applicants in a timely manner. Most TAs conduct interim reviews with customers to inform design teams. All TA firms will receive reminders to provide these interim reviews, which are part of the standard TA operating procedures.</p> <p>NCP is actively exploring new program paths that streamline participation. Work is well underway to incorporate the New Buildings Institute Core Performance Guide into the program, which will provide a simplified, streamlined analysis for several project types and sizes ranging from 20,000 to 100,000 square feet. Work also has been initiated to streamline analysis and participation for customers pursuing large commercial office fit-out projects. Lastly, looking towards the future, NYSERDA is studying the emerging net zero energy new construction and major renovation market to identify appropriate roles and optimal times for engagement by NCP.</p>

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
	<p>Outreach Project Consultant (OPC) marketing should be continued and the program should continue to track its results, including the conversion rate of leads to applications.</p>	<p>Pending</p>	<p>OPC marketing is continuing OPC presentations and leads are logged in the Buildings Portal (BP) database and tracked monthly. The current OPC firm has been directed to be more diligent in using the applications tab in the leads section of the BP, since this will better document the conversion of leads to applications. A challenge is that the formal project name shown on the application is often not the same as the name assigned to the lead, when the formal name had not been established. NYSERDA has issued a RFP for OPC services for the NCP that will cover services from 2013 through 2016. As indicated in the solicitation, contractor success will be monitored through required reporting on metrics, including, but are not limited to, outreach activities and conversion of inquiries and leads to projects.</p> <p>NCP will work with the Marketing Department and OPCs to develop a link between the Solutions campaign leads and NCP applications. The work has started now that some leads are converting to applications.</p>
	<p>To avoid unexpected results for participants seeking to employ integrated whole building designs, NCP staff members, OPCs, and TA providers need to continue to develop effective ways to explain the consequences of the new requirements surrounding the Total Resource Cost (TRC) test.</p>	<p>Pending</p>	<p>NCP staff and contractors currently advise customers that energy efficiency measures are subject to a cost/benefit test, and some measures may not receive incentives. As contractors become more familiar with the impact of TRC they will have a better understanding of the measures that typically pass or fail, which will help in framing realistic expectations for customers. NCP will continue to investigate alternative ways to encourage higher performance within the TRC framework. An empirical study may be difficult to achieve as there are many variable factors with projects over time, making it difficult to isolate impacts from TRC. As TA reports subject to TRC are completed NCP has been tracking the effects of TRC on project measures and incentives. NCP also has been seeking feedback from the OPCs and TAs about impacts of TRC on projects and providing program assistance. Initial anecdotal feedback indicates that TRC adds staff and contractor time and incentive opportunities are reduced, which may lead to higher program costs per project, less customer interest and lower program participation.</p>

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
	<p>While NCP has made substantial progress developing an advanced analysis tool to foster deeper, cost-effective savings for smaller buildings. Further steps are needed to finalize and implement the package. Completing this analysis tool should be a high priority, given the surge in smaller building applicants.</p>	<p>Pending</p>	<p>NYSERDA agrees with this recommendation. The Program is continuing to work with NCP contractors and the New Buildings Institute to incorporate the Core Performance Guide (CPG) into the program. Currently, NCP is collecting cost information for TRC screening to prepare for a discussion with DPS.</p>
	<p>NCP staff members should assess individual TA provider performance in scoping meetings and throughout the technical assistance process and design training to help TA providers better influence efficiency decisions.</p>	<p>Implemented</p>	<p>NCP conducted TA training sessions at several locations around the state. The training sessions involved all TA firms. Through a program contractor who has specialized modeling expertise, NCP will provide additional energy modeling training for TA firms. NCP project managers will expand their outreach to participate in more scoping meetings, to ascertain which TAs are high performing “game changers” and which are “order takers”. NCP will use this information to focus skill improvement training on TAs who need it most.</p>

Table 5. Pending Recommendations: Industrial and Process Efficiency Program

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
<p>RIA, Industry & Process Efficiency (IPE) Process Evaluation, November 2011</p>	<p>The program would benefit from database and application processing upgrades needed for staff to improve project management, including implementing electronic signatures and better integration of NEIS and Buildings Portal.</p>	<p>Pending</p>	<p>NYSERDA has created a new Performance Management and Evaluation Systems department. Also, the Energy Efficiency Services (EES) Operations Unit continues to address changes needed to the multiple database process currently in place. Performance Management Systems and EES Operations are integrating staffing and responsibilities to optimize reporting, database, and processing upgrades</p>

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
	The program team should continue to refine the dashboard in coordination with NYSERDA's Operations Group.	Pending	NYSERDA has created a new Performance Management and Evaluation Systems department. Also, the Energy Efficiency Services (EES) Operations Unit continues to address changes needed to the multiple database process currently in place. Performance Management Systems and EES Operations are integrating staffing and responsibilities to optimize reporting, database, and processing upgrades. Dashboard upgrades will be submitted as requested refinements.
	The program would benefit from additional Technical Reviewer support for Western New York and data centers throughout the state.	Pending	NYSERDA issued a new RFP for Outreach providers to support EEPS2 NYSERDA programs. Contractors will be selected later this year. Feedback from this evaluation will be considered in the TEP process and contract execution.
	The program would benefit from additional Outreach Contractor outreach to data centers, to consulting engineers that serve targeted industrial submarkets, including data centers and compressed air users, and to industrial customers in Western New York (the greater Buffalo area, in particular). Across the state, outreach contractors should increase leveraging of economic development organizations to assist with targeted outreach	Pending	NYSERDA issued a new RFP for Outreach providers to support EEPS2 NYSERDA programs. Contractors will be selected later this year. Feedback from this evaluation will be considered in the TEP process and contract execution.
	Program staff could take steps to more strongly brand Industrial and Process Efficiency as a one-stop shop that leverages a cohesive team of people to assist customers from opportunity identification and justification, to verification and investment, in the next cost-saving project.	Pending	NYSERDA branding is a key part of the ongoing Integrated Marketing campaign. This multi-tiered marketing program delivers general C&I and program specific content through a combination of media including print, online and direct response tactics (email and direct mail) to key participating and prospect C&I audiences. Industrial and Process Efficiency will investigate with NYSERDA Marketing the appropriateness of individual program branding within overall NYSERDA branding.

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
	To facilitate coordinated outreach between program staff and outreach contractors and reduce duplicative or non-coordinated outreach to individual customers, the process evaluation team recommends that program staff use salesforce.com more consistently.	Pending	A NYSERDA-wide Customer Relation Management (CRM) tool is currently being implemented by the EES Operations Unit. Program use of Salesforce.com is being reassessed in coordination with the new CRM.
	The Industrial and Process Efficiency staff could host a workshop with Technical Reviewers and outreach contractors to further develop guidance case examples for per-unit-of-production calculation methodologies and messages likely to provide the best energy savings for the customer and the program.	Pending	Technical Reviewer training was held at NYSERDA on February 28, 2012 that included case studies on how to calculate per unit of production savings. Future periodic training sessions will continue to improve the program.

Table 6. Pending Recommendations: New York ENERGY STAR Homes Program

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
Nexant, NYESH M&V, June 2007	Data from REM/Rate files should be included in CSG's database for all homes, including detailed equipment and appliance information and square footage of each home. CSG indicated that this recommendation will be incorporated into a future version of the program database. In addition, NYSERDA should periodically conduct quality control checks to verify that the information in the database is correct.	Pending	NYESH Program staff have been assessing ways to facilitate the export of data from the REM/Rate software in a meaningful way into the implementation database. Some success has been made in the LIPA ENERGY STAR Homes Program to accomplish this, and NYSERDA staff has been using its experience to accomplish the task.

Table 7. Pending Recommendations: CFL Expansion Program

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
NMR Group, CFLExpansion Random Digit Dial and Onsite Survey Results, June 2011	If NYSERDA decides to target specialty CFLs, NYSERDA may wish to pursue agreements with large retailers, who nationally have shown a greater propensity to carry specialty products when incented by CFL programs.	Implemented	NYSERDA has been conducting outreach to the large retailers in an attempt to recruit them as partners and increase program activity. Negotiations are currently taking place over partnership agreements with one of the largest retailers, while conversations with others have been productive. Retailers remain apprehensive about sales data potentially becoming public information as well as having a preference for their suppliers to work on their behalf to avoid administrative costs.
NMR Group, CFLExpansion Random Digit Dial and Onsite Survey Results, June 2011	Continue to incentivize products to encourage consumers to purchase CFLs. Specifically, target replacement of exterior lighting with CFLs to increase penetration of CFLs in this segment.	Implemented	The Program is currently supporting all specialty CFL types with a focus on high-wattage replacements, including exterior lighting. Program staff members are currently working on a marketing campaign that will include exterior CFLs.

Table 8. Pending Recommendations: EmPower New York Program

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Implemented, Pending or Rejected)	Program Implementer Response to Recommendation and Adoption Decision Rationale
Nexant, EmPower M&V, April 2007	Devise a methodology to automate the electronic transfer of results from the EmPower New York Calculator to the EmPower New York database.	Pending	Staff are currently reviewing the EmPCalc tool, the current version of the NY State Technical Manual, and audit tools under consideration for the Home Performance Program. Changes related to this recommendation are on hold pending outcome of this review and completion of current program evaluations.
	Devise a methodology to incorporate the AHAM baseline energy usage data, adjusted for degradation for refrigerators and freezers in to the EmPower New York Calculator to avoid the manual data entry errors while transferring results from REFRIGERATION [®] software to the EmPower New York Calculator.	Pending	These revisions are on hold pending the process described for the above recommendation.

5 *Other*

Per the DPS reporting guidance, this section provides an opportunity to report significant activities or events not already reflected in the report. This section is not for reporting routine activities.

There are no other significant activities requiring explanation for the first or second quarters of 2012.

Appendix A: Completed Evaluation Summaries

This appendix contains a high-level summary of each recently-completed evaluation study. The full report on each evaluation study can be found on the NYSERDA website. Summaries appear within this appendix in the following order:

1. Existing Facilities Program Process Evaluation, Research Into Action, February 2012
2. Flexible Technical Assistance Program Impact Evaluation, Megdal & Associates with Energy & Resource Solutions as Lead Investigators, March 2012
3. Flexible Technical Assistance Program Market Characterization and Assessment, Navigant Consulting, August 2011
4. Industrial and Process Efficiency Program Process Evaluation, Research Into Action, November 2011
5. Industrial and Process Efficiency Program Market Characterization and Assessment Evaluation, Navigant Consulting with GDS Associates as Lead Investigators, May 2012
6. New Construction Program Process Evaluation, Research Into Action, December 2011
7. EmPower NY Program Impact Evaluation Megdal & Associates with Kathryn Parlin of West Hill Energy Lead Investigator, April 2012
8. Workforce Development Program Process Evaluation, Research Into Action, June 2012

NYSERDA Existing Facilities Program: Process Evaluation Summary

Evaluation Conducted by: Research Into Action Process Evaluation Team
Research Into Action, Lead Investigators, February 2012

PROGRAM SUMMARY

NYSERDA's Existing Facilities Program offers a portfolio of incentive opportunities promoting energy efficiency and demand management to commercial and industrial customers that pay into the SBC. There are two types of Existing Facilities incentives: Performance-Based and Pre-Qualified.

EVALUATION OBJECTIVE AND HIGH LEVEL FINDINGS

A brief process evaluation of the 2008-2011 Existing Facilities Performance-Based component was conducted in conjunction with a larger Market Characterization and Assessment (MCA) evaluation. The process evaluation team added questions to MCA surveys completed in the summer of 2011 with 69 participating end users¹ and 39 participating service providers² conducting performance-based projects. The survey questions explored topics about which the NYSERDA Existing Facilities Program staff was particularly interested in receiving participant feedback. These topics and key findings include:

- *Satisfaction with program processes and timeliness:* Program satisfaction is high among both participant groups; although about half of the service providers indicated dissatisfaction with turnaround time between application submittal and incentive receipt. In spontaneous comments addressing program satisfaction several respondents voiced appreciation with M&V because it assures project quality; few contacts expressed dissatisfaction with Program M&V Processes.

¹ For the purposes of the study, energy end-use customer, referred to as End user (Host), is the organization that occupies or owns the existing building space where an energy efficiency project will be implemented.

² Service Providers in this analysis are broadly defined as energy efficiency firms that directly interact with end use customers to implement energy efficiency retrofit or upgrade projects in existing buildings. Service Providers included Energy Service Companies (ESCOs) and other types of energy upgrade firms.

- *Program components as potential barriers to participation, especially, as they might limit the number of Performance-Based and natural gas efficiency projects:* Both groups surveyed, showed a low to moderate awareness of natural gas incentives and understanding of Performance-Based incentives. Nearly one-quarter of participating end users and half of nonparticipating end users that use natural gas at their facilities did not know about the Existing Facilities gas savings incentives. Under two-thirds of nonparticipating service providers with awareness of the program describe themselves as confident in understanding the difference between Performance-Based and Pre-Qualified incentives. One participating service provider also reported lacking confidence in understanding the two incentive approaches, as did one-fifth of office end users.
- *Program value:* Although the financial incentives are a primary value of participation, both groups also value non-financial program elements, especially NYSERDA's reputation as a trustworthy source of information and a source of technical expertise.
- *Program value in light of the availability of utility incentives for nonresidential retrofits:* There is considerable confusion among participating end users and, to a lesser but still noteworthy degree, service providers over the existence of both utility programs and NYSERDA's Existing Facilities Program. Service providers appear to be encouraging "incentive shopping" among the programs available to their customers to get them the best value. The comments of some service providers suggest clear program information is more readily obtained for Existing Facilities than for utility programs, yet the comments of some end users suggest that they found information on Existing Facilities to be confusing. Finally, many end users were unaware of whether their utilities offered similar programs, suggesting that Existing Facilities currently benefits from low market awareness of these other programs.
- *Service provider response to a new program feature in 2008 that enabled customers to directly apply to the program (the prior program accepted applications only from service providers):* Despite the end users ability to directly apply to the program this change does not seem to have had a significant impact on service providers' businesses. Service providers are likely to have experienced improved or unchanged relationships with NYSERDA over this period; only a few reported a deterioration of their relationship with NYSERDA.

EVALUATION RECOMMENDATIONS AND PROGRAM ADMINISTRATOR RESPONSE

The following recommendations were made by the evaluators conducting this study. NYSERDA's initial response to these recommendations is also summarized below and will be tracked over time.

Recommendation 1: Because service providers seem to be the most affected by processing delays, focus on providing incentive application status updates to service providers. Consider providing automated status updates on projects to free up program staff resources for other purposes. Support service providers in setting appropriate expectations by publicizing the typical length of time for each stage of NYSERDA review.

Response to Recommendation 1: NYSERDA is currently integrating its database systems and revising its business process. The new system is planned to include enhanced workflow and applicant communications that will allow service providers access to project statuses and automate communications at key business process toll gates.

NYSERDA is also developing the following to better manage the expectations of its customers and service providers:

- A description of the EFP verification process at each toll gate: Energy Analysis Review which includes the pre-installation inspection, Project Installation Review and Measurement and Verification.
- A one page pictorial summary of the verification process that includes a description of deliverables and an estimated timeframe for each toll gate review.

These one page descriptions will be reviewed by marketing, attached to each contract, handed out at kick-off meetings and posted on the Existing Facilities website.

Recommendation 2: Provide all participating end users and service providers, regardless of project type, with a marketing piece (letter or brochure) designed specifically to inform participants, in a simple, compelling way, of the variety of incentives available. Increase marketing to nonparticipant service providers, clearly describing the performance-based incentive approach.

Response to Recommendation 2: An integrated marketing program has been implemented statewide to drive awareness and participation in NYSERDA's portfolio of Commercial & Industrial programs. This multi-tiered marketing program delivers general C&I and program specific content (including EFP) through a combination of media including print, online and direct response tactics (email and direct mail) to key participating and prospect C&I audiences. For EFP specific efforts, promoting performance based opportunities are a priority. A new EFP program brochure is currently in development that will deliver core value messaging and incentive offerings in a simple, compelling manner and will be distributed through the marketing program. NYSERDA plans to launch a targeted marketing campaign to non-participating service providers.

Recommendation 3: Program branding through its marketing collateral, descriptive information, and application forms should explicitly, as well as subtly, convey NYSERDA's leadership in energy

efficiency and standards for assuring that project savings meet expectations. Continue to offer assistance with project development to end users and service providers.

Response to Recommendation 3: NYSERDA’s leadership in energy efficiency, technical expertise and assurances for quality standards as indicated through statewide quantitative research are core foundational messages and are incorporated into all marketing communications materials/activities. The Existing Facilities Program is expanding its project development assistance by adding outreach contractor resources through a new RFP and developing a team of Key Account Managers assigned to specific end users and service providers.

Recommendation 4: Existing Facilities will benefit from program descriptions and application forms that are simple and clear. Program staff might obtain utility program descriptions and application forms and compare Existing Facilities Program materials with utility program materials to appreciate what market actors see. This exercise would help identify potential areas for improvement, and discover opportunities to highlight Existing Facilities and NYSERDA value in a manner that compares favorably to utility program information. Finally, program staff might gain insight on the clarity of program materials simply by asking nontechnical staff at NYSERDA to provide feedback on the materials.

Response to Recommendation 4: Customers interested in participating in the NYSERDA Existing Facilities program now apply through the Consolidated Funding Application. In some cases, NYSERDA requires additional information to evaluate and process project activity. These supporting worksheets and all marketing materials have been streamlined and simplified for ease of use by the marketing department. EFP and the marketing team are currently working on a re-designed program brochure and website.

Recommendation 5: Program objectives should explicitly include providing service providers with excellent quality of service, including prompt responses, when interacting with them. Convey through words and actions NYSERDA’s appreciation and gratitude for their support. This market stance can become part of NYSERDA’s brand.

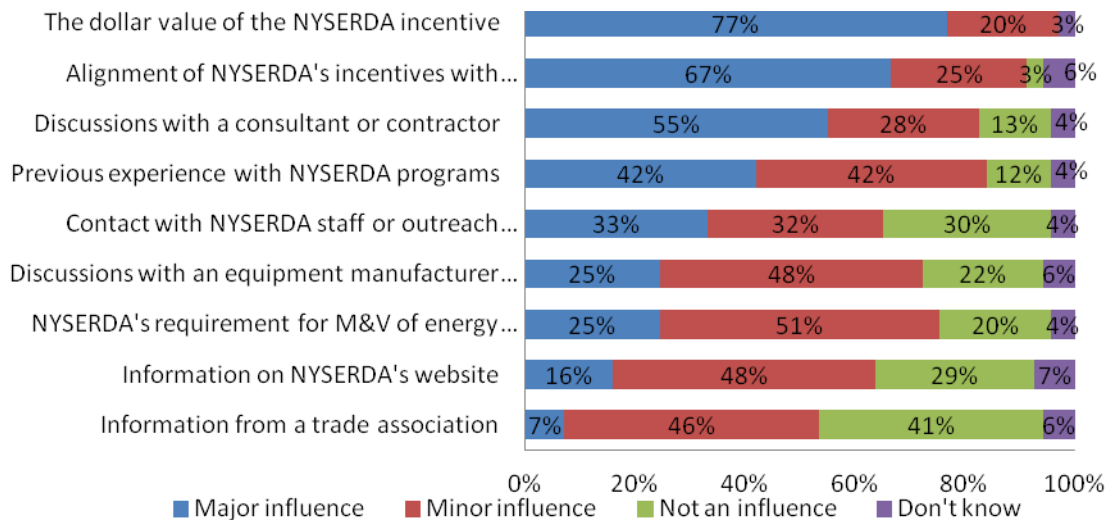
Response to Recommendation 5: NYSERDA understands the important role of service providers to customers and their contributions to NYSERDA’s successes are recognized through project case studies and public relations efforts (in some cases these partners participate in our events in addition to recognition in press releases). Through collateral materials, NYSERDA also recognizes the extended “team” of technical experts who support NYSERDA and our customers. The Existing Facilities team has dedicated staff to manage service provider relationships. This team has identified key service providers and meets with them regularly to solicit feedback on the program and discuss upcoming opportunities.

DETAILED PROCESS EVALUATION FINDINGS

While the value of the NYSERDA incentive and the alignment of NYSERDA’s incentives with the project needs were rated by most participants as a “major influence” on participation (77% and 67% of respondents, respectively), other program elements also played a role in participants’ decisions to participate (Figure 1). Service providers also valued NYSERDA’s incentives highly. Nearly all

participating service providers (90%) rated the availability of NYSERDA incentives as “very important” to their customers’ decisions to implement energy efficiency measures.³

Figure 1. End-User Ratings of the Influence of Program Elements on Participation (n=69)



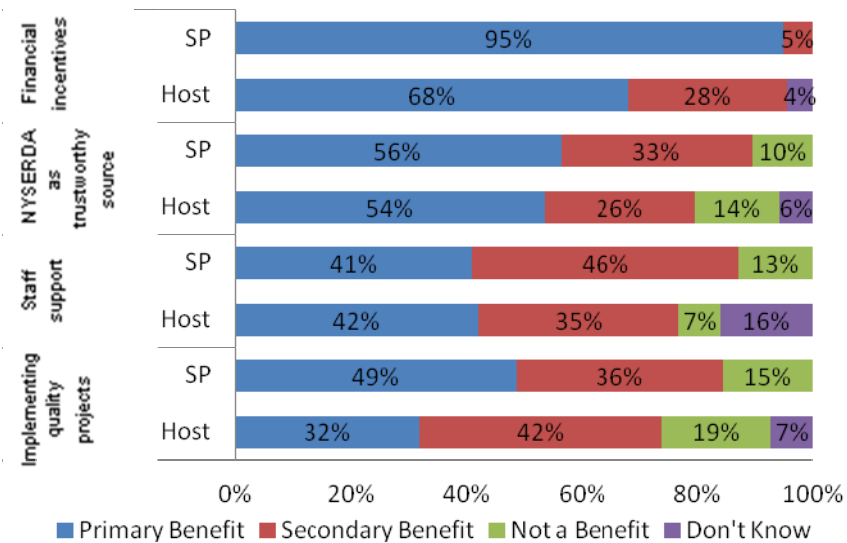
Nearly all service providers (SP) and end users (Hosts) valued the financial incentive as a primary or secondary benefit of participation, with 95% of service providers and 68% of end users rating the incentives as a “primary benefit” (Figure 2). Participants valued the non-financial program components, as well.

Just over half of contacts (56% of service providers and 54% of end users and) saw NYSERDA’s reputation as a trustworthy and independent source of information as a primary benefit. Small service provider firms were especially likely to see this program aspect as a primary benefit (70% versus 35% of larger firms). Half of the service providers (49%) saw NYSERDA’s help ensuring that they implement quality projects as a primary benefit and nearly as many (41%) rated as primary “NYSERDA staff and its contractors are available to provide support for projects.” Four service providers also reported additional

³ The service provider survey asked: *How important is the availability of NYSERDA incentives in your customers’ decisions to implement energy efficiency measures.* This was the only concept asked of service providers from among the group of end user questions diagrammed in Figure 1.

primary benefits, including project validation (two mentions), the ease of the process, and adding credibility for the customer.

Figure 2. Participating Service Provider (SP) and Host Ratings of the Value of Program Components



EVALUATION METHODS AND SAMPLING

The process team first conducted in-depth interviews in March 2011 with the Existing Facilities program manager and with an Existing Facilities project manager primarily responsible for Pre-Qualified projects.

The process team collaborated with the MCA team to collect the survey data for this evaluation.⁴ The process team added questions to the Existing Facilities Program surveys the MCA team was fielding for participating end users and service providers. These questions provided the process team with information about participant experiences and satisfaction with the program. NYSERDA evaluation staff consulted on the development of these surveys and approved the final versions.

⁴ Navigant Consulting Inc. *DRAFT Existing Facilities Program: Market Characterization and Assessment Report*. Prepared for NYSERDA. October 14, 2011

The process team was unable to pursue one element of the research objectives due to a change in the sampling methodology over the course of the MCA and process survey development activities. That is, the final sampling methodology restricted the sample to participants with Performance-Based incentives, so the team was not able to explore with participants in the Pre-Qualified track the extent to which lack of awareness of Performance-Based incentives might contribute to lack of participation in Performance Based component of the Existing Facilities Program. Nevertheless, the resulting sample, devoted as it was to performance-based participants, provides good coverage of participant response to the more complex program processes those incentives entail.

The MCA team completed 69 participant end-user surveys and 39 participant service-provider surveys in July and August 2011, as well as 118 nonparticipant end-user surveys and 116 nonparticipant service provider surveys from September to November 2011. The samples used in the joint MCA and process survey research, which yielded the findings presented in this report, were stratified to address key sectors of interest to NYSERDA: offices, hospitals and healthcare, colleges and universities, and retail.⁵

⁵ These strata samples are representative of the larger population strata (such as participating offices or nonparticipating hospitals and healthcare), with the exception of the nonparticipating end user retail stratum. For that stratum, survey response bias occurred; large retailers – large in store size (big box) and in organizational size (many stores) – declined to participate in the end-user retail survey. Thus, the nonparticipant retail sector is representative of the population of smaller retail firms (smaller stores, few stores). Thus, these nonparticipants differ in composition from the participant retail strata.

***NYSERDA Flexible Technical Assistance Program:
Impact Evaluation Summary***

*Evaluation Report Prepared by: Megdal & Associates Impact Evaluation Team
Energy & Resource Solutions, Lead Investigators, March 2012*

PROGRAM SUMMARY

NYSERDA's Flexible Technical Assistance Program (FlexTech), funded through the System Benefits Charge (SBC), provides cost-sharing of up to \$1,000,000 per study for objective and customized energy efficiency information (energy studies) to commercial, industrial, institutional, government, and not-for-profit customers. Energy savings result when study recipients implement recommendations made in the energy study.

EVALUATION OBJECTIVE AND KEY FINDINGS

During the fourth quarter of 2011, an impact evaluation study was completed by Megdal and Associates to determine the magnitude of energy savings resulting from the FlexTech Program for studies completed during calendar years 2007 through 2009.

Adoption of Flex Tech study recommendations occurs over time, so impact related to past studies has already occurred and will continue to occur in the future. Table 1 combines the program impact as defined by completed studies with the Measure Adoption Rate (MAR), Savings Realization Rate (SRR) and Net-to-Gross (NTG) ratio arrived at by the evaluation to determine the actual net impact realized due to the FlexTech Program's 2007 through 2009 studies. Overall, NYSERDA's 2007-2009 FlexTech Program produced 107,342 MWh/year of electric energy savings, 16.8 MW of electric demand savings, and 359,504 MMBtu/year of natural gas savings. These savings represent 73% of the FlexTech study recommended electric energy savings, 68% of the FlexTech study recommended electric demand savings, and 39% of the FlexTech study recommended natural gas savings. The ex post savings represent 48% of the FlexTech Program SBC3 electricity goal for the years covered in this evaluation.

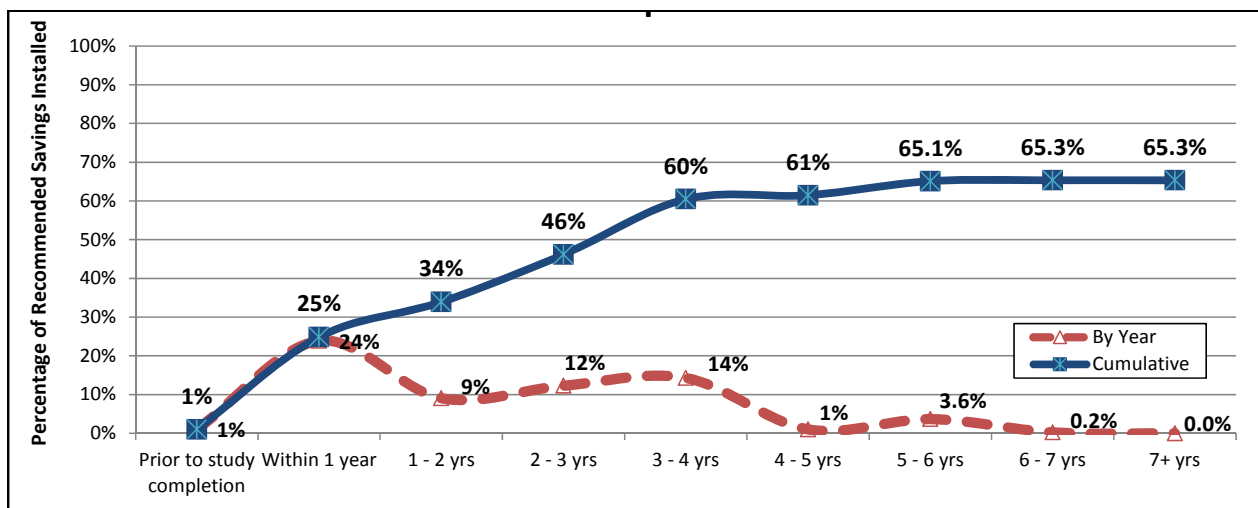
Table 1. Net Long-Term Expected Impact, Studies Completed 2007 - 2009

Parameter	Electric Energy (MWh/yr)	Electric Demand (MW)	Natural Gas (MMBtu/yr)
Ex Ante Tracked Savings (Study Recommended for FlexTech)	146,651	24.6	928,023
Evaluation Measure Adoption Rate (MAR), long-term expected	0.68	0.68	0.43
Evaluation Savings Realization Rate (SRR)	0.92	0.86	0.77
Evaluation Net-to-Gross Ratio (NTG)	1.17	1.17	1.17
Ex Post Net Impact, long-term expected	107,342	16.8	359,504

DETAILED FINDINGS: MEASURE ADOPTION, REALIZATION RATE AND NET-TO-GROSS

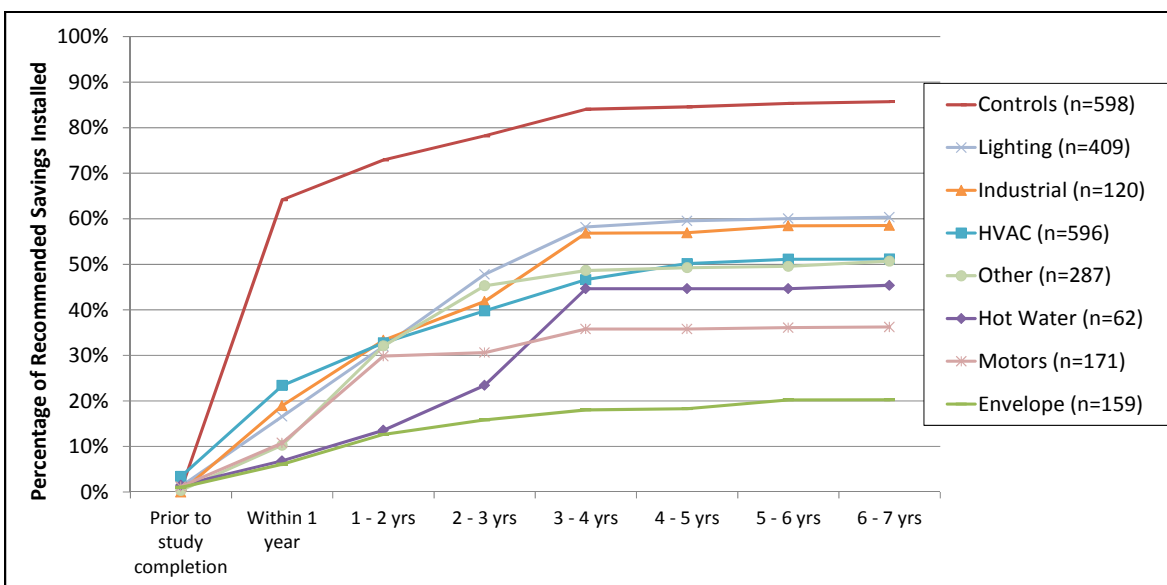
Measure Adoption Rate: Figure 1 illustrates the MAR results over time for all measures and fuel types. Six years following study completion, 65% of the savings associated with recommended measures is implemented by study recipients; and of that 65%, just over two-thirds is realized within three years of the study completion. The MAR was analyzed for completed studies going back to 2003 in order to determine when the MAR curve plateaus. As evident in the chart below, the MAR curve begins to plateau at year six, and by year seven and eight, no additional measures were implemented. Therefore, an energy study is only utilized by the customer within the first six years following its completion.

Figure 1. Program Measure Adoption Rate Over Time



The MAR differs by technology and fuel type. The projected long-term MAR for electric efficiency measures only is 0.67. Non-electric efficiency measures have the lowest adoption rate at 0.42, and on-site generation measures have the highest adoption rate at 0.72. Figure 2 disaggregates the measure adoption rates by technology for non-generation measures. Building envelope measures have the lowest adoption rate (approximately 20%) while controls measures have the highest (approximately 85%). All other measures fall into the mid range of 35-60% adoption.

Figure 2. Projected Long-Term MARs by Technology for Non-Generation Measures



Savings Realization Rate: An SRR of 1.0 would indicate that the realized savings are exactly as estimated by the NYSERDA studies. An SRR less than 1.0 indicates lower achieved savings than originally estimated in the study. The sampled sites had an overall realization rate of 0.83 with 4.1% relative precision at the 90% confidence level for annual electric energy savings. With the addition of the two large combined heat and power (CHP) studies, the overall realization rate was 0.92. The demand realization rate overall is 0.86 and the natural gas realization rate is 0.77. Evaluators found that differences in equipment operation (e.g., schedules, hours per year) between study-recommended and evaluated energy savings was the largest reason the SRR deviated from 1.

Net-to-Gross: A NTG greater than 1.0 indicates that the program spillover outweighs free ridership, and the program achieved more savings than were claimed based on direct activity. The overall NTG factor for FlexTech 2007 through 2009 completed studies was 1.16. Table 2 below lists the free ridership and

spillover estimates developed for the current evaluation. Free ridership (FR) measures the likelihood the participant would have received the study or implemented the measure without the Program, and spillover (SO) is the degree to which the customers' participation in the FlexTech Program influenced them to take additional actions to save energy. "Inside" SO occurs when energy saving actions are taken at the same study site, but are not done as part of the Program. "Outside" SO occurs when energy saving actions are taken at other sites that are not part of their program participation. Non-participant spillover captures some of the larger market effects beyond those customers or actors directly participating in the program. The non-participant spillover estimate was derived from a separate study.¹

Table 2. Free Ridership, Inside Spillover, and Outside Spillover Estimates

Attribution Variable	Factor
Free ridership	0.32
Inside spillover	0.04
Outside spillover	0.30
Non participant spillover	0.15
Net-to-gross factor (equals 1-FR+SO)	1.17

EVALUATION METHODS AND SAMPLING

Evaluators estimated the net energy savings attributable to the FlexTech Program using a three-step process:

1. Measure Adoption Rate (MAR) - Engineers conducted a telephone survey of facility managers or engineers to determine the MAR and date of adoption for measures recommended in 303² studies completed between January 1, 2003 and September 30, 2009;
2. Savings Realization Rate (SRR) - Engineers led an on-site survey with measurement and verification (M&V) to estimate the SRR for adopted measures associated with forty-four studies completed between January 1, 2006 and September 30, 2009 and for which the MAR survey identified at least one adopted measure. Two large combined heat and power (CHP) studies were also included in the on-site survey³; and
3. Net-To-Gross (NTG) - Survey professionals conducted phone interviews for completed studies between January 1, 2006 and September 30, 2009 with study recipients associated with 47 sites and FlexTech service providers associated with 46 sites and supplemented this data with on-site

¹ Summit Blue Consulting, LLC, Commercial and Industrial Market Effects Evaluation, Prepared for NYSERDA, October 2007.

² Researchers completed telephone interviews associated with 301 FlexTech studies. There were two additional studies for which the MAR results were already known, for a total of 303 completed MAR questionnaires.

³ These two studies were not included in the MAR survey because the installations were known to have been completed.

observations of customer behavior to assess free ridership and participant inside and outside spillover effects.

Once the MAR, SRR, NTG factors are determined, ex-post savings are calculated using Equation 1.

$$\text{Equation 1: kWh/kW/MMBTU}_{\text{save}} = \sum(\text{kWh/kW/MMBTU}_{\text{recommend}} \times \text{MAR} \times \text{SRR} \times \text{NTG})_{\text{study } i}$$

RECOMMENDATIONS AND PROGRAM ADMINISTRATOR RESPONSE

The following recommendations were made by the evaluators conducting this study. NYSERDA's initial response to these recommendations is also summarized below and will be tracked over time.

Program Recommendation 1: Update NYSERDA's FlexTech study database system (buildings portal) to:

- a. Allow energy savings recommendation entries for more than one fuel type
- b. Include findings from impact evaluation studies, such as tracking peak demand savings that are consistent with New York Department of Public Service (NY DPS) reporting requirements and capturing interactive savings associated with central cooling and heating plants
- c. Incorporate premise identifiers
- d. Retain electronically the data, analysis and supporting documentation from the FlexTech studies including PDFs of the final studies, Excel analysis files, building model input files, baseline/pre-retrofit billing data and HVAC trend data from the end use customers

Response to Program Recommendation 1:

- a. Database changes will be made.
- b. Program is based on a market-based 50% cost share by customers to obtain information customers find valuable for making decisions to move forward with energy efficiency projects. Differing and sometimes no methods of assessing demand impact or interactive heating and cooling savings are valuable to customers providing the 50% cost share. Also, prescribed demand reporting methods evolve over time.

Program will work with study providers and customers to better report demand savings by currently prescribed DPS methodology and better assess significant heating/cooling interactions.

- c. This is a portfolio level recommendation. NYSERDA is developing methods to provide this tracking.
- d. Database and storage process changes will be made.

Program Recommendation 2: Focus marketing on controls studies/vendors. The MAR survey results indicated that controls measures had the highest adoption rate of all technology groups. Aggressive promotion of this particular type of study could increase the overall cost-effectiveness of the Program by increasing the MAR. Additional investigation regarding why controls measures have

such a high adoption rate could lead to lessons learned, which could be applied to studies associated with other technologies.

Response to Program Recommendation 2:

Most commercial/industrial marketing is conducted at:

- portfolio level; not program level
- facility, building, or portfolio level; not measure or system level

When FlexTech alone is marketed at measure-specific levels, additional emphasis will be placed on controls.

Evaluation Recommendation 1: Investigate and develop a more reliable method for the estimation of outside spillover. The outside spillover rate was derived in this evaluation using the same method and survey questions as those in past FlexTech evaluations. The final outside spillover estimate was based upon a small number of respondents (after dropping those that report no outside spillover). It is a substantial estimate with uncertainty in many of its components. Further research is needed to develop a more reliable method that includes validity checks and is able to better estimate the full impact of the participating TA service providers on the market.

Response to Evaluation Recommendation 1: Estimating spillover is one of the most challenging aspects of impact evaluation. NYSERDA will work with its evaluation contractors to address this issue in future studies. NYSERDA will also continue, working with Department of Public Service Staff and the Evaluation Advisory Group, to examine whether other methods, such as “top down” assessments of market impacts can complement or supplement current study methods related to spillover.

Evaluation Recommendation 2: Select studies no older than five years in the next evaluation cycle. The MAR survey results indicate that measure adoption rates plateau five years after delivering the study to the customer. Hence, in the next round of evaluations, the evaluators recommend using studies that are not older than five years beyond the survey date.

Response to Evaluation Recommendation 2: The next Impact Evaluation of the FlexTech program is scheduled for 2014. Should the 2014 impact evaluation pick up where this evaluation left off, it will need to select studies that were completed as far back as 2010, which will not be more than five years old.

***NYSERDA FlexTech Program:
Market Characterization and Assessment Summary***

Evaluation conducted by: Navigant Consulting, Inc. Market Characterization and Assessment
Evaluation Team

Navigant Consulting, Lead Investigators, August 2011

PROGRAM SUMMARY

The FlexTech Program provides commercial and industrial customers with objective and customized information to facilitate wiser energy efficiency, energy procurement, and financial decisions. Cost-shared technical assistance is provided for detailed energy efficiency studies from energy engineers and experts. Small customers are eligible for quick walk-through energy audits, with the cost share reimbursed upon implementation of recommendations. Participants may use NYSERDA-contracted or customer-selected consultants.

EVALUATION OBJECTIVE AND HIGH LEVEL FINDINGS

In 2011, Navigant Consulting conducted a market characterization and assessment (MCA) evaluation on the FlexTech Program.¹ The objectives of this MCA evaluation were to develop a comprehensive understanding of current and emerging markets, market structures, and market actors; provide baseline and background information to enable NYSERDA to define, deliver, and evaluate programs for these target markets; and track changes in markets over time with a specific focus on market indicators that are likely to be impacted by program offerings.

¹ The final FlexTech MCA Evaluation can be found here: <http://www.nysERDA.ny.gov/Page-Sections/Program-Evaluation/NYERDA-Evaluation-Contractor-Reports/2011-Reports/~media/Files/EDPPP/Program%20Evaluation/2011ContractorReports/2011%20FlexTech%20MCA%20Final%20Report%20with%20Appendices.ashx>.

The MCA study results indicate that the FlexTech Program is positively influencing the market for energy efficiency in New York. Even so, additional market opportunities remain, including:

- Exploring options to build on existing customer awareness of the program, particularly among the subset of non-participant end-use customers who regularly conduct energy feasibility studies, and
- Promoting the benefits of program participation 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.

EVALUATION RECOMMENDATIONS AND PROGRAM ADMINISTRATOR RESPONSE

The following recommendations were made by the evaluators conducting this study. NYSERDA's initial response to these recommendations is also summarized below and will be tracked over time:

Recommendation 1: 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.

Response to Recommendation 1: Adopted. An integrated marketing communications program is underway, targeting C-suite and management level individuals within key vertical markets.

Recommendation 2: 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.

Response to Recommendation 2: Adopted. NYSERDA has developed a campaign centered around the measurable results of energy efficiency measures, with emphasis on case studies and messaging focused on greater return on investment and simple payback.

Recommendation 3: FlexTech Program staff should encourage the trend of increasing use of customer-selected technical service providers.

Response to Recommendation 3: Adopted. NYSERDA will continue to encourage customers to use their own or NYSERDA-contracted service providers based on customer needs.

Recommendation 4: 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 and NYSERDA should consider this when developing future marketing strategies and program participation forecasts. NYSERDA staff should also continue efforts to develop joint programmatic initiatives with the utilities where the FlexTech Program is used to identify efficiency opportunities at customer organizations and present NYSERDA and utility implementation program options for customers.

Response to Recommendation 4: Adopted. Joint programs, between NYSERDA and ConEdison and NYSERDA and National Grid, were initiated in 2010-2011. Partnerships are portfolio-based and not specific to FlexTech or any program. Efforts to address future utility partnerships are ongoing and greatly dependent upon future EEPS Orders for the years 2012 and beyond. No specific action regarding FlexTech is currently planned or expected. Future utility partnerships are anticipated to be portfolio- not program-based.

Recommendation 5: One of the four bills recently passed as part of New York City's Greener, Greater Buildings Plan 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 FlexTech services to representatives of those buildings.

Response to Recommendation 5: Adopted. The PSC ordered a separate Benchmarking and Operations Efficiency Program which addressed this market. That program targeted these customers and received good customer participation through outreach efforts conducted by participating service providers. The DPS EEPS White Paper recommended subsuming these services into FlexTech, which NYSERDA has enacted. NYSERDA has met and will continue to meet with representatives from the New York City Office of Long Term Planning to coordinate efforts on the requirements that the City has legislated.

DETAILED MARKET CHARACTERIZATION AND ASSESSMENT FINDINGS

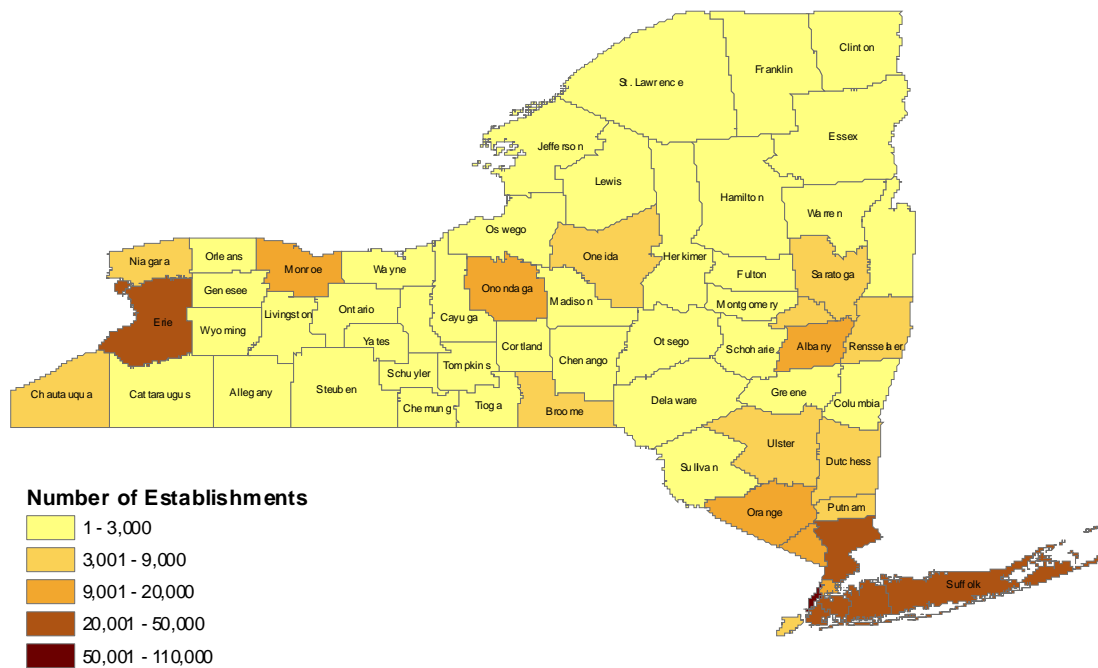
Selected Market Characterization Findings

Selected findings from the market characterization effort include the following:²

- New York has approximately 520,000 commercial and industrial establishments and nearly four billion square feet of commercial and industrial building area. As seen in Figure 1, 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.

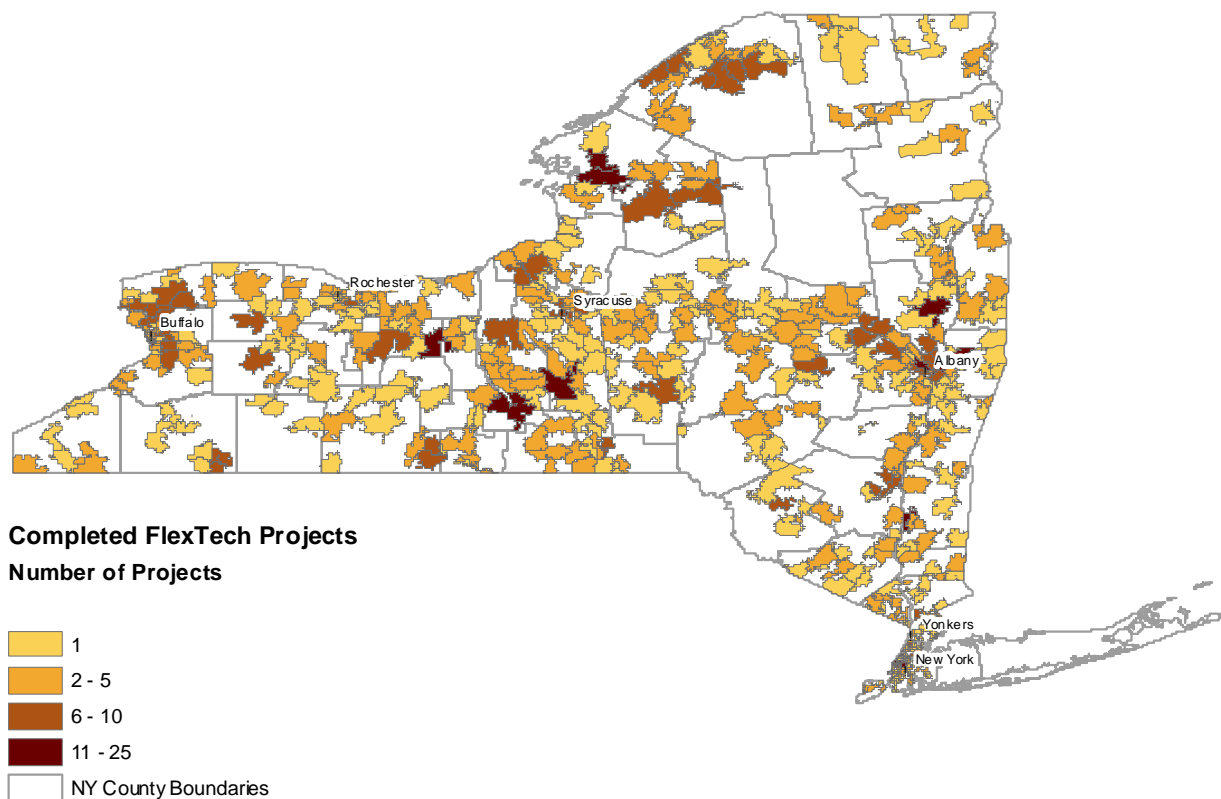
² Unless otherwise noted, Nassau and Suffolk counties, which are located on Long Island, are not included in these analyses due to the fact that customer accounts located on Long Island receive power from the Long Island Power Authority (LIPA) which is not part of the SBC program.

Figure 1. New York Buildings



- As of December 31, 2009, 1,622 studies had been completed through the FlexTech Program with 472 completed between May 1, 2006 and December 31, 2009 (the targeted study period). The market sectors with the highest number of completed studies between the targeted study period included the industrial/manufacturing, office and bank buildings, local government, education-colleges and universities, health care, agriculture and forestry, and education (elementary and secondary) sectors. An additional 711 studies were in-process as of year-end 2009.
- As seen in Figure 2, 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.

Figure 2. FlexTech Studies by Location: All Completed Projects



- 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.³ Program 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.

Selected Market Assessment Findings

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

³ These out-of-state consultants may also have offices in New York.

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.
- Participating and nonparticipating end use 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. Lack of knowledge, experience, or information regarding energy efficient products and services represent less significant barriers for end-use customers.
- Familiarity with energy efficient products and services is increasing for substantial majorities of participating and non-participating end-use customers. Reasons for this increased familiarity include increased interest in reducing costs, 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.
- 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.
- About half of the 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. In addition, a large majority of participating contractors (86%) have completed at least some energy feasibility studies outside 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%) with approximately 20% indicating they conducted studies outside of the program in order to move quickly or because the customer was not eligible for program funding (18%).

EVALUATION METHODS AND SAMPLING

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

- Review of programmatic documentation and secondary data sources
- Conducting primary data collection via telephone surveys and interviews with the following market actor groups:
 - Participating and non-participating end-use customers (140 completes for each)
 - Participating and non-participating technical service providers (70 and 140 completes, respectively)

The research approach was driven primarily by the FlexTech Program logic model, which was completed in 2010.⁴ Key research findings generated by the evaluation are related to the outputs and outcomes anticipated by the program logic model.

⁴ The FlexTech program logic model can be found here: <http://www.nyserda.ny.gov/Page-Sections/Program-Evaluation/NYES-Evaluation-Contractor-Reports/2010-Reports/~media/Files/EDPPP/Program%20Evaluation/2010ContractorReports/2010%20PLM%20FlexTech%20Final.ashx>.

Industrial and Process Efficiency Program: Process Evaluation Summary

Evaluation Conducted by: Research Into Action, Lead Investigators, November 2011

PROGRAM SUMMARY

NYSERDA's Energy \$martSM **Industrial and Process Efficiency** program was created in response to market feedback and increased funding through the Energy Efficiency Portfolio Standard (EEPS). NYSERDA designed an enhanced Industrial and Process Efficiency program to increase industrial and data center projects. NYSERDA offers ratepayers access to Industrial and Process Efficiency under the Existing Facilities Program (EFP) and New Construction Program (NCP) solicitations to provide simpler, one-stop-access for industrial and data center customers and their service providers. In addition to providing incentives for projects with net energy savings, the program also has a performance-based incentive for projects that reduce energy use per unit of production.

EVALUATION OBJECTIVE AND HIGH LEVEL FINDINGS

This process evaluation assessed the Industrial and Process Efficiency program's effectiveness and processes for program years 2009-2010, and made suggestions for improvement. The report summarizes results from a three-phase process evaluation of the program. Research Into Action, Inc. completed the first wave of research in June 2010, the second wave in October 2010, and the third wave in August 2011. Evaluation objectives included:

- Conduct an examination of program processes and operations
- Assess the effectiveness of the program outreach, education, and marketing efforts
- Identify reasons for program participation
- Document program progress and make recommendations for program improvement

Several themes emerged from the process evaluation, including identified improvements by the Program in overall project support and response time, targeting and outreach to large- and medium-size industrial

customers, increasing industrial customer understanding of process improvement opportunities afforded by the program, and use of key account management approaches. The process evaluation also identified areas for additional improvement including: the potential for further reducing project delays, more focused targeting and outreach, developing a better understanding of the program by some participants, and clarification of baseline and “net” versus “per-unit-of-production” savings calculation approaches.

EVALUATION RECOMMENDATIONS AND PROGRAM ADMINISTRATOR RESPONSE

The following recommendations were made by the evaluators conducting this study. NYSERDA’s initial response to these recommendations is also summarized below and will be tracked over time.

Recommendation 1a: The program would benefit from database and application processing upgrades needed for staff to improve project management, including: implementing electronic signatures and better integration of the NEIS and Buildings Portal database systems.

Response to Recommendation 1a: NYSERDA has created a new Performance Management and Evaluation Systems department. Also, the Energy Efficiency Services (EES) Operations Unit continues to address changes needed to the multiple database process currently in place. Performance Management Systems and EES Operations are integrating staffing and responsibilities to optimize reporting, database, and processing upgrades.

Recommendation 1b: The program team should continue to refine the “Project Management Dashboard” in coordination with NYSERDA’s Operations Group.

Response to Recommendation 1b: NYSERDA has created a new Performance Management and Evaluation Systems department. Also, the Energy Efficiency Services (EES) Operations Unit continues to address changes needed to the multiple database process currently in place. Performance Management Systems and EES Operations are integrating staffing and responsibilities to optimize reporting, database, and processing upgrades. Dashboard upgrades will be submitted as requested refinements.

Recommendation 1c: The program would benefit from additional Technical Reviewer support for Western New York and data centers throughout the state.

Response to Recommendation 1c: Nine additional technical reviewers were contracted for the program in October, 2010. NYSERDA will be issuing a new RFP for Technical Reviewers to support EEPS2 NYSERDA programs later this year. As part of the TEP process and contract execution, emphasis will be put on data center expertise and support in Western New York.

Recommendation 2: The program would benefit from additional Outreach Contractor outreach to data centers, to consulting engineers that serve targeted industrial submarkets, including data centers and compressed air users, and to industrial customers in Western New York (the greater Buffalo area, in particular). Across the state, outreach contractors should increase leveraging of economic development organizations to assist with targeted outreach.

Response to Recommendation 2: NYSERDA issued a new RFP for Outreach providers to support EEPS2 NYSERDA programs. Contractors will be selected later this year. Feedback from this evaluation will be considered in the TEP process and contract execution.

Recommendation 3: Program staff could take steps to more strongly brand Industrial and Process Efficiency as a one-stop shop that leverages a cohesive team of people to assist customers from opportunity identification and justification, to verification and investment, in the next cost-saving project. Solidifying this identity could further distinguish Industrial and Process Efficiency in the market and facilitate further cohesion of staff, outreach contractors, and Technical Reviewers around customer projects.

Response to Recommendation 3: NYSERDA branding is a key part of the ongoing Integrated Marketing campaign. This multi-tiered marketing program delivers general C&I and program specific content through a combination of media including print , online and direct response tactics (email and direct mail) to key participating and prospect C&I audiences. Industrial and Process Efficiency will investigate with NYSERDA Marketing the appropriateness of individual program branding within overall NYSERDA branding.

Recommendation 4: To facilitate coordinated outreach between program staff and outreach contractors and reduce duplicative or non-coordinated outreach to individual customers, the process evaluation team recommends that program staff use salesforce.com more consistently. To accomplish this, NYSERDA may need to implement database and application processing upgrades to increase staffs' available time.

Response to Recommendation 4: A NYSERDA-wide Customer Relation Management (CRM) tool is currently being implemented by the EES Operations Unit. Program use of SalesForce.com is being reassessed in coordination with the new CRM.

Recommendation 5: The Industrial and Process Efficiency staff could host a workshop with Technical Reviewers and outreach contractors to further develop guidance case examples for per-unit-of-production calculation methodologies and messages likely to provide the best energy savings for the customer and the program. Staff might test-run the guidance, examples, methods, and messaging with customers that have conducted such per-unit-of-production projects and with whom the program has strong relationships, to explore the extent to which the new methods and messages increase the value of information and assist decision making.

Response to Recommendation 5: Technical Reviewer training was held at NYSERDA on February 28, 2012 that included case studies on how to calculate per unit of production savings. Future periodic training sessions will continue to improve the program.

DETAILED PROCESS EVALUATION FINDINGS

Project Delays: Overall project support as well as response time for project approval, M&V, and payment processing have improved, yet further improvements are desirable. Western New York and data centers throughout the state could be better served by additional project support.

Project delays decreased subsequent to staff's development of the "Project Management Dashboard" to track the duration between various program milestones, which enables staff to flag delayed projects for follow-up by the appropriate party or parties. In addition, the program has been able to provide more timely pre- and post-installation support as a result of the nine additional Technical Reviewer firms that NYSERDA hired.

Targeting and Outreach: NYSERDA and program staff have continued to improve its targeting of, and outreach to, the large and medium-size industrial customers the program intends to serve; yet ongoing targeting and outreach efforts are needed.

Between the Wave-2 and Wave-3 evaluations, program staff increased the role of outreach contractors to address challenges associated with targeting customers, including list development and prioritization of outreach. The outreach contractors conducted extensive market analysis to augment NYSERDA's list of manufacturing establishments for targeted outreach; staff contacts generally agreed that the list of manufacturing establishments was nearly complete. In addition, staff and contractors considered successful their outreach to motivate contractors working with compressed air and data center customers to market the program's incentives. NYSERDA's Integrated Marketing Communications Approach for C&I programs (IMC) shows promise in increasing the clarity of Industrial and Process Efficiency messaging by providing specialized tools geared towards specific industrial subsectors and directed towards key decision makers.

Branding: Industrial and Process Efficiency competes for customers' attention with other non-efficiency plant investment opportunities and with utility efficiency programs. Participating customers have a greater understanding of the process improvement opportunities afforded by the program than they did at the program's outset, yet additional gains can be made.

Key Account Management: The program team more successfully employed the key account management approach than they had as of the Wave-2 evaluation. Better use of salesforce.com facilitated key account management, and additional improvement in its use would benefit the program.

Outreach contractors' increased role in program activities benefitted key account management by increasing the extent to which customers received individualized attention. In addition, program staff members use of the dashboard decreased project delays, thereby increasing customer satisfaction.

Energy Savings Calculations: To address confusion about baseline, and about “net” versus “per-unit-of-production” savings calculations, the staff worked with Technical Reviewers to develop calculation protocols for baseline measurements, variations in production schedules, and data center per-unit-of-production calculations.

EVALUATION METHODS AND SAMPLING

To collect information, the process evaluation team developed structured interview guides for the six key groups involved in the program: program staff members, Focus contractors (consultants that support program outreach to customers, service providers, and stakeholders), Technical Reviewers (consultants that review project details and engineering estimates, as well as monitor M&V plans and results), customers, partial participants, and contractors.

In Wave 3, the process evaluation team spoke with eight program staff members: six staff members who worked at least 30 percent time on the program and two staff members who provide managerial oversight as part of their duties. The team also spoke with NYSERDA’s Commercial and Industrial Marketing Manager to better understand the relationship between program marketing approaches and NYSERDA’s overall marketing approach to the Commercial and Industrial sector; three Focus contractors; four Technical Reviewers; and conducted in-depth interviews with 23 participating customers, 5 partially participating customers, and 13 contractors who worked on participants’ projects.

To select the customer sample, the team obtained the entire list of 643 Industrial and Process Efficiency measures in the Buildings Portal database as of May 20, 2011. The list was narrowed to include only those measures with Industrial and Process Efficiency applications received on or after September 1, 2010, and characterized as “encumbered” or “installed” to ensure that the participant responses reflected recent and sufficient experiences with the program. This process and other adjustments left 120 measures as the final sample with 84 unique projects identified. Of these 84 projects, the team selected a sample of 54 and completed interviews with 23 of these 54 participating customers.

NYSERDA Industrial and Process Efficiency: Market Characterization and Assessment Summary

Evaluation conducted by: Navigant Consulting, Inc. Market Characterization and Assessment
Evaluation Team

GDS Associates, Inc., Lead Investigators, May 2012

PROGRAM SUMMARY

NYSERDA's Industrial and Process Efficiency (IPE) Program is designed to increase industrial process efficiency activity. The program is implemented as an additional component of the Existing Facilities Program and New Construction programs and provides performance-based incentives for cost-effective process improvements that reduce energy use per unit of production. This industrial and process efficiency component is the implementation path for process improvement projects developed through the FlexTech TA Program, or brought to this program independently. Potential for process improvements will be predominantly in industrial facilities and data centers.

EVALUATION OBJECTIVE AND HIGH LEVEL FINDINGS

In 2012, GDS Associates completed a market characterization and assessment (MCA) evaluation on the IPE Program. The overarching goals of this MCA evaluation were to develop a comprehensive understanding of current and emerging markets, market structures, and market actors; provide baseline and background information to enable NYSERDA to define, deliver, and evaluate programs for these target markets; and track changes in markets over time with a specific focus on market indicators that are likely to be impacted by program offerings.

The focus of this MCA research was on the market and context within which the IPE Program operates. Given that IPE is a relatively new program, results from this report assessed the validity of program assumptions regarding market characteristics, provided additional details regarding market structure and opportunities, and established baseline measurements of key indicators.

The MCA study results indicate that the Industrial and Process Program, operating in concert with other NYSERDA programs, is positively influencing the market for process efficiency improvements in New York's industrial and data center markets. Still, actual *changes* in awareness, practices and perceptions, satisfaction, savings impacts, etc. will need to be determined in subsequent evaluations building off the baseline findings compiled within the 2012 study.

EVALUATION RECOMMENDATIONS AND PROGRAM ADMINISTRATOR RESPONSE

The following recommendations were made by the evaluators conducting this study. NYSERDA's initial response to these recommendations is also summarized below and will be tracked over time:

Program Recommendation 1: *Consider increasing efforts focused on improving the technical capabilities and qualifications of process efficiency service providers.* A significant population of both customers and the TSPs themselves are not very confident in the technical capabilities or qualifications of the TSPs to perform industry and process efficiency improvements. Key to the success of this program is for TSPs to be given the information and resources to properly identify and implement process efficiency improvements. In this way, customers may begin to recognize the capabilities and qualifications of these TSPs and the TSPs will have greater confidence in these projects themselves.

Response to Program Recommendation 1: The focus of the Industrial and Process Efficiency program is to target large electric consumers, with complex process improvement projects. As customers make the connection between process improvements and energy, they develop their technical service providers. At NYSERDA Industrial Stakeholder Meetings participants have repeatedly informed NYSERDA of the need for customer engagement and driving of process project participation in the program. In addition, NYSERDA will be issuing a new RFP for technical service providers to support NYSERDA programs. As part of the TEP process and contract execution, emphasis will be put on process expertise.

Program Recommendation 2: *Consider broadening the marketing channels being used to promote the Industrial and Process Efficiency Program.* One year following the initial Industrial and Process Efficiency Program launch, 50% of eligible end use customers, data centers, and TSPs were aware of the Program. Respondents that were aware of the Program found out about it through a variety of different channels, with no one channel representing a particularly large portion. As financial criteria are shown to be so important to moving forward with a process improvement project, eligible customers may not consider efficiency improvements at all based on competing capital needs, but could have very inefficient processes that could yield high returns.

Response to Program Recommendation 2: The Industrial and Process Efficiency Program will use a number of channels to market the program including: NYSERDA wide Integrated Marketing Campaign, Vertical Outreach Contractors, partnerships with key stakeholders and NYSERDA staff key account management.

Evaluation Recommendation 1: *Thorough documentation of program impacts, through site-specific and broader measurement and verification activities could be valuable, from both a marketing perspective and for identifying and implementing program changes as necessary.* Subsequent impact

evaluation studies and market progress assessments should be conducted and compared to this original baseline assessment to determine the Program's success on key program performance indicators. This may reveal areas where minor modifications to delivery strategies could result in increased likelihood of goal achievement. In addition, distribution of targeted impact evaluation results (e.g., case studies could help to increase awareness of process efficiency improvement benefits and ultimate program uptake.)

Response to Evaluation Recommendation 1: Impact evaluation activities document site-specific findings as well as broader measurement and verification findings to identify recommendations for program improvement. Case studies and other promotional materials can be prepared using these findings to increase awareness of process efficiency improvement benefits and participation. In addition, future market evaluation activities will continue to assess the market served by IPE to compare findings to this baseline analysis and to measure the program's success in achieving key performance indicators.

DETAILED MARKET CHARACTERIZATION AND ASSESSMENT FINDINGS

Selected Market Characterization Findings

Selected findings from the market characterization effort include the following:¹

- New York is home to 4% of all manufacturing facilities nationwide. Six industries show high concentrations of employment, having 5% or more of the total number of nationwide employees in New York. A number of these high concentration industries are included in the sectors targeted by IPE (Pharmaceuticals, Printing and Computers).
 - Apparel Manufacturing (12% of total nationwide employees)
 - Pharmaceutical and Medical Manufacturing (7%)
 - Printing and Related Support Services (6%)
 - Leather and Allied Products Manufacturing (6%)
 - Computer and Electronic Manufacturing (5%)
 - Miscellaneous Manufacturing (7%)
- Industries targeted by IPE represent a large portion of the manufacturing facilities located in New York. Specifically, industries targeted by IPE account for:
 - 40% of all manufacturing establishments
 - 35% of the total number of employees
 - 36% of production work hours
 - 35% of the payroll
 - 42% of the capital expenditures
 - 48% of the total value of shipments

¹ Unless otherwise noted, Nassau and Suffolk counties, which are located on Long Island, are not included in these analyses 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.

- 50% of the total value added²
- New York is home to the second largest number of data centers nationwide. In a national survey of data center facilities, 83% of respondents are planning data center expansions in the next 12 to 24 months and energy efficiency is a major factor in their expansion plans. NYSERDA competitively selected a Focus on Industrial and Process Efficiency contractor, specializing in the data center industry, which will lend credibility when promoting the benefits of the industrial and process efficiency improvements, and help the Program to penetrate this growing industry.
- Industrial and process efficiency-specific market actors include process equipment manufacturers and suppliers, packaging suppliers, distributors, repair contractors, industrial designers, equipment testing and engineering services, and consultants. There are nearly 3,000 such market actors that support the industries in New York.³

Selected Market Assessment Findings

Selected findings from the market assessment effort include the following:

- A significant number of the eligible end use manufacturing and data center customers interviewed do not perceive the systems and processes in their facilities to be particularly energy efficient. Over 70% report that they “never,” “infrequently” or only “sometimes” perceive process improvement projects as energy projects. These customers do not see energy efficiency as a “very important” factor when planning process improvements and they do not typically incorporate efficiency improvements when a system fails and needs replacement.
- Eligible customers including data centers most typically use internal capital to fund process improvements. Most consider financial criteria to be the major factor in moving forward with a process improvement project, mainly return on investment.
- A majority of the eligible end use manufacturing and data center respondents identified multiple barriers to investing in energy efficient process improvements. The most common responses related to financial issues, with internal funding and competing capital costs being the largest and most important barriers. It is common that eligible customers are struggling to overcome multiple barriers.
- Approximately 75% of TSPs think that the market is only “somewhat” or “less than somewhat capable” of providing process efficiency improvement services. Similarly, around 75% think that TSPs are only “somewhat” or “less than somewhat qualified” to implement effective process efficiency improvement projects. Approximately 67% of TSPs report being only “somewhat” or “less than somewhat confident” in the overall performance of the technologies and procedures available for energy efficiency in process improvements.
- Although most eligible customers and TSPs are aware of NYSERDA, fewer than 45% of the responding manufacturing customers, and less than 15% of the data centers interviewed, reported having participated in any NYSERDA program (including the IPE) in the past five years.

² Value added is defined as the amount by which the value of an article is increased at each stage of its production, exclusive of initial costs.

³ Number excludes market actors that specifically serve the Data Center industry.

EVALUATION METHODS AND SAMPLING

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

- Reviewing programmatic documentation and secondary data sources
- Conducting primary data collection via telephone surveys and interviews with the following market actor groups:
 - Eligible End Use Customers^{4,5,6} (131 total completes)
 - Data Centers (70 completes)
 - Technical Service Providers (140 completes)

The research approach was informed by the IPE Program logic model, completed in 2010.⁷ Key research findings generated by the evaluation are related to the outputs and outcomes anticipated by the program logic model.

⁴ Participating customers were intentionally not targeted as part of this initial MCA evaluation, since program participation at the time this evaluation was conducted was limited.

⁵ Eligible end-use customers are comprised of chemical/pharmaceutical, printing/publishing, transportation, food processing, forest product manufacturing, agriculture, mining/extraction, and water/wastewater facilities.

⁶ Separate sector-level data was collected for chemical/pharmaceutical and forest product manufacturing with 53 and 55 completes, respectively.

⁷ The IPE program logic model can be found here: <http://www.nyserda.ny.gov/Page-Sections/Program-Evaluation/NYES-Evaluation-Contractor-Reports/2010-Reports/~media/Files/EDPPP/Program%20Evaluation/2010ContractorReports/2010%20PLM%20IPE%20FINAL.ashx>.

NYSERDA New York Energy \$martSM New Construction Program¹: Process Evaluation Summary

Evaluation Conducted by: Research Into Action Process Evaluation Team

Research Into Action, Lead Investigators, December 2011

PROGRAM SUMMARY

NYSERDA's **New York Energy \$martSM** New Construction Program (NCP), funded through the System Benefits Charge (SBC), offers owners and their design teams technical assistance and incentives to incorporate greater levels of energy efficiency and green building features into new buildings and those undergoing substantial renovation. The objective of the program is to permanently transform how new commercial buildings are designed and constructed while meeting demand reduction goals. The NCP was officially launched in 2000.

EVALUATION OBJECTIVE AND HIGH LEVEL FINDINGS

In 2011, Research Into Action completed the second part of a study to assess the effectiveness of NCP efforts to meet new goals under Energy Efficiency Portfolio Standard (EEPS) funding during program years 2010-2011. Evaluation objectives included:

- Assess the effectiveness of enhanced program outreach activities to attain program goals
- Assess the effectiveness of the program at increasing technical assistance capability and capacity
- Assess efforts to attract larger, more complex, high energy use projects that yield more energy savings per project
- Assess efforts to more effectively serve smaller projects
- Document the history and progress of the program toward accomplishing its goals and objectives

¹ Since the start of this evaluation the program name was changed to the High Performance New Construction Program. The report retains the name of the program at the time the evaluation was conducted.

Several themes emerged from the process evaluation including timeliness and communication, an increased focus on commercial marketing, conflict between dual goals of market transformation and savings acquisition, difficulty in serving small buildings, and inconsistent Technical Assistance (TA) provider performance.

EVALUATION RECOMMENDATIONS AND PROGRAM ADMINISTRATOR RESPONSE

The following recommendations were made by the evaluators conducting this study. NYSERDA's initial response to these recommendations is also summarized below and will be tracked over time.

Recommendation 1: The NCP should continue its efforts to ensure that projects are enrolled at the optimal time and that early participation steps are streamlined and as timely as possible. In their efforts to streamline the program, NCP staff should revisit every review or approval step in its process flow to assess if any can be shortened or removed. To improve timeliness and synchronization, interim design assistance and reporting services should be provided to design teams prior to the final technical assistance report. NCP staff should investigate how to standardize these interim steps. Finally, some NCP staff members suggested that new program paths be explored. New paths might be warranted to serve particular customer situations, such as an express path, a first-time project path, or a path that matches very motivated design teams with the best TA providers in the program.

Response to Recommendation 1: NCP will continue existing efforts to streamline the program. Previous initiatives included a simplified task work order template, a standardized TA report format and establishing regular TA conference calls to discuss items of mutual interest.

Initiatives also included periodic review of the elapsed time between each program step from application to the notice to proceed, with a goal of reducing the time at each step by eliminating inefficiencies and unnecessary processes. The first follow up review showed an average improvement of approximately 40 workdays. NCP responded to timing challenges associated with the new Consolidated Funding Application (CFA) process by revisiting and adjusting application intake activities and procedures, in conjunction with the CFA operations team, to ensure that Outreach Project Consultants continue to engage with applicants in a timely manner.

Most TAs conduct interim reviews with customers to inform design teams. All TA firms will receive reminders to provide these interim reviews, which are part of the standard TA operating procedures.

NCP is actively exploring new program paths that streamline participation. Work is well underway to incorporate the New Buildings Institute Core Performance Guide into the program, which will provide a simplified, streamlined analysis for several project types and sizes ranging from 20,000 to 100,000 square feet. Work also has been initiated to streamline analysis and participation for customers pursuing large commercial office fit-out projects. Lastly, looking towards the future, NYSERDA is studying the emerging net zero energy new construction and major renovation market to identify appropriate roles and optimal times for engagement by NCP.

Recommendation 2: Outreach Project Consultant (OPC) marketing should be continued and the program should continue to track its results, including the conversion rate of leads to applications. In

addition, the new NYSERDA Solutions campaign should be continued and the results tracked, since initial tracking suggests it is generating interest and leads. The marketing efforts need to be carefully watched so that the volume of projects remains manageable within program resources.

Response to Recommendation 2: OPC marketing is continuing OPC presentations and leads are logged in the Buildings Portal (BP) database and tracked monthly. The current OPC firm has been directed to be more diligent in using the applications tab in the leads section of the BP, since this will better document the conversion of leads to applications. A challenge is that the formal project name shown on the application is often not the same as the name assigned to the lead, when the formal name had not been established.

NYSERDA has issued a RFP for OPC services for the NCP that will cover services from 2013 through 2016. As indicated in the solicitation, contractor success will be monitored through required reporting on metrics, including but are not limited to, outreach activities and conversion of inquiries and leads to projects,

NCP will work with the Marketing Department and OPCs to develop a link between the Solutions campaign leads and NCP applications. The work has started now that some leads are converting to applications.

Recommendation 3: To avoid unexpected results for participants seeking to employ integrated whole building designs, NCP staff members, OPCs, and TA providers need to continue to develop effective ways to explain the consequences of the new requirements surrounding the Total Resource Cost (TRC) test. In addition, staff could consider developing alternative ways to encourage higher performance designs despite the current application of the TRC. Finally, NCP should consider conducting an empirical analysis to explore the effects of the TRC requirement on project scope, design, cost, and market transformation.

Response to Recommendation 3: NCP staff and contractors currently advise customers that energy efficiency measures are subject to a cost/benefit test, and some measures may not receive incentives. As contractors become more familiar with the impact of TRC they will have a better understanding of the measures that typically pass or fail, which will help in framing realistic expectations for customers.

NCP will continue to investigate alternative ways to encourage higher performance within the TRC framework.

An empirical study may be difficult to achieve as there are many variable factors with projects over time, making it difficult to isolate impacts from TRC. As TA reports subject to TRC are completed NCP has been tracking the effects of TRC on project measures and incentives. NCP also has been seeking feedback from the OPCs and TAs about impacts of TRC on projects and providing program assistance. Initial anecdotal feedback indicates that TRC adds staff and contractor time and incentive opportunities are reduced, which may lead to higher program costs per project, less customer interest and lower program participation.

Recommendation 4: While NCP has made substantial progress in its efforts to develop an advanced analysis tool designed to foster deeper, cost-effective savings for smaller buildings, documentation and other steps need to be taken to finalize and implement the package. Completing this analysis tool should be a high priority, especially given the surge in smaller building applicants.

Response to Recommendation 4: We agree. NCP is continuing to work with NCP contractors and the New Buildings Institute to incorporate the Core Performance Guide (CPG) into the program. Currently, NCP is collecting cost information for TRC screening to prepare us for a discussion with DPS.

Recommendation 5: NCP staff members should assess individual TA provider performance in scoping meetings and throughout the technical assistance process and devise training strategies that will help TA providers better influence efficiency decisions. For example, high performing TA providers could inform the design and delivery of a training package for TA providers whose skills need improvement. One staff member suggested such training could change “order takers” to “game changers.”

Response to Recommendation 5: NCP conducted TA training sessions at several locations around the State. The training sessions involved all TA firms. Through a program contractor who has specialized modeling expertise NCP will provide additional energy modeling training for TA firms.

NCP project managers will expand their outreach to participate in more scoping meetings, to ascertain which TAs are high performing game changers and which are order takers. NCP will use this information to focus skill improvement training on TAs who need it most.

DETAILED PROCESS EVALUATION FINDINGS

Timeliness and Communication: Interviews revealed that the NCP program would benefit from a more streamlined process. Responsiveness to customer deadlines and slow turnaround times were two common complaints. This is due to a complex process with numerous steps requiring coordination between many actors. Just over one-half of the interviewed NCP participants recommended that the NCP process should be streamlined or that the program’s timeliness should be improved. This is particularly true at the front-end of projects when key decisions about energy efficient design are made.

Increased Commercial Sector Marketing: NCP staff members reported that leads and applications are picking up dramatically, likely due to a ramped up effort in marketing. NCP has taken a two-pronged approach to marketing: taking part in a NYSERDA umbrella marketing effort launched in July 2011 for commercial/industrial programs, and allowing OPCs to be more proactive marketers.

The increase and stabilization of NCP staff in the New York City office is believed to have been a boon to both marketing and programmatic efforts.

Tension between market transformation/leadership and savings acquisition goals. Many TA providers and some staff, voiced concerns that the ability of the program to influence maximum energy

savings and advance leading edge whole building design is declining. They noted that the change from a whole building Total Resource Cost (TRC) test² to an individual measure TRC test is compromising the market transformation and market leadership intent of the whole building path. These TA providers and staff members also said it can be difficult to explain the consequences of the shift in the TRC test, and that customers seeking to do leading edge integrated design may find NCP incentives insufficient to effectively promote advanced design options. Finally, they said design teams are becoming more sophisticated about energy efficient design and that if NCP wishes to lead the market toward the next level of high performance buildings, it needs to incorporate better support for innovative design.

Small buildings underserved: NCP continues to struggle with how to serve small buildings. Small buildings require a higher level of effort due to smaller and less sophisticated design teams, while at the same time producing less energy savings. In addition, serving small projects is difficult because of smaller incentives. Together these concerns make TA providers reluctant to participate in smaller projects due to a lower anticipated payoff for the work involved. At the same time, new marketing efforts appear to be attracting more small projects.

Inconsistency of TA provider performance: Elements that depended heavily on TA provider performance, such as scoping meetings and technical reports, were given inconsistent satisfaction ratings. Some respondents reported that TA providers were not knowledgeable enough to be of assistance and that there were issues with TA provider timeliness. Almost one-third of participants gave TA influence a negative or neutral rating. Nonetheless, the majority of respondents were satisfied with the TA report and TA services as reflected below:

- 79% of respondents were “somewhat” or “very” satisfied with the TA report.
- 69% responded that TA services were “somewhat” or “very valuable in influencing energy performance.

EVALUATION METHODS AND SAMPLING

This report reflects the results of a two-year review that included document review, extracts from the Buildings Portal database, and in-depth interviews with: 14 key NYSERDA staff; nine Outreach Project

²The TRC test is used in both the custom and whole building paths within NCP. The whole building TRC test assesses the cost-effectiveness across all efficiency measures planned for a new building. A whole building TRC test, for instance, would allow leading edge, but less cost-effective, high efficiency measures to be offset by more standard and cost-effective high efficiency measures.

Consultants (OPCs) and 13 Technical Assistance (TA) providers; and 201 building owners and representatives from their design teams, representing 144 projects entering the NCP under PONs 1222 and 1501.

NYSERDA EmPower NY Program: Impact Evaluation Summary

Evaluation Conducted by: Megdal & Associates, Impact Evaluation Team
Lead Investigator Kathryn Parlin, West Hill Energy & Computing, April 2012

PROGRAM SUMMARY

NYSERDA offers the EmPower New YorkSM (EmPower) Program, a retrofit program that provides cost-effective electric reduction measures (*i.e.*, primarily lighting and refrigerator replacements) and home performance measures (*i.e.*, insulation, air-sealing, heating system repair and replacement, and health and safety measures) to income qualified homeowners and renters.

EVALUATION OBJECTIVE AND KEY FINDINGS

The impact evaluation of the NYSERDA EmPower Program was conducted for program years (PY) 2007 and 2008.

The evaluated program savings were estimated using a pre- and post-energy consumption (billing) analysis; the final results are shown in Table 1. The EmPower Program saved 11,295,798 annual kWh of electricity and 64,095 annual MMBtu of non-electric (fossil) fuels from projects completed during 2007 and 2008 program years. The realization rates are 54% and 70% for the electric and natural gas (including other fossil fuel) savings, respectively.¹ These results are based on all homes with sufficient and reliable utility billing records.

Table 1. Net Program Savings

	Annual Electric Savings (kWh/Yr)	Summer Peak Demand Savings (kW)	Annual Non-Electric Savings (MMBtu/Yr)
Program Reported Savings	20,819,574	2,123	91,602
Evaluation Realization Rate (RR)	54%	57%	70%
Evaluation Net-to-Gross Ratio (NTG)	1.0	1.0	1.0
Evaluated Net Savings	11,295,798	1,203	64,095

¹ It was not possible to conduct a billing analysis for the heating-related measures for homes with an oil or propane primary heating system due to the complexity of obtaining and interpreting the billing and delivery records. Given the similarity in the analysis of heating-related loads, the realization rates for the heat-related measures from the natural gas analysis were applied to the savings estimates for oil and propane heated homes. This strategy is based on the assumption that the accuracy (level of bias) of the algorithms used by the Program for estimating oil and propane savings is the same as those applied by the Program for natural gas heated homes.

DETAILED FINDINGS: REALIZATION RATE AND NET-TO-GROSS

Realization Rate (RR): A RR of 1.0 indicates that the realized savings are exactly as estimated by the program. An RR less than 1.0 indicates lower achieved savings than originally estimated. The realization rates are 54% and 70% for the electric and natural gas and other fossil fuel savings, respectively.² These results are based on all homes with sufficient and reliable utility billing records. Consequently, the 90% confidence intervals of 7.2 and 12.5 for the electricity and natural gas savings, respectively, reflect the variability within the models, not the sampling precision.

Net-to-Gross (NTG): A NTG ratio greater than 1.0 indicates that the program spillover outweighs free ridership, and the program achieved more savings than were claimed based on direct activity.

The freeridership (FR) rate and spillover (SO) rate are combined to produce a NTG ratio that is applied to evaluation-estimated gross savings to produce net savings.

$$\text{Net-to-Gross Ratio (NTGR)} = 1 - \text{Free ridership Factor} + \text{Participant Spillover Factor}$$

The NTG pilot within the EmPower evaluation found free ridership and spillover to essentially balance each other out. The pilot NTGR from this evaluation is calculated as follows:

$$\text{EmPower Pilot NTGR} = 1 - 0.17 + 0.14 = 0.97$$

The pilot study of net effects clearly demonstrated that there are net effects associated with the EmPower Program. With an estimated FR rate of 17% and spillover of 14%, the overall NTGR is 0.97, which is very close to the current estimate of 1.00. Since this was a pilot effort and the result was so close to 1.00, the evaluated gross savings are reported for the Program without any adjustments for net effects. However, this study reflects the results for PY 2007 and 2008, and it is possible that the magnitude of the net effects may change in the future.

Table 2. Free Ridership and Spillover Estimates

Attribution Variable	Factor
Free ridership	0.17
Participant spillover	0.14
Net-to-gross ratio (equals 1-FR+SO)	0.97 ¹

¹ Since this NTGR work was a pilot effort, the Impact Evaluation Team sets NTGR to be used for the program at 1.0 rather than .97.

² Ibid

EVALUATION METHODS AND SAMPLING

Total evaluated program savings are based on the results from the billing analysis model. Evaluated program savings were augmented to include the extra savings found in the household models that could not be assigned to specific measures. The process of calculating total evaluated program savings was conducted in two steps:

1. the realization rates for each measure group were applied to the evaluated program savings by measure group
2. the unassigned savings per household were added for all households with savings.

Measures that were excluded from the model because none of the participants in the model had installed the measure (such as waterbed measures) were assumed to have a realization rate of 1.0. These measures account for less than 1% of the total program reported savings. The realization rates from the natural gas model were applied to all measures with MMBtu savings, regardless of the fuel type. Since this evaluation is for SBC-funded measures, the total program reported savings include only those measures, *i.e.*, measures funded through other programs such as the National Grid natural gas program, were removed from the analysis.

Recommendations and Program Administrator Response

The following recommendations were made by the evaluators conducting this study. NYSERDA's initial response to these recommendations is also summarized below and will be tracked over time.

Program Recommendation 1: Methods for estimating savings for envelope measures (both natural gas and electric) and replacement refrigerators should be evaluated.

Response to Program Recommendation 1: In July 2007, changes were made to improve the accuracy of EmPower savings estimates. These changes will have a greater impact in the post-evaluation period.

They are as follows:

- Attic insulation: increased the estimated R-value of pre-existing fiberglass insulation in poor condition.
- Wall insulation: lowered savings estimates to account for wall studs, window framing, and estimated 4% voids.
- EmPower initiated a system for flagging and correcting high estimated savings as appropriate.
- Since the evaluation period, EmPower has continuously enhanced quality assurance procedures. In 2011, the program initiated a practice of core-sampling wall insulation to ensure appropriate density. This should result in improved realization of savings.
- In 2010 the program discontinued the use of fiberglass to insulate rim joists in favor of spray foam, which provides both air leakage reduction and insulation.
- Moving forward, EmPower plans to initiate the following:
- Introduction of an advanced air sealing protocol and system for calculating savings based on air leakage reduction. Contractor training is in progress.
- Adjustments to energy use thresholds for refrigerator and freezer replacements.

Program Recommendation 2: Review policies for CFL installation to assess how to assist participants and achieve cost-effective savings, and monitor change in CFL market to determine whether it is necessary to modify the approach to the installation of CFL's further as CFL's gain greater market acceptance.

Response to Program Recommendation 2: In 2008, EmPower began adjusting the estimated hours of daily usage of a CFL based on the number of CFLs installed. This approach reduces the average daily hours of use as the number of CFLs increases. The approach is more conservative than the one proposed in the NY State Tech Manual or the system recently proposed by DPS staff. In 2008, EmPower tightened enforcement of the installation of CFLs; jobs in which CFLs are given to the occupant but not installed, and yet billed to the program as installed, are scored as Quality Assurance failures for the contractor. Subsequently, this practice has become very rare. The program is monitoring CFL market penetration; however, at this time finds that many opportunities remain for assisting low income households through the installation of CFLs.

Program Recommendation 3: Review the fields in the database and data collection processes to assess whether additional information, such as the presence of working air conditioning, could be added to the tracking system. Review the coding of measure descriptions to make it easier to identify fuel switching measures and differentiate attic and wall insulation. Improve error checking methods and frequency to correct tracking system errors in a timely manner.

Response to Program Recommendation 3: EmPower will consider adding data fields to assist future evaluations, including:

- Secondary heating systems
- Separate fields for attic and wall insulation savings
- Air conditioning

The program has enhanced the process of data checking by the Program Implementer.

Evaluation Recommendation 1: Consider including indicators of NEBs into future evaluation efforts, a lower cost option than full monetization studies, to aid policy makers' ability to have a more complete viewpoint when decisions are being made regarding low income programs.

Monitor ongoing efforts that seek to quantify NEBs so these may be referenced within impact evaluations. This type of referral and indicators of the importance of NEBs to NYSERDA's participants may offer a low cost approach to ensure a socially responsible perspective is not lost in the reporting of savings estimates from sophisticated quantitative impact evaluations.

Response to Evaluation Recommendation 1: NYSERDA will attempt to include more non-energy impacts, to the extent possible, in future evaluations.

Evaluation Recommendation 2: Work with utilities to ensure that billing data is complete, useful and properly interpreted.

Response to Evaluation Recommendation 2: NYSERDA and its evaluation contractors have made great progress working with utilities on billing data questions since the time data were requested to conduct this study. NYSERDA is currently working with DPS and the utilities to determine whether an existing system

for exchanging data between utilities and energy service companies can be used to more readily provide access to utility data needed by NYSERDA in the future.

Evaluation Recommendation 3: Continue to measure net effects for EmPower in future impact evaluations. The NTG component of the evaluation may not need to be conducted with every evaluation cycle, but the results of the pilot study indicate that periodic measurement of net effects is warranted.

Response to Evaluation Recommendation 3: NYSERDA will discuss the merits of continuing to assess NTG in future EmPower evaluations with DPS. Since most low income evaluations do not address NTG and this study found the NTG to be nearly a 1.0, NYSERDA will weigh the benefits and costs of collecting such information in future studies.

Evaluation Recommendation 4: Continue to use survey instruments to inform the billing analysis, assess non-energy benefits and NTG factors.

Response to Evaluation Recommendation 4: This recommendation will be considered when designing the next evaluation.

NYSERDA Workforce Development Program: Process Evaluation Summary

Evaluation Conducted by: Research Into Action Process Evaluation Team
Research Into Action, Lead Investigators, June 2012

PROGRAM SUMMARY

The NYSERDA Workforce Development Training Partnerships for Energy Efficiency (WFD) program is part of the **New York Energy \$martSM** Program portfolio. Through PON 1816 and PON 1817, it provides Energy Efficiency Portfolio Standard (EEPS) funds, and some Green Jobs Green New York (GJGNY) funds, for career pathways (CP) training, internships, and apprenticeships for the underserved and underemployed; technical training (TT) for those already in the building industry; and certification support. The program was initiated in 2010.

EVALUATION OBJECTIVE AND HIGH LEVEL FINDINGS

In 2012, Research Into Action completed a process evaluation of the program's activities from inception through early 2012. The goals of the process evaluation were to:

- Assess the overall implementation experience of the WFD Program
- Assess the experience of Training Partners with the selection and implementation process.
- Address specific research questions relating to outreach and marketing, coordination and leveraging of training activities, trainee needs, and the value of the training

The process evaluation focused on EEPS-funded trainings and excluded those funded through PON 1817, which did not begin early enough to generate sufficient data for the evaluation.

As of mid-April 2012, the program appeared on track to exceed its training goals and had supported certification for more than one thousand workers. Trainees' reasons for taking the training suggested that training was meeting market needs, and trainees largely reported that the training met or exceeded their expectations and was taught at the appropriate level, indicating that it generally met their needs. Trainers

were qualified in their subject matter and generally were experienced teachers. Nevertheless, training delivery did not sufficiently incorporate hands-on activities. Difficulty establishing internship and apprenticeship programs, inconsistent trainee support, and difficulty maintaining contact with students after course completion created challenges for providing effective career path assistance.

EVALUATION RECOMMENDATIONS AND PROGRAM ADMINISTRATOR RESPONSE

The following recommendations were made by the evaluators conducting this study. NYSERDA's initial response to these recommendations is also summarized below and will be tracked over time.

Recommendation 1: NYSERDA should work with CP training partners to clearly identify “career paths,” ensure that trainers and trainees understand how the course fits into a career path, and incorporate consistent and comprehensive job-search skill training and post-training support into their curricula, including emphasis on and assistance in registering with local One-Stop Centers and providing greater detail on training, certifications, and employment options.

Response to Recommendation 1: In future solicitations and CP contracts, NYSERDA will ask proposers/partners to better demonstrate to students how the course fits into a career pathway and to provide available information on training and certifications. NYSERDA will work with NYSDOL to provide information to CP students on assistance related to job search skills, employment opportunities and post-training support available through NYS DOL and the One-Stop Centers.

Recommendation 2: NYSERDA should continue to facilitate meetings to bring together employers, training organizations, unions, and other stakeholders, and use those meetings to identify and develop a concrete career pipeline for CP trainees based on existing career pathways best practices, and to facilitate connections between training partners and union apprenticeship programs.¹

Response to Recommendation 2: NYSERDA will continue to look for opportunities for meetings, webinars and other forums to bring stakeholders together as appropriate. In fact, NYSERDA just recently brought stakeholders together to brainstorm training needs in the renewable energy sector. Additionally, a recent webinar solicited suggestions for how NYSERDA can best support educators and industry in developing and expanding clean energy internships. CBO training outreach contractors are also working closely with training organizations and employers through the GJGNY program. Finally, NYSERDA has conducted regional focus groups, including contractors and training providers, as part of the GJGNY curriculum and needs assessment project with Pace University. PON 2033, Category A, provides opportunities for NYS registered apprenticeship programs to incorporate energy efficiency and solar thermal training into their curriculum (GJGNY).

Recommendation 3: NYSERDA should work with its training partners to identify TT courses (e.g., *eQUEST* modeling) that should be taught at beginning and intermediate-advanced levels.

¹ Maguire, S., J. Freely, C. Clymer, M. Conway, and D. Schwartz. 2010. *Turning In To Local Labor Markets: Findings from the Sectoral Employment Impact Study*. Philadelphia, Penn.: Public Private Ventures.

Response to Recommendation 3: In future training solicitations, NYSERDA will require its training partners to perform more detailed trainee screening to better assess skills prior to technical training and better identify prerequisites to technical training. (e.g. The eQUEST modeling training exists for beginning, intermediate, advanced-level, and online training, yet the provider can better assess and screen participants prior to enrollment to direct the student to the appropriate level training)

Recommendation 4: NYSERDA should work with its training partners to ensure that all trainers are given training in evidence-based adult education techniques.

Response to Recommendation 4: NYSERDA will look for ways to educate training providers in evidence –based learning techniques as necessary. Instructor experience is evaluated when workforce training proposals are reviewed.

Recommendation 5: NYSERDA should provide assistance to training partners to support additional hands-on training, such as: 1) funding classroom teaching assistants to help students with hands-on activities; 2) identifying sources of funds to purchase equipment; and 3) helping training partners identify organizations that may provide access to needed equipment.

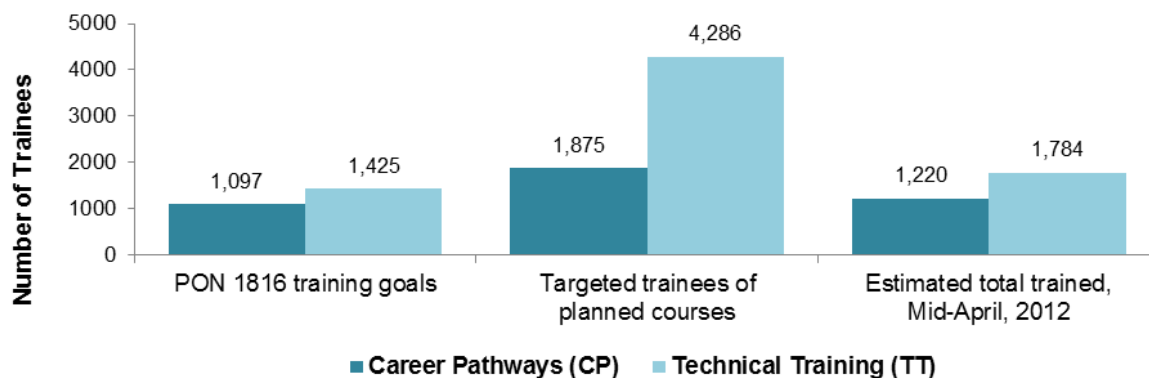
Response to Recommendation 5: NYSERDA is providing funding opportunities for hands-on training and instruction under PON 2033 and has provided training partners and contractors with over \$5 million in reprogrammed ARRA funds for training equipment over the past 6 months. Several training partners, including the unions, have had success in working with manufacturers to provide or donate training equipment.

DETAILED PROCESS EVALUATION FINDINGS

Program Initiation and Progress toward Goals: The contracting process and initial implementation took longer than expected, although training providers generally reported the application process was reasonable. As of mid-April 2012, PON 1816 training partners had targeted 1,875 CP trainees and 4,286 TT trainees and had trained an estimated 1,220 CP students and 1,784 TT students (Figure 1).² At the existing pace, the program will have exceeded its original training goals for PON 1816 by about 50%. Although the contracts for eight of the 13 CP training partners funded under PON 1816 specified some type of internship program development, only three internship programs were successfully established, and no apprenticeship programs were proposed by training providers under these solicitations.

² Confirmed trainee counts were not reported for about one-third of the courses, and so the evaluators estimated them from the ratio of confirmed trainees to targeted trainees in courses where confirmed counts were reported.

Figure 1. PON 1816 Training Goals*, Targeted Trainees, and Estimated Total Trainees by Mid-April 2012

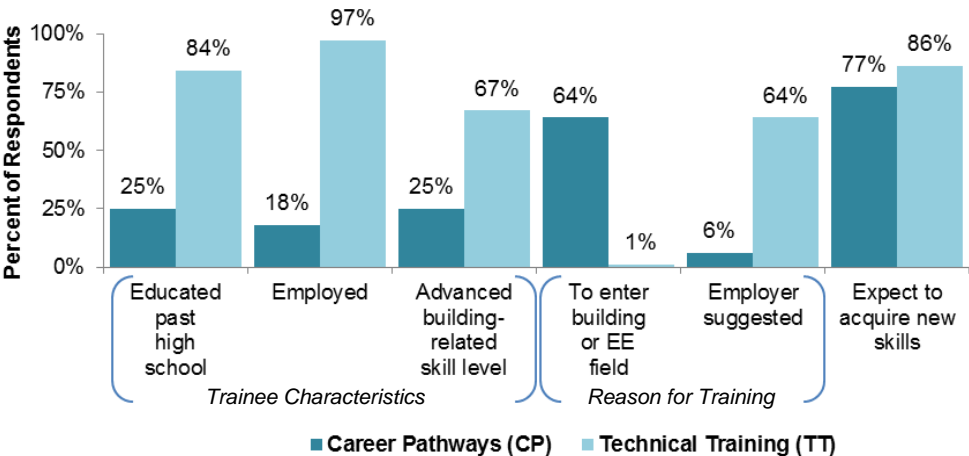


*As training funded under PON 1817 was not included in this evaluation, the training goals in this figure do not include the PON 1817 goals, which were 700 CP students trained and 800 TT students trained.

Training Implementation: Training partners delivered training largely through contracted trainers vetted by NYSERDA. The interviewed trainers were well qualified in their subject matter and many were experienced instructors; half of them reported specific training certification or coursework, but none had extensive formal training in adult education techniques. Trainees generally were satisfied with training, but hands-on training – considered best practice in adult education – was not used consistently, and most trainees said that more hands-on experience would have enhanced the training.

Indicators of Training Success: The training generally was appropriate for meeting the needs of the market and the trainees. Pre-training survey responses regarding trainee characteristics, reasons for taking the training, and expectations for the training are consistent with the program’s goals and expectations (key results shown in Figure 2).

Figure 2. Trainee Characteristics, Reasons for Training, and Expectations



Post-training survey data show that both CP and TT training met or exceeded nearly all trainees’ expectations and was delivered at the appropriate level for most (Figure 3). In almost all cases where the training was not deemed at the appropriate level, it was at “somewhat” too high or too low a level.

Figure 3. Trainee Feedback on Course Success and Plans for Additional Training or Certification

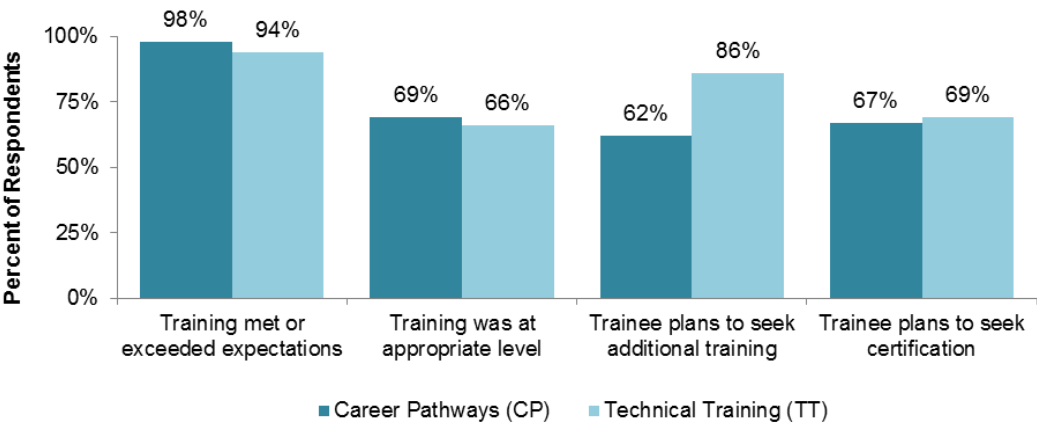


Figure 3 also shows that most trainees planned to seek additional training and certification. The high percentage of CP trainees who planned additional training is consistent with the expectation that this group should undergo a series of training courses to prepare them to enter the building-related workforce.

Most interviewed CP training partners and trainers reported providing some type of career guidance or assistance to trainees: the most common were job referrals and career counseling, while fewer mentioned referrals to additional training and certification or conducting post-training follow-up. Several contacts reported difficulty maintaining contact with trainees, creating a challenge for effectively implementing career paths for trainees. Follow-up telephone interviews with a small sample of trainees were consistent with the above training partner reports.

Telephone follow-up interviews with a small sample of TT students revealed that students in one course had a wide range of existing skill level, and the more-skilled reported frustration that the course did not advance their skills as much as they had hoped. This finding suggests that too much variability in the skill level of attendees may impede course effectiveness. The small sample identified only one such course.

EVALUATION METHODS AND SAMPLING

The process evaluation collected and analyzed both primary and secondary data. Between May and December 2011, Research Into Action interviewed five NYSERDA staff, 14 training partner contacts, and 22 trainers; analyzed data from a pre- and post-training survey of 129 CP and 113 TT trainees; and conducted telephone follow-up interviews with 21 trainees. The evaluation team also analyzed data recorded in the program's activity tracking spreadsheet and performed a content analysis of training partner contracts.

Some caution should be exercised in generalizing from the results of the pre- and post-training surveys. The course trainers distributed and collected the pre- and post-training surveys, which could potentially bias trainees' responses. Further, survey responses were not returned for about two-thirds of the courses, and the return rate for the remaining third of the courses was somewhat below half. Approaches to increasing return rates include requiring training partners to distribute and return surveys and making reminder calls to trainers at the beginning of and near the end of course sessions; protecting the confidentiality of trainees' responses through survey return envelopes, drop boxes, or use of an on-line survey could both avoid bias and increase return rates.

NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise and funding to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce their reliance on fossil fuels. NYSERDA professionals work to protect our environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York since 1975.

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State of New York
Andrew M. Cuomo, Governor

NYSEERDA's Energy Efficiency Portfolio Standard Program

Quarterly Report to the Public Service Commission
Quarters 1 & 2, Ending June 30, 2012

New York State Energy Research and Development Authority
Francis J. Murray, Jr., President and CEO