NYSERDA's Multifamily Performance Program: Rounding the First Turn

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ABSTRACT

In 2007, NYSERDA combined a number of multifamily energy efficiency programs into one to better address the needs of the multifamily sector. The resulting Multifamily Performance Program was released to positive reactions from multifamily owners and developers as well as the efficiency market. The Program has since won an ACEEE Exemplary Program Award as well as an Environmental Business Journal Business Achievement Award.

This paper highlights the first-year experiences gained from designing and rolling out this unique and comprehensive program and concludes with a summary of Program accomplishments to date. For each of the major design components of the program, the paper describes the issues that arose during program design and launch so that the lessons learned can be applied to other similar programs. The program design components include:

- Market-based approach
  - Develop Program Partner network
  - Allow building owners and developers to select a Partner and negotiate fees.
  - Provide flexibility to the market while ensuring comprehensive work scopes.
  - Use existing standards and protocols when possible.
- Performance-based incentives
  - Create separate incentive schedules for affordable vs. market-rate properties.
  - Determine the number of incentive levels.
  - Establish incentive amounts and timing of payments for each level.
- Benchmarking and the performance target
  - Create a benchmarking protocol to accompany performance approach.
  - Develop a benchmarking tool.
  - Set minimum required level of performance improvement.

Introduction

This paper offers insight into the design and rollout phase of NYSERDA's Multifamily Performance Program (MPP). In addition to providing the concepts and analyses that went into developing the Program, this paper includes lessons learned during the first year of the Program. It is important to note that MPP currently includes three components, Existing Buildings, New Construction, and Low Rise Pilot[1]. The technical protocols for the New Construction component are identical to those created under of the ENERGY STAR® Multifamily Pilot Program (EMP),

[1] The Low Rise Pilot was launched in January 2008 and addresses new multifamily buildings of 3 stories or less with 5 or more apartment units.

which NYSERDA previously developed with the U.S. Environmental Protection Agency (EPA) and a national working group.

Overall, the Program was designed to achieve the following NYSERDA goals:

1. Create a market-based network of building performance specialists capable of delivering services to developers, building owners and their representatives;
2. Facilitate access to capital for comprehensive energy and energy-related improvements;
3. Reduce the burden imposed by energy consumption and other utility-related costs, with a significant emphasis on providing this benefit to low- to moderate-income residents while maintaining or improving the health, safety and security of multifamily buildings;
4. Package energy efficiency with other types of improvements such as advanced meters coupled with a real-time pricing or time-of-use electricity rate structure, distributed generation and renewable energy;
5. Reduce the multifamily sector's contribution to the system peak demand;
6. Promote the ENERGY STAR label and NY Energy $mart label.

Initial Program Design

This section describes the program design process from the initial concepts to the development of program documentation. NYSERDA had some specific goals in mind when they released RFP #1011 in May 2006. The following excerpt from the RFP (NYSERDA, 2006) summarizes NYSERDA's original intent of the Program.

> "The Program will aggregate elements of NYSERDA's current multifamily building programs including the Assisted Multifamily Program (AMP), the ENERGY STAR® Multifamily Pilot Program (EMP), the Residential Technical Assistance Program (ResTech), the Comprehensive Energy Management Program (CEM), the Multifamily Standardized Training Program, the Energy $mart Loan Fund, and offerings through its New Construction Program, Green Buildings Program, Combined Heat and Power and Distributed Generation and Photovoltaic program opportunity notices.
>
> …The success of these programs has effectively increased market awareness of the beneficial impacts of improved equipment and systems on overall building performance. NYSERDA believes that this awareness has prepared the market for an expanded, market-oriented approach to resolving multifamily building energy and energy-related issues based on performance targets. This approach will focus on three critical elements. … The first of these elements is the development, promotion, and maintenance of a market-based network of [Program Partners] to deliver services to developers, owners, and management companies to improve the energy performance of their properties. The second element of this approach will expand the focus of the Program beyond equipment and systems improvements to the more complex causes that contribute to poor energy performance and address these causes in a more flexible and comprehensive manner. The final element of this approach is the use of market-recognized indicators, potentially affiliated with the ENERGY STAR label, based on the achievement of a predetermined performance target.
>
> The goal of the Program is to offer a streamlined, single-point-of-entry process for multifamily building developers, owners and management companies to access NYSERDA support in improving the energy efficiency, health, safety, and security of their properties."

TRC was selected as program implementer in August 2006. As implementer of NYSERDA's CEM Program, TRC was familiar with the multifamily market in New York and had a strong understanding of NYSERDA's vision of the new Program. NYSERDA collaborated with TRC over the next eight months transitioning multiple existing programs while developing the detailed design of the new Program.

Collaboration with Stakeholders

In order to develop a successful program, NYSERDA and TRC engaged all of the major stakeholders in the New York multifamily market in the early stages of program design. In addition, NYSERDA and TRC approached national and regional energy efficiency agencies for expert assistance and buy-in. Following is a list of stakeholders that were involved in the design process. The specific input from many of these groups is referred to later in this paper.

- New York State Division of Housing and Community Renewal (DHCR)
- Building Performance Institute (BPI)
- New York State Builders Association (NYSBA)
- Multifamily Developers & Owners participating in previous NYSERDA programs
- Banks and Lending Institutions active in the NYSERDA Loan Fund Program
- U.S. Environmental Protection Agency (EPA)
- U.S. Department of Energy (DOE)
- American Society of Heating, Refrigeration, & Air Conditioning Engineers (ASHRAE)
- Residential Energy Services Network (RESNET)
- U.S. Green Building Council (GBC)

Strengths and Weaknesses of the Previous NYSERDA Multifamily Programs

Prior to MPP, the four main NYSERDA programs that targeted the multifamily sector were:

1. The Assisted Multifamily Program (AMP, which provided comprehensive assistance to existing affordable housing projects. The Program provided technical services, financial packaging and gap grants.
2. EMP, a pilot with the EPA, which offered comprehensive technical services to high rise new construction multifamily buildings. The Program provided technical services and grants.
3. ResTech, which provided cost-sharing of technical services for existing market rate multifamily buildings.
4. CEM, which provided incentives for the installation of advanced meters. Program also included pilots to test the impact of real-time pricing of utility usage and costs.

The above programs were analyzed to leverage their success and weaknesses to inform the new Program's design. Strengths of the previous programs included:

- A network of technical service providers with the ability to serve both market-rate and affordable housing projects.

- Technical protocols and guidelines for evaluating energy efficiency measures and calculating energy savings.
- Significant data on numerous projects including average energy savings, average project cost, typical construction schedules, and other public financing sources.
- A successful and comprehensive pilot program for new construction. The EMP pilot developed many of the requirements for the new construction component of MPP.
- Detailed policies and procedures for energy auditing and other aspects of the programs.

MPP was designed to build upon these strengths while seeking to eliminate weaknesses. Weaknesses of the previous programs, which were a significant influence on the new program design, included:

- Multiple programs serving the multifamily sector created confusion in the marketplace. Marketplace confusion was due to the number and diversity of programs.
- Complex and confusing program rules and requirements, especially in AMP.
- Gap grant incentives, which were not transparent or easily calculable by participants. In AMP, the gap grant was not determined until after a detailed energy and financial assessment had been conducted.
- Lack of cash flow during the implementation of energy efficiency projects. AMP used a "last money in" approach where the majority of incentives were paid after installation.
- Incentives tied to project cost. Since estimated costs of construction often differ from actual costs, program incentives had to be adjusted in AMP during the construction process requiring significant administration by participants and the program implementer.
- A network of technical service providers were selected, managed and funded through a centralized structure, with the associated fees established primarily by the programs. Although the original intent was to cultivate new contributors to this network, the centralized structure suppressed a natural expansion of the network.

Partner Network

Successful market-based programs must identify barriers, recognize unmet needs and leverage market forces. The success of MPP was dependent on a strong network of technical service providers, or "Partners". Previous NYSERDA programs helped to establish this network, however; the network was essentially closed following the initial selection process. As a result, firms not accepted under the initial process were, in large part, precluded from offering services under the programs. A successful MPP Partner network had to leverage this existing network while opening the process to new firms. A significantly expanded Partner network would increase production capacity, offer statewide coverage and introduce healthy competition.

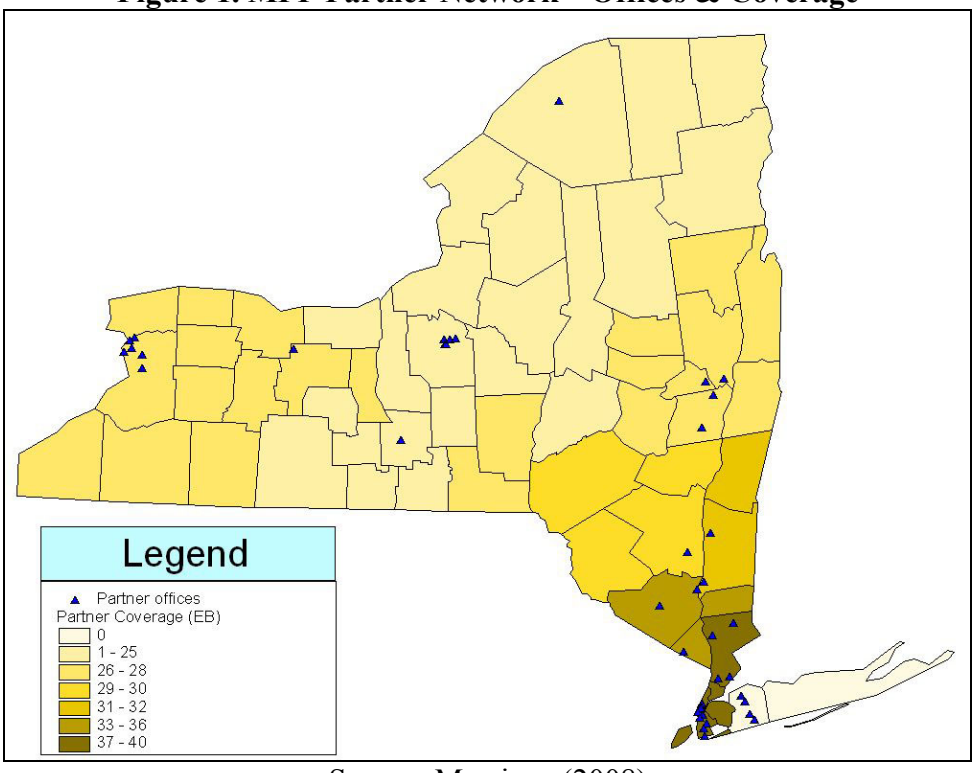
The following criteria were considered during the design of the Partner networks:

- Significantly expand the existing network and introduce competition. Recognize the key role that Partners play in creating "green collar jobs" across the state.
- Understand the historical relationships between building owners, NYSERDA, program implementers and market actors serving the multifamily sector. This includes technical service providers, community-based organizations, contractors, and ESCOs.

- Identify the key services required by multifamily building owners to *implement* energy savings projects (i.e., not just create energy audits). Utilize this information to identify the key qualifications required by firms to be effective Partners.
- Understand the cost of technical services and estimate Partner fees for projects of various size and geographic location.
- Understand the different needs of affordable housing owners vs. market rate owners and of new construction developers vs. owners/managers of existing buildings.
- Consider training and certification requirements for Partners.
- Encourage comprehensive services. Do not preclude Partners from offering turn-key services including design and construction.
- Keep the program streamlined and simplified to attract firms to become Partners, allowing Participants to work with firms of their choosing through streamlined entry into this Partner network for appropriately skilled and experienced firms.

To start the MPP Partner network, technical services providers from former NYSERDA programs were recruited as Partners to the newly established MPP. This helped to immediately establish a statewide network of Partners[2], critical for program launch. To further expand the network, new firms are recruited on an ongoing basis. This has introduced healthy competition into the marketplace. Figure 1 illustrates the geographical distribution of the Partner network as of May 2008. Triangles depict Partner offices and the gradient of shading reflects the number of Partners serving a given area with darker shading indicates increased coverage.

Figure 1. MPP Partner Network – Offices & Coverage



Source: Morrison (2008)

[2] 11 Partners were approved upon program launch.

In addition to growing the Partner network, MPP was designed to promote stronger relationships between Partners and owners. In the previous multifamily programs, technical service providers worked directly for the program implementers. Fees for technical services were either negotiated by NYSERDA or set by the program implementer. The program implementer assumed a key role in project management and had the primary relationship with owners as a result. The design of the MPP Partner network fundamentally restructured this hierarchy by recognizing that the key relationship was in the marketplace between Partners and owners. Under MPP, NYSERDA and the program implementer (now TRC) assume a secondary role as project facilitators. This approach requires that Partners act as the owner's agent for the entire energy project, from the initial meeting to construction completion and beyond.

Program design also focused on the need for Partner services beyond the audit phase. Under AMP, many projects stalled upon completion of the audit as owners lacked the capability to implement the project. In response, MPP requires Partners to show proven experience as project managers for successful energy retrofit projects – not just auditing capabilities. Additionally, Partners must assist owners in developing a construction and financing plan. They must also assist during the bid phase and perform construction inspections to verify installation of measures as well as providing measurement and verification services one year after construction.

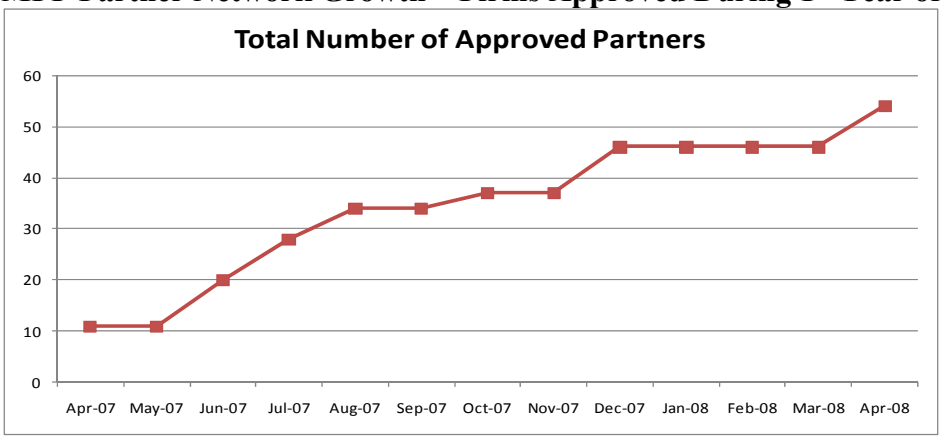
To better understand the cost of these comprehensive services, TRC and NYSERDA analyzed the cost of services under former NYSERDA programs. TRC also leveraged their experience as a national technical services firm, estimating typical Partner fees while considering a variety of factors including project size, firm size, and geographic location. The analysis helped to establish incentive #1 under the program, intended to cover a portion of Partner fees. However, it is important to note that under MPP, Partners fees are not set by the program or reviewed by TRC. Partners may charge whatever the market will bear. Conversely, owners have the ability to competitively select Partners and have the ability to negotiate price and the scope of services (beyond the minimum programmatic requirements). This open market process is critical to program success.

The design of MPP Partner requirements also considered the requirement of professional licenses and/or certifications. Many certifications exist for energy professionals including PE, LEED AP, RA, and CEM, among others. Under MPP, NYSERDA and TRC determined that these certifications are certainly valuable but not necessarily required by firms to be effective Partners. The single certification that is required of Partners is the Multifamily Building Analyst certification offered by the Building Performance Institute[3].

During program design development, the design team recognized the benefits of including "full service" Partners and the fact that these firms should not be precluded from offering additional services, including design and installation. Turn-key services are often desired by owners and additional services are a potential profit engine for many firms. Such comprehensive services are allowed by MPP but not required. As a result, ESCOs and contractors have applied and have been accepted as Partners. These firms have been critical to Program success in taking projects from "cradle to grave." Figure 2 illustrates the growth of the Partner Network over the first year of the Program.

[3] This is a certification for individuals not firms. The building energy analysis under MPP must be completed by a BPI certified auditor. This individual can be an employee of the firm or a sub-consultant.

Figure 2. MPP Partner Network Growth – Firms Approved During 1st Year of Program



Source: Beedy (2008)

Incentive Levels

NYSERDA's previous experience working in the multifamily sector helped to identify one of the main barriers to energy efficiency upgrades in multifamily buildings - cash flow. To address this in MPP, it was determined that the incentives would be front-loaded, especially for affordable projects, so that incentive money was available when most critically needed. In addition, the following evaluation criteria were used to select the best incentive design for MPP.

1. Support of program goals.
2. Simplicity of rules. Is the program easily understood by applicants / participants?
3. Simplicity of incentive schedule. Can prospective participants easily calculate their incentive before applying to the program?
4. Amount of reporting overhead required from Program Partners.
5. Amount of administrative overhead required of NYSERDA and TRC.
6. Gaming. Is the system easily "gamed" to gain unfair advantage, market power over competitors, or "double dipping" of incentives from more than one NYSERDA program?
7. Correlation to incentives paid under the previous NYSERDA multifamily programs.
8. Amount that incentives represent compared to total energy project cost.

Incentive analysis. A detailed incentive analysis was conducted to view proposed incentive levels from various perspectives, including project cost (soft and hard costs), previous NYSERDA multifamily program incentives and overall cost effectiveness. The analysis also included "what if" scenarios to determine how the total incentive should be paid out during the life of the project. The goal of this analysis was to create an incentive schedule that would motivate participants to improve their buildings while meeting certain parameters: During program design, it was clear that incentives should be in line with those offered by other NYSERDA programs; they should contribute a reasonable, but not excessive, percentage of total project costs, including Partner fees; and they should enable the Program to serve an extensive pipeline of projects (the original goal was 40,000 units/year).

The incentive analysis ultimately resulted in the current MPP incentive structure as shown in Figure 3. A brief description of Incentives 1 through 4 is included after Figure 3.

Figure 3. MPP Incentive Structure for Existing Buildings

		AFFORDABLE HOUSING*	MARKET-RATE HOUSING*
INCENTIVE #1			
Base Incentive (for small buildings up to 30		$5,000 / project	$2,500 / project
Base Incentive (for buildings from 31 to 100		$10,000 / project	$5,000 / project
Incremental Incentive		$20 / unit over 100 units	$10 / unit over 100 units
Incentive payable upon submission of a draft Proposed Energy Reduction Plan.			
INCENTIVE #2		$800 / unit	$300 / unit
Incentive payable at 50% construction completion, based upon a successful interim inspection.			
INCENTIVE #3		$400 / unit	$300 / unit
Incentive payable at substantial completion of construction, based upon a successful post-construction inspection and performance test(s) (as applicable).			
INCENTIVE #4	**Performance**		
Initial Benchmark Score	**Target**	**Per unit**	**Per unit**
<= 25 points	**20%**	$400	$200
>=26, but <= 50 points	**20%**	$375	$175
>= 51, but <=75 points	**20%**	$350	$150
> 75 points	**20%**	$325	$125
For every % exceeding the Performance		$40	$20
*Total incentives cannot exceed 100% of project cost as listed in final Energy Reduction Plan.			

Energy Reduction Plan (Incentive #1) – This incentive is intended to help buildings defray the cost of hiring a Partner. It is payable upon approval of the draft Energy Reduction Plan.

Construction Incentives (Incentives #2 and #3) – Construction incentives are payable in two installments, at 50% completion and substantial completion of the project.

Energy Performance Incentives (Incentive #4) – Energy Performance Incentives are payable only if the project achieves the 20% minimum savings improvement at twelve or eighteen months following substantial completion. Proof of energy savings are measured by a percent reduction in the project's source energy consumption as indicated in the Program's Benchmarking Tool. Additional incentives are paid if targets are exceeded.

Advanced Measure Incentives – In addition to the base set of MPP incentives, an additional schedule of incentives was developed to address advanced technologies and construction practices. The Advanced Measure Incentives are offered for the following technologies and services:

- Advanced Metering Equipment, including resident education and regulatory support
- Combined Heat & Power (CHP) Systems
- Building Operator Training & Certification
- Photovoltaic (PV) Systems (building-integrated and stand-alone)
- Owner's Manual (specific requirements per Program)

Benchmarking Tool and Savings Threshold

In order to create a performance-based Program, NYSERDA and TRC collaborated with Oak Ridge National Laboratories (ORNL) and the EPA to develop a benchmarking tool. ORNL involvement was sought by NYSERDA due to their experience with benchmarking and their

access to a large database of multifamily energy data from the U.S. Department of Housing and Urban Development (HUD). In addition, EPA offered guidance and financial support by sharing insight from the development of the Portfolio Manager benchmarking software.

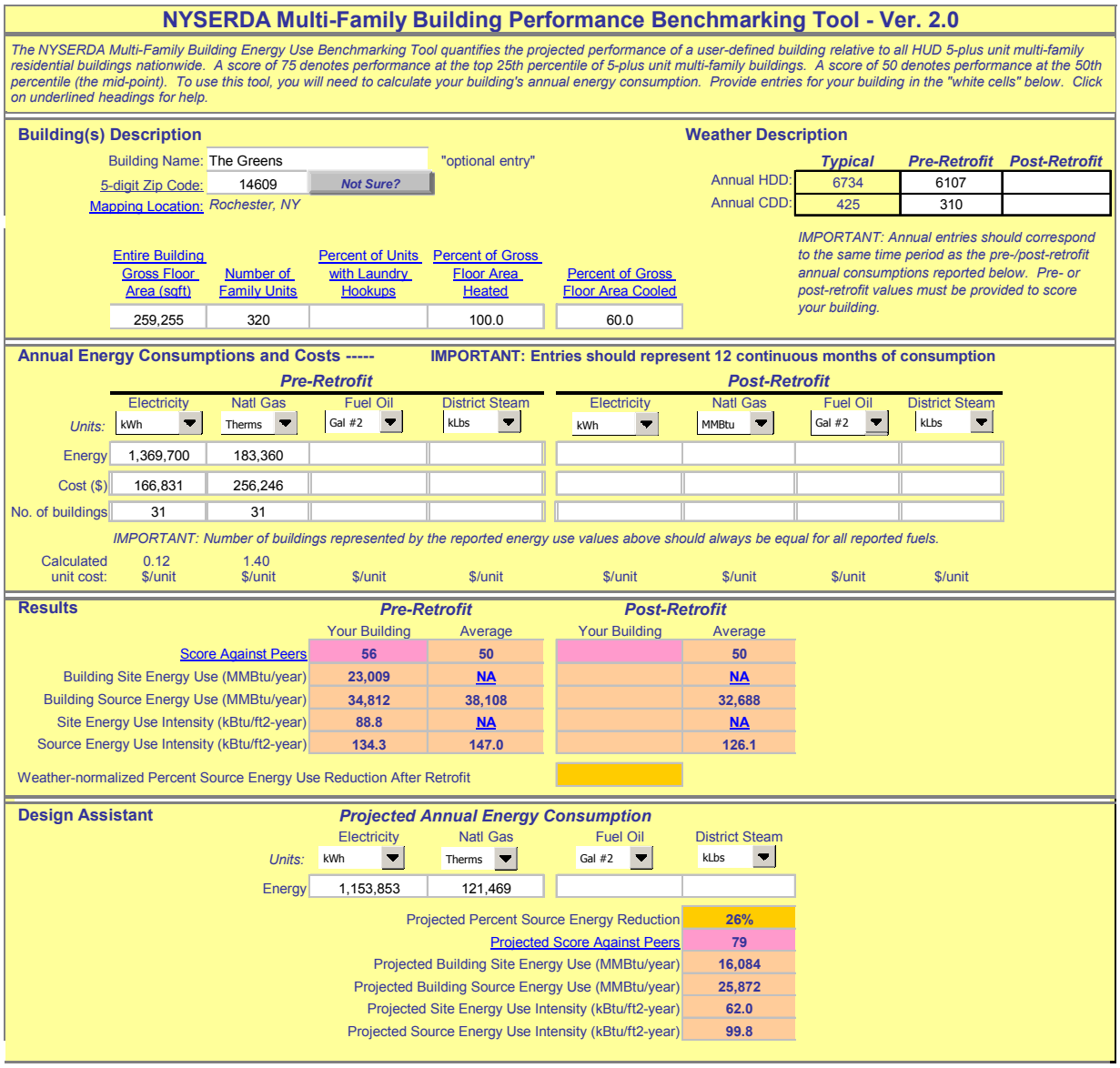
ORNL mined a database of over 500 multifamily buildings from across the U.S. to determine the key characteristics which influenced energy use. The following data were found to have a sizeable correlation to building energy use:

- Gross Floor Area
- Number of Apartment Units
- Central Laundry (Yes/No)
- Zip Code (climate)
- Number of floors
- Heated and cooled percent or heated floor area of building
- Number of resident parking spaces (parking lot lighting)
- Presence of elevator in the building
- Building typology. Is building a row- or town-house building with separate exterior entrances for each unit?
- Number of bedrooms
- Number of units served by central electric and/or gas and/or oil-fired heating plant

Using the above list of inputs as a starting point, ORNL developed a prototype benchmarking tool for use in MPP. TRC then analyzed the tool by entering data from the same sample of AMP projects that were used in the analysis of Program incentives. Through an iterative process involving input from all parties, the benchmarking tool was refined for Program launch. Version 2.0 of the Benchmarking Tool is shown in Figure 4. Only minor modifications have been made from the original Version 1.0 as released with the Program Launch.

Under MPP, each project is benchmarked by Partners. This critical 1st step provides building owners with an understanding of how their building performs (in terms of energy efficiency) to peers. After completion of the energy efficiency project, benchmarking is used to determine whether or not the project has achieved the minimum performance target of a 20% reduction in source energy use.

Figure 4. MPP Benchmarking Tool Version 2.0



NYSERDA Multi-Family Building Performance Benchmarking Tool - Ver. 2.0

The NYSERDA Multi-Family Building Energy Use Benchmarking Tool quantifies the projected performance of a user-defined building relative to all HUD 5-plus unit multi-family residential buildings nationwide. A score of 75 denotes performance at the top 25th percentile of 5-plus unit multi-family buildings. A score of 50 denotes performance at the 50th percentile (the mid-point). To use this tool, you will need to calculate your building's annual energy consumption. Provide entries for your building in the "white cells" below. Click on underlined headings for help.

Building(s) Description

Building Name: The Greens "optional entry"
5-digit Zip Code: 14609 Not Sure?
Mapping Location: Rochester, NY

Weather Description

	Typical	Pre-Retrofit	Post-Retrofit
Annual HDD:	6734	6107	
Annual CDD:	425	310	

IMPORTANT: Annual entries should correspond to the same time period as the pre-/post-retrofit annual consumptions reported below. Pre- or post-retrofit values must be provided to score your building.

Entire Building Gross Floor Area (sqft)	Number of Family Units	Percent of Units with Laundry Hookups	Percent of Gross Floor Area Heated	Percent of Gross Floor Area Cooled
259,255	320		100.0	60.0

Annual Energy Consumptions and Costs ----- IMPORTANT: Entries should represent 12 continuous months of consumption

	Pre-Retrofit				Post-Retrofit			
	Electricity	Natl Gas	Fuel Oil	District Steam	Electricity	Natl Gas	Fuel Oil	District Steam
Units:	kWh	Therms	Gal #2	kLbs	kWh	MMBtu	Gal #2	kLbs
Energy	1,369,700	183,360						
Cost ($)	166,831	256,246						
No. of buildings	31	31						
Calculated unit cost:	0.12 $/unit	1.40 $/unit	$/unit	$/unit	$/unit	$/unit	$/unit	$/unit

IMPORTANT: Number of buildings represented by the reported energy use values above should always be equal for all reported fuels.

Results

	Pre-Retrofit		Post-Retrofit	
	Your Building	Average	Your Building	Average
Score Against Peers	56	50		50
Building Site Energy Use (MMBtu/year)	23,009	NA		NA
Building Source Energy Use (MMBtu/year)	34,812	38,108		32,688
Site Energy Use Intensity (kBtu/ft2-year)	88.8	NA		NA
Source Energy Use Intensity (kBtu/ft2-year)	134.3	147.0		126.1

Weather-normalized Percent Source Energy Use Reduction After Retrofit

Design Assistant

Projected Annual Energy Consumption

	Electricity	Natl Gas	Fuel Oil	District Steam
Units:	kWh	Therms	Gal #2	kLbs
Energy	1,153,853	121,469		

Projected Percent Source Energy Reduction	26%
Projected Score Against Peers	79
Projected Building Site Energy Use (MMBtu/year)	16,084
Projected Building Source Energy Use (MMBtu/year)	25,872
Projected Site Energy Use Intensity (kBtu/ft2-year)	62.0
Projected Source Energy Use Intensity (kBtu/ft2-year)	99.8

Program Documentation

Once the core elements of the Program design were in place, the next critical step was to develop detailed Program documentation. In the interest of program management efficiency, NYSERDA and TRC set out to minimize the level of Program paperwork without sacrificing quality and comprehensiveness. The Program currently includes the following Program documents:

- Program Application
- Participation Agreement (between Owner and NYSERDA)
- Partnership Agreement (between energy consultant (Partner) and NYSERDA)
- Energy Reduction Plan Guidelines (for both new and existing buildings components)

- Energy Reduction Plan Template
- Sample Energy Reduction Plan
- Minimum Performance Standards
- System Performance Testing Protocols

Program Application – completed by building owners often with the assistance of Partners. It identifies basic information about the project and organization applying to the Program.

Participation Agreement - an agreement between the project Owner and NYSERDA. Partners assist Owners in completed this agreement. It is submitted with the Program Application.

Partnership Agreement – an agreement between NYSERDA and Program Partners. It is subject to renewal on an annual basis. It describes the role and requirements of the Program Partner.

Energy Reduction Plan Guidelines - The Energy Reduction Plan Guidelines is a comprehensive document that includes the Program rules and requirements, as well as guidance on how to develop the Energy Reduction Plan. In order to stay clear of developing new requirements for such studied areas as building science, auditing standards, and modeling techniques, the Guidelines refer to existing standards wherever possible, including BPI's Multifamily Building Analyst Standards and ASHRAE 90.1 Appendix G.

Energy Reduction Plan & Template - The Energy Reduction Plan involves the development and implementation of a comprehensive energy efficiency work scope. Building upon a traditional energy audit, the Plan also incorporates a financing plan and a preliminary implementation schedule. These post-audit components are important to help ensure that the project moves through to construction. The Template streamlines the Partner's development of the Plan and includes guidance on the Program rules to insure development of a compliant document.

Minimum Performance Standards - The Minimum Performance Standards establish criteria for systems and equipment being recommended for installation. The Standards are also intended:

- to ensure that buildings are built to the requirements of specific, applicable codes.
- to provide a reference for Partners to describe to owners what will be required to participate in the Program.
- to promote the installation of ENERGY STAR products where available.

System Performance Testing Protocols - The System Performance Testing Protocols are inspection and verification protocols that are required to be performed on all energy reduction measures included in the Energy Reduction Plan. The results of these protocols are used to confirm that the measures were installed as described in the Plan. Each protocol includes information on testing procedures, performance specification criteria to include in bidding documentation, basic steps and documentation required, when the protocol must be performed, who must perform the protocol, and sampling method.

New Construction Component

The technical protocols of the New Construction component were taken directly from EMP. EMP was designed as part of a national pilot program that is in the process of developing an ENERGY STAR label for residential high-rise buildings (defined as having four or more above-grade floors and five or more units). The national pilot, introduced in 2004, is being run by EPA, and is being implemented in three states: New York, Wisconsin, and Oregon. NYSERDA's participation in the pilot has resulted in the first two ENERGY STAR labeled high-rise multifamily buildings in the world – one in the Bronx and the other in Brooklyn. Both buildings are affordable housing developments.

Though much of the technical design of the New Construction component was determined prior to the development of MPP, the incentive structure had not been established. TRC used the same methods as described for the Existing Building component to create the incentive schedule shown in Figure 5. A brief synopsis of each milestone of this schedule follows.

Figure 5. MPP Incentive Structure for New Construction

	AFFORDABLE HOUSING	MARKET-RATE HOUSING
PAYMENT #1	$30,000	$20,000
Payable upon receipt of the signed contract between the Developer and the Partner and receipt of a draft proposed Energy Reduction Plan and evidence that the developer has paid at least 75% of the design team's fees.		
PAYMENT #2	$1.50/ghsf*	$1.00/ghsf*
Payable upon approval of the proposed Energy Reduction Plan that indicates achievement of a performance target of at least 20% by the proposed design.		
PAYMENT #3	**For final Performance Targets within the following ranges:**	
	20-22%... $0.25/ghsf* minus 10% retainage	
	23-25%... $0.35/ghsf* minus 10% retainage	
	26% and up… $0.50/ghsf* minus 10% retainage	
Payable upon approval of the final Energy Reduction Plan confirming a performance target of at least 20%.		
PAYMENT #4	10% retainage held from Payment #3	
Payable upon receipt of the Fuel Release Forms as detailed in the Participation Agreement.		

75% Design Completion (Incentive #1) – This incentive is intended to help developers defray the cost of hiring a Partner. It is payable upon approval of a draft version of the Energy Reduction Plan based on the building design at approximately 75% complete.

Design Completion (Incentives #2) – This incentive is intended to be used by the buildings to offset the incremental hard costs of energy reduction measures listed in the Plan.

Energy Performance Incentives (Incentive #3) – This incentive, which also includes receipt of the ENERGY STAR label, is intended to motivate the developer to build the project as designed. The As-Built Energy Reduction Plan required for this incentive is based on the as-built building, incorporating any design changes that may have occurred during construction.

Fuel Release Forms (Incentive #4) – This incentive, which is a 10% retainage of Incentive #3, is held until the building provides NYSERDA with Fuel Release Forms for the common areas and a sample of the apartments. The Fuel Release Forms allow NYSERDA and

TRC to access the utility bills of this building, allowing for future analysis of building performance.

Advanced Measures Incentive – In addition to the base set of New Construction incentives, the same schedule of Advanced Measure Incentives previously described applies to New Construction projects.

Green affordable housing. In addition to the base set of New Construction incentives and advanced measures described previously, there are additional funds, provided to NYSERDA through the New York State Office of the Attorney General, available to affordable housing developments looking to "go green." The Green Affordable Housing Component requires buildings in the Multifamily Performance Program to achieve both the ENERGY STAR label for residential high-rise buildings and to pursue LEED® certification at the Silver level. The funding available is shown in Figure 6.

Figure 6. MPP Incentive Structure for Green Affordable Housing

	AFFORDABLE BUILDINGS
PAYMENT #1	No additional incentive.
The registration of the project with the US Green Building Council.	
PAYMENT #2	$0.35/ghsf* and $275 / unit
The results of the LEED-H provider's Preliminary Rating indicating the project's anticipated achievement LEED Silver Certification or better.	
PAYMENT #3	**For attaining the final LEED Certification levels as follows**
	LEED Silver Certification = $0.10/ghsf*
	LEED Gold Certification = $0.25/ghsf*
	LEED Platinum Certification = $0.50/ghsf*
LEED-H Provider's confirmation of completion and submission of all required documentation.	
PAYMENT #4	10% retainage held from payment #3
LEED Certification.	

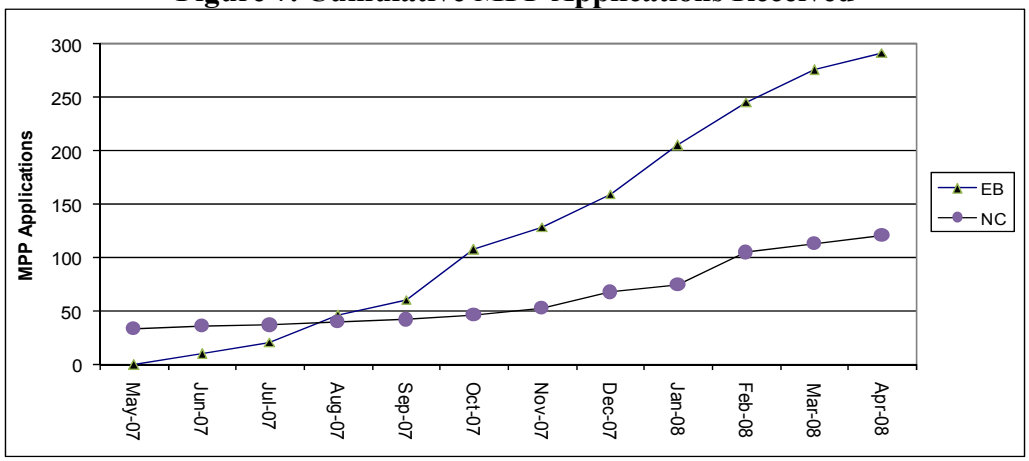
Level of Program Activity – May 2008

MPP has been very successful in its first year of operation with nearly 400 applications received for both components combined. In addition, as of May 2008, five Existing Buildings are substantially complete and seven are at 50% completion.

Another Program development was the launch of the Low Rise New Construction Pilot in January 2008. This pilot focuses on determining the most appropriate approach for modeling and testing low rise multifamily buildings, defined as new buildings which are three stories or less with at least five apartment units. Furthermore, the Pilot will assist in determining the appropriate incentive schedule for new low rise buildings. As of May 2008, the Low Rise Pilot has received twenty-eight applications.

Figure 7 illustrates the cumulative applications received over the first year for both components.

Figure 7. Cumulative MPP Applications Received



Source: Allen (2008)

Conclusions

Successful market-based energy efficiency programs must not only recognize market forces – they must fully leverage them. Effective programs must be simple and streamlined – yet innovative and comprehensive. Incentives must be easily understood and designed to reward real energy savings. To achieve these goals, program designers must first understand the diversity of drivers in marketplace; including reduced risk, environmental stewardship, reduced cost, improved comfort as well as the strong profit motive for market actors. Program designers must identify market barriers including lack of awareness amongst decision makers, lack of funding, lack of technical service providers, lack of qualified contractors, among others. Simply stated, effective programs must understand the market they seek to transform. Programs that offer intrinsic value identify and address unmet market needs – this includes the needs of not only building owners and occupants but also the needs of entrepreneurial market actors.

Program design requires diverse skills. Interdisciplinary program design teams are highly recommended as they increase the likelihood for success as individual team members add unique abilities and approach problems from diverse perspectives. Under MPP, the NYSERDA-TRC team includes engineers, architects, economists, environmental scientists, business administrators, as well as marketing and IT specialists. It is without question that this diversity has been pivotal to its success.

Another key recommendation for program designers is to leverage existing resources whenever possible. Program designers should strive for innovation while avoiding efforts to "reinvent the wheel". This includes the emulation of best practices, existing national standards such as those established by ASHRAE or LEED, and leveraging of existing technical services providers. States with little or no history of efficiency programs may consider the lack of technical service providers to be one of their state's greatest impediments to successful programs. However, by emulating program designs from other states and incorporating national standards, firms in neighboring states (and beyond) are much more likely to establish a presence in your local market. Programs that are a known entity are perceived as lower risk. Local firms, including design and construction firms seeking diversification in a slowing economy are also likely to enter the marketplace. It is critical for program designers to recognize the key role that

efficiency programs play in the creation of "green collar" jobs. Under MPP, national firms as well as firms from neighboring states have entered the New York marketplace as MPP Partners.

Finally, emulating best practice programs does not eliminate the requirement for creativity and innovation. Foremost, market transformation programs are experiments. Programs must be adapted to localized market forces and changing market conditions. They are above all experiments to be considered "a work in progress."

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