

New York State Energy Research and Development Authority

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# Energy Efficiency Portfolio Standard (EEPS-2) Program

Quarterly Report to the Public Service Commission  
Quarter Ending September 30, 2014

Final Report

December 2014

# NYSERDA's Promise to New Yorkers:

NYSERDA provides resources, expertise, and objective information so New Yorkers can make confident, informed energy decisions.

## **Mission Statement:**

Advance innovative energy solutions in ways that improve New York's economy and environment.

## **Vision Statement:**

Serve as a catalyst – advancing energy innovation, technology, and investment; transforming New York's economy; and empowering people to choose clean and efficient energy as part of their everyday lives.

## **Core Values:**

Objectivity, integrity, public service, partnership, and innovation.

## **Portfolios**

NYSERDA programs are organized into five portfolios, each representing a complementary group of offerings with common areas of energy-related focus and objectives.

### **Energy Efficiency and Renewable Energy Deployment**

Helping New York State to achieve its aggressive energy efficiency and renewable energy goals – including programs to motivate increased efficiency in energy consumption by consumers (residential, commercial, municipal, institutional, industrial, and transportation), to increase production by renewable power suppliers, to support market transformation, and to provide financing.

### **Energy Technology Innovation and Business Development**

Helping to stimulate a vibrant innovation ecosystem and a clean energy economy in New York State – including programs to support product research, development, and demonstrations; clean energy business development; and the knowledge-based community at the Saratoga Technology + Energy Park® (STEP®).

### **Energy Education and Workforce Development**

Helping to build a generation of New Yorkers ready to lead and work in a clean energy economy – including consumer behavior, youth education, workforce development, and training programs for existing and emerging technologies.

### **Energy and the Environment**

Helping to assess and mitigate the environmental impacts of energy production and use in New York State – including environmental research and development, regional initiatives to improve environmental sustainability, and West Valley Site Management.

### **Energy Data, Planning, and Policy**

Helping to ensure that New York State policymakers and consumers have objective and reliable information to make informed energy decisions – including State Energy Planning, policy analysis to support the Regional Greenhouse Gas Initiative and other energy initiatives, emergency preparedness, and a range of energy data reporting.



# **Energy Efficiency Portfolio Standard (EEPS-2) Program**

## **Quarterly Report to the Public Service Commission**

**Quarter Ending September 30, 2014**

*Final Report*

Prepared by:

**New York State Energy Research and Development Authority**

Albany, NY

December 2014

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# 1 Introduction

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This quarterly report reflects progress on Energy Efficiency Portfolio Standard (EEPS-2) Program evaluation activities administered by the New York State Energy Research and Development Authority (NYSERDA). This report contains the anticipated schedule and status of current and upcoming evaluation studies, summaries of recently completed evaluations, and the status of evaluation recommendations through September 30, 2014.

Information contained within this report comports with the guidance received from the New York State Department of Public Service (DPS) and discussed with the Evaluation Advisory Group in July 2012 and the E2 Working Group in March 2014.

## 2 Evaluation Reports Completed

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NYSERDA finalized the following evaluation reports in the third quarter of 2014:

- Agriculture Disaster Program Impact Evaluation Report (July 2014)
- Flex Tech Process Evaluation Report (July 2014)
- Multifamily Performance Program Process Evaluation Report (August 2014)

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

### 3 Evaluation Status Update

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Table 3-1 and Table 3-2 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, the EEPS evaluation review that is underway, 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. Timeline revisions made this quarter are designated by cell shading. PY denotes program year and Q denotes quarter.



**Table 3-1. Impact Evaluation Schedule and Status**

EEPS Program	Impact Evaluation Schedule					
	Detailed Evaluation Plan Submittal	Project Kickoff	Data Collection Complete	Draft Report	Final Report	Notes
Industrial & Process Efficiency (Phase 2)	Completed	Completed	Completed	Q3 - 2014	Q4 - 2014 for M&V	Pre-installation evaluation advisement is ongoing. Measurement & Verification (M&V) completed.
Existing Facilities	Completed	Completed	TBD	TBD	Late 2014 - Early 2015	Draft work plan in review. Early M&V field work is in progress.
Agriculture	TBD	TBD	TBD	TBD	TBD	Evaluation planning on hold.
New Construction	Completed	Completed	TBD	TBD	TBD	Field work in progress.
Agriculture Disaster	Completed	Completed	Completed	Completed	Completed	Final report completed July 2014.
FlexTech	Completed	Completed	TBD	TBD	TBD	Evaluation on hold.
Non-Participant Spillover Study	Completed	Completed	Completed	Completed	Completed	Report finalized.
Multifamily Performance Program	Completed	Completed	Completed	Q3 - 2014	Q4 - 2014	Draft report in development.

**Table 3-1 continued**

EEPS Program	Impact Evaluation Schedule					
	Detailed Evaluation Plan Submittal	Project Kick-off	Data Collection Complete	Draft Report	Final Report	
Point of Sale (POS) Lighting	Completed	Completed	Completed	Completed	Completed	Reports for 2012-2013 finalized in May 2014
EmPower New York	Completed	Completed	Phase 2 Completed	Phase 2 Q4 - 2014	Phase 2 Q4 - 2014	Phase 1 billing analysis completed. Phase 2 data analysis in progress.
Home Performance with ENERGY STAR®	Completed	Completed	Phase 2 Q4 - 2014	Phase 2 Q1 - 2015	Phase 2 Q1 - 2015	Phase 1 billing analysis completed. Phase 2 draft work plan for fieldwork is in development. Phase 3 will address attribution.
New York ENERGY STAR® Certified Homes	TBD	TBD	TBD	TBD	2015	Multiple program changes have had substantial impact on the Program. Analysis is underway to determine optimal timing and scope of evaluation results that will be of value to the Program. Previous impact evaluation of PY 2007 - 2008 completed in September 2012.

**Table 3-2. Process and Market Evaluation Schedule and Status**

EEPS Program	Process and Market Evaluation Schedule					
	Detailed Evaluation Plan Submittal	Project Kick-off	Data Collection Complete	Draft Report	Final Report	Notes
Existing Facilities	Completed	TBD	TBD	TBD	2015	Last process evaluation completed in February 2012. Last market evaluation completed in September 2012.
Agriculture	TBD	TBD	TBD	TBD	TBD	Evaluation planning on hold.
New Construction	Completed	Completed	Completed	Completed	Completed	Report finalized.
Agriculture Disaster	Completed	Completed	Completed	Completed	Completed	Report finalized.
FlexTech	Completed	Completed	Completed	Completed	Completed	Final report completed July 2014.
Multifamily Performance Program	Completed	Completed	Completed	Completed	Completed	Final report completed August 2014.
Point of Sale Lighting	Completed	Completed	Completed	Completed	Completed	Reports for 2012-2013 finalized in May 2014.
EmPower New York	Completed	TBD	TBD	TBD	TBD	Last process evaluation completed in July 2010. Planning for next process evaluation on hold pending Clean Energy Fund development.
Home Performance with ENERGY STAR®	Completed	Completed	Q3 - 2014	Q3 - 2014	Q4 - 2014	Program theory and logic model (PTLM) final draft in review, staff interviews completed, and surveys are in development.
New York ENERGY STAR® Certified Homes	TBD	TBD	TBD	TBD	TBD	NYSERDA to identify research and evaluation needs for this market.
C&I Natural Gas Market Characterization	Completed	Completed	Completed	Completed	Completed	Report finalized.

### 3.1 Recommendation Tracking

Recommendations generated from NYSERDA evaluation studies are tallied in Table 3-3. These recommendations are categorized as follows:

- Total Number of Recommendations Made to Date: Cumulative number of recommendations contained in final NYSERDA evaluation reports.
- Total Number of Recommendations Implemented to Date: Cumulative number of recommendations contained in final NYSERDA evaluation reports that have been implemented by NYSERDA and incorporated into NYSERDA programs.
- Total Number of Recommendations Rejected to Date: Cumulative number of recommendations contained in final NYSERDA evaluation reports that have been rejected by NYSERDA.
- Total Number of Recommendations Currently in Progress: Cumulative number of recommendations contained in final NYSERDA evaluation reports that NYSERDA is still considering for implementation or rejection.

**Table 3-3. Recommendation Tracking**

<b>Total Number of Recommendations:</b>	<b>Through September 30, 2014</b>
Made to Date <sup>1</sup>	205
Implemented to Date	151
Rejected to Date	17
Currently in Progress	37

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<sup>1</sup> The Total Number of Recommendations Made to Date only includes recommendations made in Final (not Interim) evaluation reports.

## 4 Other

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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 third quarter of 2014.

## Appendix A: Completed Evaluation Summaries

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This appendix contains a high-level summary of each recently completed evaluation study. The full report on each evaluation study is available on the NYSERDA website. NYSERDA finalized the following evaluation reports in the third quarter of 2014:

- Agriculture Disaster Program Impact Evaluation Report, July 2014
- Flex Tech Process Evaluation Report, July 2014
- Multifamily Performance Program Process Evaluation, August 2014

# **NYSERDA Agricultural Disaster Program (ADP): Impact Evaluation Summary**

*Prepared by:* Energy Resource Solutions Impact Evaluation Team  
Energy Resource Solutions, Lead Investigators (July 2014)

## **PROGRAM SUMMARY**

NYSERDA began operating the ADP in October 2011 after Hurricane Irene and Tropical Storm Lee did tremendous damage to New York State’s farms in August and September 2011. The goal of ADP is to provide emergency assistance for storm-damaged farms to incorporate energy-efficient electric and natural gas equipment, measures, systems and improvements into replacements and repairs.

## **EVALUATION OBJECTIVE AND HIGH LEVEL FINDINGS**

The primary objective of this impact evaluation was to determine the net savings that resulted from the Program. Another important objective was to examine the effectiveness of the Program in aiding farms that had been impacted by the hurricane and tropical storm. Table 1 summarizes the net savings for measures installed through 2013.

**Table 1. Impact Evaluation Results for Measures Installed from Program Inception through 2013**

<u>Metric</u>	<b>Electric Energy (kWh)</b>	<b>Natural Gas (MMBtu)</b>
A - Reported savings	944,669	4,843
B - Realization rate	0.54	1.21
C - Evaluated gross savings (A x B)	510,121	5,860
D - Net-to-gross ratio	0.73	1.00
E - Evaluated net savings (C x D)	372,389	5,860
Net savings precision at 90% confidence	±35%	No sampling error

## **EVALUATION RECOMMENDATIONS AND PROGRAM ADMINISTRATOR RESPONSE**

There are no recommendations for improving the Program, since the Program was designed to exist for a short period of time and is no longer open. However, since the ADP was derived from the currently active Agricultural Energy Efficiency Program, the evaluators suggest that program staff review the screening criteria for irrigation pumps to ensure they properly account for the savings from any fuel switching.

## DETAILED IMPACT EVALUATION FINDINGS

### Electric and Natural Realization Rate (RR) Results

The program RR measures the difference between the program-reported savings and the evaluated savings. Table 2 shows the aggregate RRs for the Program determined from on-site M&V activities at farm sites included in the evaluation sample.

**Table 2. Realization Rate Results Summary**

Program Component	Sites <sup>1</sup>	Sample	RR
Electric energy	57	20	0.54
Natural gas energy	4	3	1.21

<sup>1</sup>Three of the participants installed measures that impacted both electric energy and natural gas consumption.

### Sources of Realization Rate Differences

Table 3 provides insight into those factors that caused the program RR to deviate from a value of 1.0.

**Table 3. Summary of Realization Rate Differences**

Difference Category	Number of Observations	Positive RR Change	Negative RR Change	Realization Rate % Change	Net Impact Difference (kWh/MMBtu)
<b>Electric Savings</b>					
Fuel switching	5	0.0	-0.27	-0.27	-255,061
Hours of operation	19	0.15	-0.19	-0.04	-37,787
Deemed savings	8	0.04	-0.11	-0.07	-66,127
Baseline	4	0.01	-0.04	-0.03	-28,340
Quantity/capacity	11	0.09	-0.13	-0.04	-37,787
As-built efficiency	6	0.01	-0.02	-0.01	-9,447
<b>Total</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>-0.46</b>	<b>-434,548</b>
<b>Natural Gas Savings</b>					
Use of deemed savings value	1	0.50	0.0	0.50	2,422
Load profile	1	0.0	-0.1	-0.01	48
Hours of operation	1	0.0	-0.28	-0.28	1,356
<b>Total</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>0.21</b>	<b>1,017</b>

### Attribution Results

The evaluators typically interviewed the owner at each site to determine how the Program influenced the installation of additional energy efficiency measures. Without exception, the participants reported that no additional energy efficiency measures had been installed at the sites; therefore there was no inside spillover (ISO) associated with the Program. The evaluators concluded that neither outside spillover (OSO) nor non-participant spillover (NPSO) was likely to be generated by this short-lived and much-targeted program, so these factors were not researched. The



evaluators also asked the owners on a measure-by-measure basis what equipment they would have installed had they not had support from the Program. Only four sites reported that they would have installed the same equipment for one or more measures without the Program’s support; however, one of those sites accounted for about a quarter of the evaluated gross savings, leading to a moderately high FR.

The program-level attribution results are summarized in Table 4.

**Table 4. Attribution Summary**

<b>Program Component</b>	<b>Sites<sup>1</sup></b>	<b>Sample</b>	<b>Freeridership (FR)(%)</b>	<b>Inside Spillover (%)</b>	<b>Net-to-gross Ratio (NTGR)</b>
Electric energy	57	20	27%	0%	0.73
Natural gas	4	3	0%	0%	1.00

<sup>1</sup> Three of the participants installed measures that impacted both electric energy and natural gas consumption.

The moderately high FR along with a lack of spillover (SO) for this program yielded an NTGR of 0.73 and 1.00 for electricity and natural gas savings, respectively.

## **EVALUATION METHODS AND SAMPLING**

### **Sampling Strategy**

The evaluators used stratified ratio estimation (SRE)<sup>2</sup> for the sample design. The sample was designed with the goal of obtaining 20% relative precision at the 90% confidence interval (90/20) for net electric savings, which is a means of characterizing the reliability of the results. There is no significant sampling error associated with the estimates of natural gas savings, because all the natural gas measures in the sample frame were evaluated.

Although DPS evaluation guidelines call for targeting net energy savings with 10% relative precision at the 90% confidence interval, the relatively small program savings and an expected high variability in savings estimates warranted a relaxation of the standard for the electric savings, yielding a smaller evaluation sample size commensurate with the program spending.

Table 5 summarizes the derivation of the sample frame.

**Table 5. Sample Frame**

<b>Category</b>	<b>Electric Sites</b>	<b>Electric Energy Savings</b>	<b>Natural Gas Sites</b>	<b>Natural Gas Savings</b>
At least one measure installed by December 2013	57	944,669 kWh	4	4,843 MMBtu
Very small projects, excluded	16	17,341 kWh	1	113 MMBtu
Sample frame	41	927,328 kWh	3	4,730 MMBtu

<sup>2</sup> An efficient sampling design technique which combines stratified sample design with a ratio estimator. It’s most advantageous when the population has a large coefficient of variation. The ratio estimator uses supporting information for each unit of the population when this information is highly correlated with the desired estimate to be derived from the evaluation, such as the tracking savings and the evaluated savings.

# ***FlexTech Process Evaluation: Evaluation Summary***

*Prepared by:* Navigant and Research Into Action (August 2014)

## **PROGRAM SUMMARY**

The FlexTech program provides cost-sharing to offset the cost of consultant energy studies aimed at providing objective and customized information to help customers make informed energy decisions. Studies can be carried out either by FlexTech Consultants, technical consultants competitively selected through a request for proposals, or by Independent Service Providers selected by the end user. By offering this cost-shared assistance the program seeks to provide New York facilities with an increased ability to pursue “mission-central projects” and to increase the quality of service providers active in the market. The program primarily engages medium-large energy consuming facilities.

## **EVALUATION OBJECTIVES AND HIGH LEVEL FINDINGS**

This report presents the findings of the process evaluation of the FlexTech Program. This study focused on program activity during 2011 and 2012 and addressed the following research objectives:

- Review and update the FlexTech program logic model to reflect current program design and market conditions
- Examine program processes and market opportunities
- Identify and assess drivers for and barriers to participation in the program
- Identify and assess the program’s position within NYSERDA’s portfolio of programs, and within the market for energy efficiency services
- Identify and assess decision-making processes regarding measure implementation
- Document program progress and participant satisfaction, and make recommendations for program improvements

The study found that the FlexTech program fills an important niche in New York’s market for energy efficiency services. It provides a source of much-needed funding and high quality technical support to achieve deep energy savings. The program also engages large facilities that hold much of the state’s remaining energy savings potential. Therefore, it has a unique opportunity to generate significant energy savings while addressing persistent market barriers to energy efficiency.

Overall, much of the feedback gathered from this evaluation indicated that FlexTech is viewed as a valuable and influential program in the New York market for energy efficiency. Participating end users and service providers alike recognize the benefits of the program and appreciate the resources to which it provides them access. Even some parts of the process that are perceived as slowing down project completion (e.g., the report review process) are viewed as improving the end result and therefore worth the investment of time and capital. However, based on feedback from program participants, FlexTech could increase its impact on the market and increase participant satisfaction by making some process-related improvements. Specifically, the study resulted in the following high level findings:

1. **Program processes lead to service provider frustration, difficulty planning, and in some cases, an unnecessary expenditure of resources. This is due primarily to:**
  - Inconsistencies across project managers and external technical reviewers
  - Cumbersome processes, particularly during the scope of work development phase

2. **Many participants lack access to capital to readily implement recommended measures; they seek more direct linkages with additional funding sources.** The program’s involvement with a participant often ends once a study is completed and approved. However, market actor feedback indicates that both service providers and end users seek more direct linkages to additional funding sources and could benefit from further guidance in their efforts to carry recommended measures through to completion.
3. **Existing outreach efforts do not sufficiently build awareness for FlexTech.** NYSERDA’s outreach activities may prove effective at the portfolio level. However, market actor feedback indicates that those efforts provide insufficient support for the FlexTech program specifically.
4. **Inconsistencies and gaps exist in some data tracking components, making it difficult to efficiently and effectively track participation within FlexTech and across programs.** The Team identified opportunities to improve the consistency of data entry procedures and to streamline data tracking. The Team also found that the program could improve the clarity of the data tracking system through the creation of a database dictionary.

## EVALUATION RECOMMENDATIONS

The following recommendations were made by the evaluators conducting this study. This evaluation study was scoped and completed prior to NYSERDA’s development of the Clean Energy Fund proposal. These recommendations and other findings in the report will be taken into consideration in formulating NYSERDA’s future interventions.

### **Recommendation 1: Provide clearer, more consistent expectations regarding program application materials, report content, and timelines.**

Making guidance related to program participation more accessible and easier to interpret would enable participants to operate more efficiently and would likely increase program satisfaction. Examples of steps that would make participation expectations more transparent include: 1) make links to document templates (e.g., scope of work and final report) readily accessible from the program website; and 2) more clearly communicate timeframe expectations for various stages of participation. Service providers indicated that a process flow diagram, similar to the one developed for this evaluation, would prove valuable in planning for and communicating to end users about timelines at various stages of participation.

### **Recommendation 2: Streamline program processes to shorten the participation timelines and limit necessary investment of end users’ staff time.**

The program would benefit from identifying additional opportunities to streamline processes. Some potential changes that may help to expedite program participation include the following: 1) hold the program’s project managers and External Technical Review contractors accountable for adhering to timelines for document review; and 2) consider having project managers consistently work with the same types of projects, and/or the same service providers (e.g., projects addressing compressed air efficiency improvements would always be assigned to a specific project manager).

### **Recommendation 3. Provide clearer guidance regarding recommended actions following study completion.**

Specifically, the evaluation team recommends that program staff provide participants with a list of actions they can take and information resources they can access to help them proceed toward successful implementation of recommended measures. The purpose of this recommendation is two-fold.

- First, it would address program participants’ lack of knowledge of the program’s intended role as a stand-alone source of support. Providing participants with a clear set of recommended actions following study completion presents an opportunity to communicate the program’s intent: the implementation of cost effective energy efficiency measures without additional outside funding. The evaluation team does not take a position on whether FlexTech should revisit its program logic to confirm its role as a stand-alone program; the team views that as a policy decision for NYSERDA and DPS to address.

- Second, communications with participants following study completion would provide valuable information and guidance that may increase the adoption of recommended measures. Program communications following study completion could include case studies of projects that have been implemented without additional funding sources, highlighting this as a viable potential option. Communications could also include information about the availability of other funding and financing options, including the NY Green Bank.

**Recommendation 4: Increase targeted marketing and outreach efforts.**

The program would benefit from an increase in targeted marketing and outreach activity. This may include requesting more resources and attention from NYSERDA’s Customer Relationship Management (CRM) system. It may also include establishing a collaborative relationship between FlexTech Consultants and the CRM system to ensure that Consultants have access to the informational resources (e.g., client leads) necessary to act as an effective channel for targeted recruitment.

**Recommendation 5: Strive to achieve a consistent and efficient approach to data tracking.**

The program would benefit from a review of the data tracking approach and a consideration of streamlining data activities to the extent possible. The existence of multiple program administrators offering similar programs in the state makes it inherently difficult for NYSERDA to independently address potential overlap in the tracking of savings outside of NYSERDA’s portfolio. However, establishing a system for consistently tracking end users’ participation across NYSERDA’s programs (e.g., through use of unique identifiers) would increase the accuracy of reported energy savings. The evaluation team also recommends that program staff develop a database dictionary.

**EVALUATION METHODS AND SAMPLING**

The evaluation team used the following research methods to complete this evaluation: a review of secondary literature and program documents, a review and analysis of program tracking data, and completion of 67 in-depth interviews with a range of market actors. Interviewees included program staff, FlexTech Consultants, Independent Service Providers, participating and partial-participating end users (those who initiate but do not complete participation), external review contractors (those retained by NYSERDA to review draft study reports), as well as other entities with a valuable perspective on the market served by the program, such as representatives from trade organizations.

# ***Multifamily Performance Program Process Evaluation and Market Characterization: Evaluation Summary***

*Prepared by: Research Into Action (June 2014)*

## **PROGRAM SUMMARY**

MPP is designed to address the needs of the multifamily sector by working with developers, building owners, and owners' representatives to make cost-effective improvements to the energy efficiency of buildings with five or more residential units located in the SBC territory in which NYSERDA operates.

As a market transformation program, MPP emphasizes making permanent changes in the way multifamily buildings are constructed and maintained.

The program's existing buildings component requires each participant to benchmark the energy performance of the existing facility against a set of similar buildings in the EPA's ENERGY STAR database. The project team must develop an energy reduction plan (ERP) to identify measures that will reduce the building's overall energy use by 15% below the energy current use.<sup>3</sup>

The program's new construction component supports new construction and "gut-rehabilitation"<sup>4</sup> projects by providing technical and financial assistance for inclusion of energy efficiency considerations at the planning, design, and construction phases of these projects.

## **EVALUATION OBJECTIVES AND HIGH LEVEL FINDINGS**

The primary objectives of this evaluation were:(1) to provide a comprehensive understanding of current and emerging multifamily markets (e.g., market structure and market actors); (2) to assess MPP's activities in versions 4 (September 2010 to July 2012) and 5 (July 2012 to present) of the program; (3) to provide a baseline of market effects in the multifamily housing market; and (4) to determine potential strengths and weaknesses of MPP's processes.

The review of the MPP logic model, features, and processes reveals a well-conceived and well-administered program with no major issues. MPP has many features that match or define best practices among multifamily initiatives in the U.S.

The evaluation team used tax records and U.S. Census to identify that there are 132,491 properties with 162,610 multifamily buildings and 2,526,919 multifamily units in the NYSERDA service area.<sup>5</sup> Since its inception in 2005, MPP has reached less than 1% of all existing multifamily properties and 6.6% of all multifamily units in the State. Since 2005, 6,637 non-public buildings were issued permits for multifamily new construction projects. During that time, MPP treated or was in the process of treating 371 new construction projects, or approximately 5.6% of all

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<sup>3</sup> The ERP expresses the proposed end-use energy savings for each energy efficiency measure as a percentage of total source energy consumption.

<sup>4</sup> Gut rehabilitation projects are defined as one of the following three types of projects where a licensed professional architect or engineer has prepared and certified building plans: 1) change of use and reconstruction of an existing building or space within; 2) construction work of a nature requiring that the building or space within be out of service for at least 30 consecutive days; or 3) reconstruction of a vacant structure of space within.

<sup>5</sup> The tax record data underreports units because tax records for 39% of multifamily properties are missing information on number of units. This study replaces tax data with U.S. Census American Community Survey 2008-2012 values for units.

multifamily buildings permitted between 2005 and 2013.<sup>6</sup> Information on the number of properties is shown in Table 1.

**Table 1. Multifamily Property Information by Area (2012)**

Area	Total Assessed Value (\$1,000)	Total Living Area sq. ft.	Number of Buildings	Number of Properties	Number of Units <sup>a</sup>
Upstate	\$10,740,007	181,026,634	39,690	32,018	287,842
Downstate	\$85,992,752	2,045,649,636	121,128	91,552	2,144,273
<b>Total MPP Area</b>	<b>\$96,732,759</b>	<b>2,226,676,270</b>	<b>162,610</b>	<b>123,570</b>	<b>2,432,115</b>
Long Island	\$706,666	7,699,835	9,093	8,921	7,422
<b>Total NYS</b>	<b>\$97,439,425</b>	<b>2,234,376,105</b>	<b>169,911</b>	<b>132,491</b>	<b>2,439,537<sup>b</sup></b>

Sources: PLUTO™ V12v2 ©NYC Department of City Planning, and New York State Tax Records from New York State Taxation and Finance Department (2013, March)

<sup>a</sup> 39% of properties did not report number of units.

<sup>b</sup> An attempt is made here to calculate the actual number of units in the state. 39% of the properties in the tax data are missing units, but all of these are in upstate NY and Westchester County. The U.S. Census American Community Survey (ACS) 2008-2012 estimates there are 2,626,770 multifamily units in all of NYS. Subtracting out Suffolk (46,503) and Nassau (53,348) leaves 2,526,919 units in the NYSEDA area. For this study, the ACS values are used throughout for number of multifamily units.

The development of Partners who provide independent and comprehensive energy efficiency services to building owners is a key focus of MPP. MPP has recruited and trained 105 Partners over the last nine years. More than half have never recruited a MPP project, while 33 of the 87 non-Permanently Removed Partners have recruited at least one project in version 5. In addition, most participants had engaged in an energy efficiency activity before participating in MPP. Additional information on the number of partners, their experience and activity level and the number of projects they support is shown in Table 2.

**Table 2: Partners and their MPP Projects, by Partner Types for MPP Versions 1-5**

Characteristic	Experienced Partners		Inexperienced Partners		Permanently Removed	Total
	Active	Inactive	Active	Inactive		
<b>Number of Partners</b>	31	20	8	28	18	<b>105</b>
<b>Percent of Total</b>	29%	19%	8%	27%	17%	<b>100%</b>
<b>Number of Projects<sup>a</sup></b>	1,141	48	18	6	7	<b>1,214</b>
<b>Percent of Total</b>	94%	4%	1%	0.5%	0.1%	<b>100%</b>

Source: CRIS database, 4/25/2013

<sup>a</sup> Completed and in-progress projects

Of the total savings from versions 4 and 5, 4% of kWh and 1% of therms were invested in measures that reduced tenant bills, and 96% of kWh and 99% of therms were invested in measures that reduced common space or master metered bills.<sup>7</sup>

<sup>6</sup> The 371 MPP new construction buildings may have contained some buildings that are public housing while the 6,637 new construction permits were for privately-owned buildings.

## EVALUATION RECOMMENDATIONS

The following recommendations were made by the evaluators conducting this study. This evaluation study was scoped prior to NYSERDA's development of the Clean Energy Fund proposal. These recommendations and other findings in the report will be taken into consideration in formulating NYSERDA's future interventions.

- **Recommendation 1-A: Differentiate between and encourage improvements in tenant and common spaces.** Multifamily programs should more effectively differentiate energy-efficient measures done in tenant spaces and that lower tenant bills from those done in common areas or in master metered areas that lower owners' bills. Acknowledging that there may be less opportunities that may come at a higher cost in comparison to common area improvements, where incentives are offered, programs could make the incentives for tenant space measures larger than those for measures in common spaces to provide this differentiation and encouragement of greater savings for tenants.
- **Recommendation 1-B: Consider using the energy aligned clause to mitigate the landlord/tenant split incentive barrier.** Multifamily programs may employ the energy aligned clause (EAC) developed by New York City (PlaNYC) and the Urban Green Council to help mitigate the landlord/tenant split incentive barrier. The EAC allows landlords to raise rents to pay for measures that save energy. The clause ensures that rent increases will never exceed the monthly energy savings. The program operator could develop an incentive structure that encourages projects, particularly new buildings, to include EACs as part of their leasing structure. The program operator also could consider facilitating the process by agreeing to serve as a neutral party to calculate or verify bill reductions.
- **Recommendation 2-A: Consider encouraging projects to achieve savings greater than 15% in new construction.** Multifamily programs should consider creating graduated incentives for new construction building owners willing to save 20%, 25%, 30%, or more.
- **Recommendation 2-B: Consider special recognition for building owners achieving the highest levels of savings.** Giving a means for owners to distinguish their building from others is an important component of establishing a market for energy efficiency in rental properties. The more publicity that a program gives to truly efficient buildings, the quicker that market push can develop.
- **Recommendation 2-C: Work with PLANYC<sup>8</sup> to disseminate benchmarking results.** To date, benchmark data that would serve to help differentiate efficient and non-efficient apartment units has been unavailable to the program and to this evaluation.
- **Recommendation 3: Consider allowing gradual achievement of the 15% threshold and coordinating with utility incentives.** Setting tough minimum threshold levels is a positive step that makes sure that buildings are not just taking the easy steps; however, multifamily program administrators should consider allowing projects to achieve the 15% minimum more gradually. Under this revised process, the ERP plan could be achieved more gradually. If the plan included measures incentivized by other programs, these could count toward the 15% threshold. However, a Partner could not receive the program incentive until the sum of measures reaches the 15% threshold. The MPP incentive could also be reduced by any incentives already received from other sources. This approach has two major benefits: 1) it provides a means of coordinating NYSERDA programs

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<sup>7</sup> It is noted, that CRIS currently credits all investments in shell measures as savings to common spaces; thus, not including air conditioning related tenant electricity savings. It is recommended that in the future shell measures be allocated more accurately to credit tenant savings when air conditioning is individually metered.

<sup>8</sup> PLANYC Green Building and Energy Efficiency is managed by the Mayor's Office of Long-Term Planning and Sustainability (OLTPS) see <http://www.nyc.gov/html/gbee/html/about/about.shtml>

with those offered by the utilities; a strategy that is consistent with the direction expressed in the recent NYDPS decision<sup>9</sup>; and 2) the more gradual and easily marketed approach provides a means for Partners to attract reluctant owners and managers.

- **Recommendation 4: Expand marketing of program to multifamily property owners and managers.** Multifamily programs would benefit from expanding the marketing and outreach to multifamily property owners or property managers to educate them on the benefits of investing in energy consultation services. The program can assume responsibility for marketing and outreach efforts; or the program can continue to rely on Partners to promote the program. If a program chooses the latter, the incentive structure will need to be revisited to give Partners more compensation for undertaking marketing services. This compensation could be a direct payment for marketing services or a finder's fee for successful recruitment of new participants. This compensation should be gradually phased out as the market develops and more owners gain an appreciation for program services. If the program interventions change over time the concept of providing education and outreach to property owners or managers should still be considered as a strategy for achieving market adoption of energy efficiency in the multifamily sector.

## EVALUATION METHODS AND SAMPLING

Data for the process evaluation were collected primarily through phone interviews and surveys (Table 3). The main data collection activities for this evaluation by source were:

- **Program and implementation staff:** In-depth phone interviews with NYSERDA staff, program implementation contractors, program marketing contractors, and QA contractors.
- **Multifamily properties:** Surveys of property owners and managers onsite.
- **Multifamily Performance Partners:** In-person and in-depth phone interviews and phone surveys of Partners, including experienced or inexperienced, active or inactive, and eligible or permanently removed Partners. Responses to in-depth Partner interviews were used to inform the broader-reaching surveys with other Partners.
- **Participating owners and developers:** Phone surveys of program participants.
- **New York market actors:** In-depth phone interviews with and phone surveys of architects, engineers, building contractors, and energy efficiency consultants. Responses to in-depth interviews were used to inform the broader-reaching surveys.
- **Market actors in a neighboring state:** Phone surveys of architects, engineers, building contractors, and energy efficiency consultants in Pennsylvania. This group was used as a comparison to market actors in New York to identify and measure differences in the impact of the MPP program on the broader market.
- **CRIS database review:** Database extracts on key variables.

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[http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/26be8a93967e604785257cc40066b91a/\\$FILE/ATTK0J3L.pdf/Reforming%20The%20Energy%20Vision%20\(REV\)%20REPORT%204.25.%2014.pdf](http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/26be8a93967e604785257cc40066b91a/$FILE/ATTK0J3L.pdf/Reforming%20The%20Energy%20Vision%20(REV)%20REPORT%204.25.%2014.pdf)



**Table 3: MPP Process and Market Assessment Data Collection Activities**

<b>Target Group</b>	<b>Estimated Population Size</b>	<b>Estimated Sample Size</b>	<b>Interviews Conducted</b>	<b>Surveys Conducted</b>	<b>Sampling Precision</b>
Program & Implementation Staff & Contractors	>21	21	21	N/A	N/A
Non-MPP Multifamily Properties	392	392	N/A	119	95/5
Multifamily Performance Partners	105	50	21	29	90/10
Participating Owners & Developers	285	110	N/A	110	90/10
New York Market actors	~3,687	1,471	6	341	85/15
Pennsylvania Market actors	~755	458	N/A	127	80/20



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**State of New York**  
Andrew M. Cuomo, Governor

## Energy Efficiency Portfolio Standard (EEPS-2) Program

Quarterly Report to the Public Service Commission  
Quarter Ending September 30, 2014

Final Report  
December 2014

**New York State Energy Research and Development Authority**  
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