Efficiency as Our First Fuel: Strategic Investments in Massachusetts' Energy Future

The 2010 Report of the Massachusetts Energy Efficiency Advisory Council

Prepared for the Massachusetts General Court,
the Joint Committee on Telecommunications, Utilities and Energy,
and the Department of Public Utilities
June 2011

This page is intentionally blank

June 2011

A MESSAGE FROM THE CHAIR

When the Massachusetts Legislature passed and Governor Patrick signed the Green Communities Act of 2008, our public leaders set us on course toward making home grown energy efficiency the "First Fuel" to meet our energy needs. The resulting Statewide Three-Year Energy Efficiency Plans (2010–2012) were designed to deliver energy savings, cut the state's dependence on imported fuel, create local jobs, reduce pollution that threatens our health and causes climate change, and make buildings more comfortable for homeowners, renters, business owners, the state, cities, and towns.

The plans set nation-leading three-year targets for electricity and natural gas savings, through a significant ramp up of energy efficiency programs. Once implemented, program services and incentives are projected to generate $6 billion in benefits over the lifetime of the energy efficiency improvements installed in homes and businesses, from planned spending of $2.1 billion. The plans are also expected to create or retain nearly 4,000 jobs in Massachusetts.

In the first year of implementing the plans, the state's investor-owned gas and electric utilities and energy efficiency providers achieved 98 percent of electric and 103 percent of natural gas savings goals, while spending 10 percent less than budgeted, during a year of difficult economic conditions. The hard work associated with these achievements saved Massachusetts enough energy to power 85,000 households and heat 14,000 households annually. The greenhouse gas emission reductions are equal to the annual output of over 74,000 cars.

In this Legislative Report, you will find details on participants, electric and gas savings, and greenhouse gas emission reductions delivered in 2010. You will also find customers' stories that make the services and incentives come alive, outlining a picture of who is being served, what is being offered, what improvements are being made, and what was achieved in 2010.

The Energy Efficiency Advisory Council, created to represent the broad range of stakeholders in Massachusetts, has guided the development and monitored the implementation of Massachusetts' leading efforts to increase energy efficiency. It has been our honor to serve the Patrick-Murray Administration and the Massachusetts Legislature, and to work closely with the companies, organizations, and individuals delivering "negawatts"—power that's not used—to the state's residents, businesses, and institutions.

We look forward to continuing the collaborative process begun in 2009, contributing to the unparalleled savings laid out in the three-year energy efficiency plans, and achieving the important goals of the Massachusetts Clean Energy and Climate Plan for 2020.

Mark Sylvia
Commissioner, Massachusetts Department of Energy Resources
Chair, Massachusetts Energy Efficiency Advisory Council

EXECUTIVE SUMMARY
2010 EEAC REPORT TO THE MASSACHUSETTS LEGISLATURE

Energy Efficiency Advisory Council

The Massachusetts Energy Efficiency Advisory Council (EEAC) was created by the Green Communities Act of 2008 ("Act")[1]. Eleven voting members represent a variety of energy efficiency stakeholders. Eleven non-voting members include representatives from the investor-owned electric and gas utilities and energy efficiency service providers, known as Program Administrators (PAs), and other stake-holder groups. The EEAC is chaired by the Massachusetts Department of Energy Resources (DOER). Its primary role is to achieve and fulfill the efficiency requirements, goals, and obligations of the Act. This includes guiding the development of comprehensive, statewide three-year and annual plans and programs for acquiring all cost-effective energy efficiency, and monitoring the implementation.

The EEAC is responsible for guiding the PAs in carrying out the requirements of the Act; the PAs are responsible for delivering the programs and taking the actions that result in measurable, verifiable energy savings. As regulated utilities, the PAs must also receive approval from the Department of Public Utilities (DPU) for their efficiency program spending and related issues of cost recovery.

Three-Year Plan Goals

The PAs' current three-year plan represents one of the most ambitious energy efficiency efforts anywhere in the United States. By the end of 2012, the three-year plan is projected to produce the following results:

- **$6 billion in total lifetime benefits to the citizens and businesses of Massachusetts** ($3.8 billion in net benefits are expected to be generated, after a projected $2.1 billion in total spending by programs and participants).
- **Electric savings of over 2600 GWh over three years**, with 2012 savings representing 2.4 percent of annual retail energy sales. Lifetime electric savings from the three-year plan are projected to exceed 30,000 GWh[2].
- **Natural gas savings of nearly 60 million therms over three years**, with 2012 savings representing 1.15 percent of annual retail gas sales. Lifetime gas savings from the three-year plan are projected to reach nearly 900 million therms.
- **Greenhouse gas reductions of nearly 1.6 million metric tons over three years**, which is approximately 1.7 percent of the statewide GHG emission inventory and almost 7 percent of the Global Warming Solutions Act goal. Lifetime greenhouse gas reductions from the three-year plan are nearly 20 million metric tons.

Three-Year Plan Goals	2010	2011	2012	Total
Total Benefits (million $)	1,409	2,022	2,536	5,967
Annual Electric Savings (GWh)	625	907	1,104	2,636
Annual Gas Savings (million therms)	14	18	26	58
Annual GHG Reductions (metric tons)	376,000	538,000	677,000	1,591,000
'Annual' refers to the savings resulting from installed efficiency measures operating for one year. Because most measures operate for several years, savings from each year's program activity accumulate, and may be summed.				

[1] An Act Relative to Green Communities, Chapter 169 of the Acts of 2008.

[2] Lifetime savings refer to the sum total of savings over the entire life of the efficiency measures. For example, a CFL that saves 50 kWh per year and lasts 5 years will have lifetime savings of 250 kWh.

Highlights for 2010

In 2010, the PAs achieved nearly all goals and targets across the portfolio—and exceeded some—despite a difficult economic climate, as shown in the table below.

Table 1: 2010 Progress on Goals for All Programs

	Annual	% of goal	Lifetime	% of goal
Electricity Savings (GWh)	610	98%	7,191	97%
Gas Savings (million therms)	14	103%	221	97%
Participants[3]	1,098,149	156%	N/A	N/A
Total Benefits (million $)	N/A	N/A	1,365	97%
Program Spending (million $)	301	87%	N/A	N/A
GHG Reductions (metric tons)	370,000	99%	5,250,000	N/A
NOx reductions (metric tons)	472	98%	5,565	N/A
SO2 reductions (metric tons)	172	98%	2,023	N/A

[3] Participation numbers are substantially higher than goal due to differences in defining and counting customer participation from retail lighting sales.

These 2010 savings can be put in context this way:

- Electric savings equivalent to the annual usage of almost 85,000 households
- Natural gas savings equivalent to the annual usage of nearly 14,000 households
- Annual greenhouse gas emissions reductions equivalent to eliminating over 74,000 cars

Highlights of the year's activity, intended to achieve more savings from each customer ("deeper savings") include the following:

- Successfully integrated the delivery of program offerings and services across multiple fuels and utility service territories, to make it convenient for customers to save energy and money on all energy bills at the same time
- Established a single statewide energy efficiency brand, Mass Save®, with a website, educational material, and events, to improve education, outreach, and marketing to customers and trade professionals across market sectors and program administrators
- Began pilots to test the capability of changing behavior to impact energy use and to test partnerships with community-based organizations as a method for delivering energy savings benefits to communities with historically low participation, while supporting job training and creation
- Redesigned the Home Energy Services Program to provide new opportunities for multiple types of residential contractors, allowing them to bring customers into the Program and creating a more open market for comprehensive services
- Effectively engaged with several large institutional customers who signed long-term commitments to multi-stage, facility-wide energy efficiency investments
- Worked with the Massachusetts Bankers Association to develop readily available and accessible sources of capital for project financing
- Designed a new Low-Income Multifamily Program to deliver efficiency services to public and non-profit housing complexes

Mass Save®: Excitement, Access, and Consistency Drive Program Participation

To achieve the aggressive goals called for by the Green Communities Act, a new approach was needed to reach natural gas and electric customers, to educate them about the benefits of energy efficiency and drive them to take action and implement energy improvements. The Program Administrators, in consultation with Massachusetts DOER, established a single statewide energy efficiency brand called Mass Save. For the first time, marketing to residential and business customers across the state and across fuels is based on comprehensive market research, with consistent, clear messaging, brand identification, and collateral—all providing a single first call to action, visit MassSave.com.

In 2010, the marketing campaign featured a promotional partnership with the Boston Red Sox, building excitement through Red Sox Radio with Joe Castiglione and Dave O'Brien and capitalizing on Wally the Green Monster's popularity at events. "Mass Savers" were created through online contests, events, and prizes. Mass Save also welcomed visitors to the 2010 HGTV Green Home Giveaway, in Plymouth.

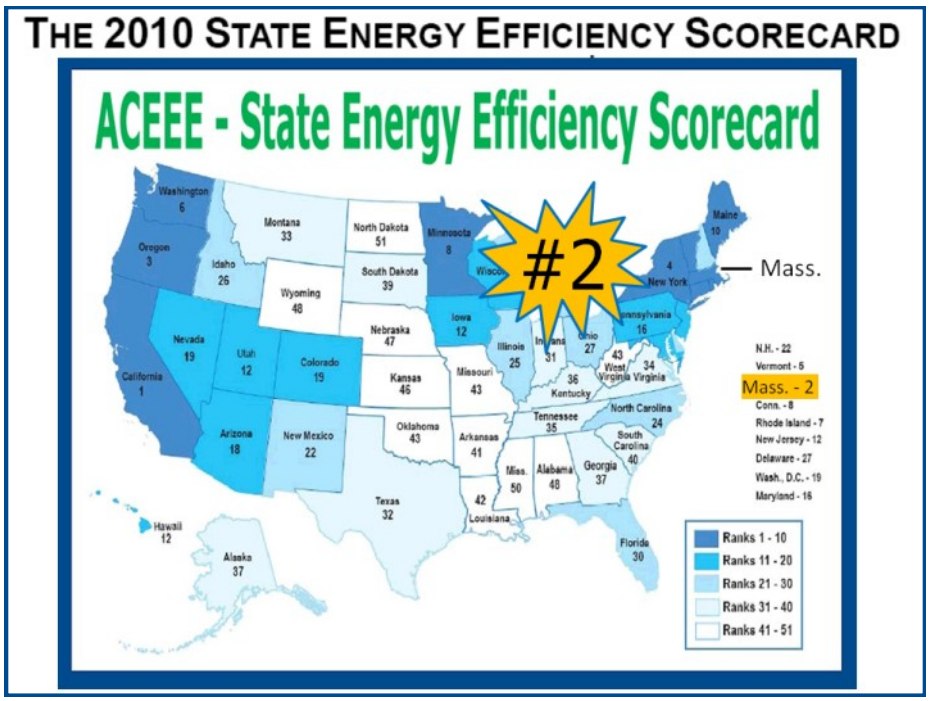
The first investment in a statewide education, outreach and marketing campaign was rewarded when the Mass Save program was selected to receive the 2011 Association of Energy Services Professionals Award for Outstanding Achievement in Marketing & Communications.

Looking Forward

One of the EEAC's most important roles is to work with the PAs and other stakeholders to chart a course for Massachusetts' energy efficiency efforts that responds to changing economic, technological, and regulatory conditions. The EEAC is pursuing several enhancements and refinements for 2011 and beyond to continue meeting the aggressive goals of the Act:

- Ensure quality services, technical assistance, and effective financial incentives that encourage and support businesses and residential customers to take action to reduce their energy bills
- Create deeper energy savings opportunities by motivating businesses and residential customers to take comprehensive action on energy efficiency through a variety of mechanisms including, energy benchmarking, multi-year commitments, and community-wide campaigns and competitions
- Continue to build awareness and engage more customers, including commercial sectors with historically low participation
- Enhance commercial investments in energy efficiency by expanding finance offers

2010 EEAC REPORT TO THE MASSACHUSETTS LEGISLATURE



History

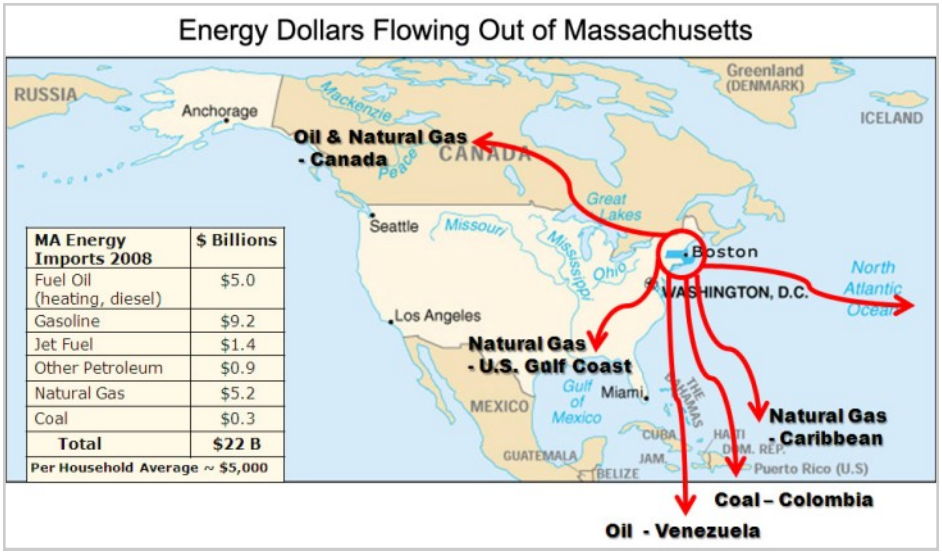
The current framework for energy efficiency delivery in Massachusetts stands on the foundation of 20 years of delivering well established, highly regarded energy efficiency programs, and is the result of several years of effort by the Commonwealth's gas and electric distribution companies and municipal aggregators ("Program Administrators" or "PAs"), the Department of Public Utilities (DPU), the Department of Energy Resources (DOER), and many interested stakeholders in the public, private, and non-profit sectors.

Three laws have guided the continued evolution of efficiency programs in Massachusetts.

- Designed to promote enhanced energy efficiency throughout the Commonwealth, An Act Relative to Green Communities, Chapter 169 of the Acts of 2008 ("Green Communities Act" or the "Act") was signed into law on July 2, 2008. It requires the PAs to develop energy efficiency plans that will "provide for the acquisition of all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply." In connection with these energy efficiency plans, the Act established the EEAC to oversee and advise the PAs on all aspects of efficiency planning and program execution.
- The Global Warming Solutions Act ("GWSA") was also enacted in 2008. The GWSA mandates the gradual reduction of greenhouse gas emissions in the Commonwealth, establishing a schedule of emissions goals designed to spur innovation and promote research and development in the area of clean energy. In compliance with the GWSA, the Commonwealth in December 2010 set a 2020 greenhouse gas reduction target of 25 percent below 1990 levels, and released the Clean Energy and Climate Plan outlining a portfolio of policies and programs for meeting the goal.
- The Green Jobs Act of 2008 provides a robust funding source for the green technology industry, facilitating economic development and job growth in the clean energy sector.

These legislative efforts were driven by a number of factors, including concerns over Massachusetts' high energy costs, vulnerability to volatility in these markets, and opportunities to develop a robust clean energy economy. Massachusetts is at the end of the energy pipeline, figuratively and literally; all of our fossil-based energy sources—motor fuels, heating oil, natural gas, and coal—are derived from other regions of the country or other parts of the world. Of the approximately $22 billion spent

on energy in Massachusetts annually, nearly $18 billion—80 percent—leaves the Commonwealth[4].



In addition to this economic drain, energy consumers have experienced both dramatic price swings and long-term energy price increases over the last decade. By investing in reducing our energy consumption, Massachusetts can keep energy dollars in the Commonwealth and lessen the impact of external price shocks on our citizens, thus sustaining more jobs and businesses.

The three-year statewide efficiency plans, covering the period from January 1, 2010 to December 31, 2012, were approved by the DPU on January 28, 2010. This report presents a summary of program activities and highlights from the first year programs delivered pursuant to the Act and subsequent DPU orders.

Funding Sources

The electric energy efficiency programs are funded by a variety of sources, the largest of which are a historical Systems Benefit Charge (SBC)[5] and the Energy Efficiency Reconciliation Factor (EERF), created by the Green Communities Act:

- The legislatively mandated SBC of 2.5 mills (0.25 cents) per kilowatt hour for all electric consumers, except those served by a municipal lighting plant (represents 27 percent of funding for 2010–2012)
- The EERF, which recovers additional program costs from electric customers in proportion to the costs of programs directed at their sector (i.e., residential, commercial & industrial), with low-income programs receiving subsidies from other sectors (46 percent of funding for 2010–2012)
- Proceeds from the Regional Greenhouse Gas Initiative (RGGI) auctions (11 percent)
- Forward Capacity Market (FCM) payments from ISO-NE (3 percent)
- In addition, the PAs are charged with exploring alternative funding sources

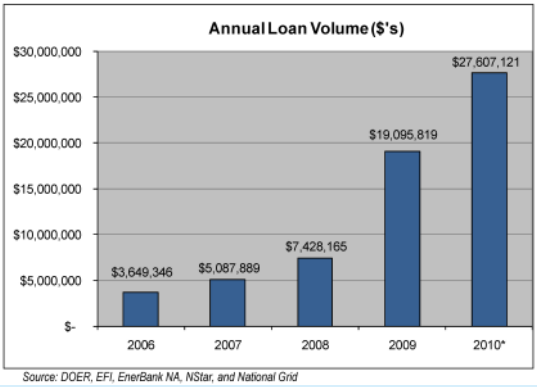
The natural gas efficiency programs are funded by natural gas ratepayers through an energy efficiency surcharge on customer bills. Gas PAs have a similar responsibility to explore additional funding opportunities.

[4] "State Energy Data 2008: Prices and Expenditures," U.S. Energy Information Administration. Table 1. Energy Price and Expenditure Estimates by Source, Selected Years, 1970-2008, Massachusetts.

[5] Under 1997 electricity restructuring law, a "systems benefit charge" was added to electricity bills to fund industrial, commercial, residential, and low-income efficiency programs.

Overcoming Barriers to Efficiency: Financing and the Mass Save® HEAT Loan

Despite the substantial benefits of pursuing energy efficiency in homes—including increased comfort and savings, and lower vulnerability to price changes—many homeowners face a barrier, coming up with the funds to invest in their homes. That's where the interest free Mass Save Residential HEAT Loan Program comes in; it makes energy efficiency improvements, such as insulation, high efficiency boilers and hot water heaters, more accessible and affordable. The HEAT loan can supplement the variety of monetary incentives offered by the Massachusetts Program Administrators.



Mass Save Residential HEAT Loan Program lenders issued the largest total dollar amount for energy efficiency loans in the country in 2010, over $27.5 million in energy efficiency loans, up 45 percent from 2009, according to a DOER report. Last year, 3,416 residential customers took out HEAT loans to pay for efficiency measures, up 40 percent from 2009.

Participating lenders have financed over $62.5 million in personal unsecured energy efficiency loans and served over 8,000 households since the program was established in 2006. Average loan sizes have risen steadily over time, reaching $8,080 in 2010, up from $6,860 in 2006. The program is on track to exceed $85 million in cumulative lending by calendar year end 2011.

In 2011, the offerings will expand, offering HEAT Loans for as low as $250 and as high as $25,000, with terms up to seven years. Also being introduced in 2011 is a new interest-free Mass Save Financing Program for businesses, including non-profits and multi-family complexes with five or more units, offering up to $100,000 with terms up to seven years.

These designated funds were not the only energy efficiency dollars at work in the state economy in 2010. Grants to cities and towns from DOER's Green Communities Division Grant Program—funded by RGGI auction proceeds, job training funds from the Massachusetts Clean Energy Center (MassCEC), and the robust clean energy investments from the American Recovery and Reinvestment Act (ARRA) all amplified the work of the three-year plan. All of these funding streams have leveraged each other to deliver greater customer benefits than any would produce on their own.

Ensuring Real Savings: Evaluation, Measurement and Verification

Evaluation, Measurement, and Verification (EM&V) refers to the systematic collection and analysis of information to document the impacts of energy efficiency programs and improve the effectiveness of these programs. EM&V is critical for ensuring both that customers are getting what they have paid for, and that the objectives of the enabling legislation are being met.

The EEAC recognized the critical importance of properly tracking actual savings from the program investments. As a result, the three-year plans established a new framework, under which EM&V studies are performed at the statewide level. While individual PAs administer the studies, decision-making responsibility rests with the EEAC. This framework began operating in mid-2010, with the recruitment of teams of evaluation contractors to cover each of six statewide research areas. Massachusetts' EM&V program has since grown to become one of the largest and most robust in the country, funded by 4 percent of the three-year plan budget. Forty-five studies are to be completed by Spring 2011.

Residential Programs: Portfolio Description

In this first year of the new energy efficiency plans, the PAs built on well established, highly regarded residential programs and offered new services and incentives, enhanced customer education and outreach, and expanded the ability of homeowners and renters to work with independent contractors. The portfolio of residential programs continued to expand the breadth and depth of customer savings by taking a comprehensive approach to program delivery, capturing as much savings as possible from each customer through a single customer engagement process.

Home energy assessments by energy specialists are the starting point for a whole-house approach to savings; rebates and incentives for heating and cooling, lighting and appliances, and improvements to building envelopes flow from the assessment. The programs also offer strategies for improving local building codes and incentives for upstream stakeholders (retailers and manufacturers, contractors, design professionals, etc.) to offer information and services related to energy saving technologies to residential customers. This has all had the effect of increasing the availability and visibility of high efficiency technologies in the residential customer marketplace and raising awareness of the benefits of those technologies.

2010 Residential Highlights

- Mass Save Home Energy Services now integrates natural gas and electric improvements and includes air sealing at no cost.
- The redesigned Home Energy Services Program provides new opportunities for multiple types of residential contractors, allowing them to bring customers into the Program and creating a more open market for comprehensive services.
- Behavioral pilots were launched, including services from OPower, Grounded Power/Tendril, and SmartPower/Efficiency 2.0.
- Innovative community mobilization pilots (CMIs) tested outreach and job creation in communities with historically low participation.
- ENERGY STAR® Lighting Program engages hard-to-reach customers and LED bulb promotions proved to be successful Program additions, while refrigerator rebates and recycling yielded the largest success in the ENERGY STAR Appliance Program.
- New Construction and Major Renovation PAs worked with DOER to train 540 builders, code officials, town administrators and residents on the new Stretch Energy Code, in support of cities and towns' efforts to be designated Green Communities.
- The Massachusetts New Homes with ENERGY STAR Program won its second EPA Sustained Excellence Award for its leadership and achievements through superior energy efficiency, the fourth EPA honor in four years.

Table 2: Residential Portfolio Results, 2010

2010	Program Spending (million $)	Participants	Annual GWh	Lifetime GWh	Annual Therms (million)	Lifetime Therms (million)	Annual GHG (metric tons)	Lifetime GHG (metric tons)
Actual	$114	1,063,000[6]	182	1,587	7.2	100.7	127,089	1,358,593
Goal	$126	663,000	152	1,172	6.5	110.4	108,263	N/A

[6] Participation numbers are substantially higher than goal due to differences in defining and counting customer participation from retail lighting sales.

Pilot: Deep Energy Retrofit in Belchertown
Partner: National Grid

In Belchertown, a comprehensive renovation of an 18th century Cape yielded a 55 percent reduction in energy use and an estimated $2,800 in annual savings. One of the successes of National Grid's Deep Energy Retrofit Pilot, this project demonstrates an important element of the three year plans; testing the most effective ways to capture "deeper" savings in existing homes.

While the owners and builder had already planned a comprehensive renovation, financial and technical support from National Grid and Building Science Corporation, respectively, allowed this project to achieve a super insulated enclosure (~R-35 walls, R-50+ roof, R-20+ foundation), extensive water management improvements, high efficiency heating and water heater, and state-of-the-art ventilation. Air leakage testing found the enclosure and the new duct system to be extraordinarily air tight. The owners, who reported living next to the wood stove in the winter prior to the renovation, have been thrilled with the transformation of their home.

Pilot: Community Mobilization Initiative
Partners: NSTAR & National Grid

As part of an innovative approach designed to deliver efficiency services to communities with historically low participation, local utilities NSTAR and National Grid partnered with a multi-stakeholder group called the Green Justice Coalition to reach and mobilize local residents in ethnically diverse communities.

In the City of Chelsea, the utilities engaged the Chelsea Collaborative (CC), a local community-based organization and member of the Green Justice Coalition, to reach out to homeowners and tenants who live in one- to four-family and multi-family buildings. This Community Mobilization Initiative (CMI) had two goals: to test implementation of community-based outreach and to provide training and create good paying, green jobs for local residents. Additional partners, Insul-Pro, Inc. and the New England Carpenter's Union, committed to training and hiring locally. In 2010, this effort led to the training of 12 local residents, some of whom have been hired to work on the pilot.

Alejandrina Rodriquez, *"The importance of this project is that it gave us access to information in our own language and access to a benefit that we are entitled to."*

The Collaborative hit the ground running, spreading the word bi-lingually and publicizing the program at community meetings, open houses, and local holiday celebrations. Collaborative members used local access television to record two bi-lingual programs, sent out targeted mailings to hundreds of Chelsea residents, and emails to their own members. The group worked closely with City of Chelsea administrators, who supported the effort with email, program announcements in monthly water bills, and information on the programs to multi-family property owners specifically designed to meet their needs. As a result of these efforts, over 30 home energy assessments were scheduled within a four-week period. The first recipients of efficiency services through this new approach were Alejandrina Rodriquez and her family. For them, this project promises a newly insulated home and lower energy bills for years to come.

Similar pilots are being conducted in Boston's Chinatown and in the cities of Lynn and Springfield in 2011. NSTAR has also conducted a CMI pilot in the City of New Bedford.

Low-Income Programs: Portfolio Description

The low-income programs serve homeowners and renters of single and multi-family homes whose incomes qualify them for comprehensive improvements that are made at no cost to the individual, and for the quality control that follows. This approach makes it easier to capture all available savings through a single customer engagement. The program providers target opportunities in new construction, existing single family buildings, and existing multi-family buildings. The new construction program offers builders two levels of incentives to construct homes up to 45 percent more efficient than code and achieve the ENERGY STAR qualified savings levels. The goal for the program is to build more homes to higher efficiency levels while increasing the number of participating builders each year. The existing buildings programs work to disseminate information on energy saving behaviors to low-income customers and landlords. They also install weatherization, lighting, and heating and cooling improvements and appliances in low-income residences at no cost. This approach is intended to minimize the reluctance landlords may feel about making efficiency investments in their properties when the tenants, not the landlords, reap the benefits of lower utility bills. The administration of the "direct install" component of the program is coordinated with the state Department of Housing and Community Development (DHCD).

2010 Low-Income Highlights

- New low-income multifamily program was designed to deliver efficiency services to public and non-profit housing complexes
- Federal Recovery Act dollars were leveraged to stretch state program dollars further, expanding the overall number of customers served
- An aggressive intake process in the fourth quarter laid the groundwork for a productive 2011.

Table 3: Low-Income Portfolio Results, 2010

2010	Program Spending (million $)	Participants	Annual GWh	Lifetime GWh	Annual Therms (million)	Lifetime Therms (million)	Annual GHG (metric tons)	Lifetime GHG (metric tons)
Actual	$36	24,000	17	235	0.6	11.9	11,185	240,777
Goal	$49	29,000	23	308	0.9	18.9	16,171	N/A

Low-Income Renovation: Dedham Housing Authority in Dedham
Partners: NSTAR & DHCD

IThe Massachusetts Department of Housing and Community Development's (DHCD) Low-Income Multi-Family Retrofit Program provides cost-effective residential energy efficiency improvements to non-profit owners of low-income housing and public housing authorities. In the spirit of the Green Communities Act, this program aggressively addresses all opportunities for energy efficiency by seeking all energy savings opportunities ("deeper savings") in each building targeted for treatment. The program provides owners with an online energy benchmarking tool, comprehensive energy assessment, direct installation of efficiency upgrades and quality control at no cost. In some cases, the program provides efficiency upgrades while other capital improvements are underway, allowing owners to leverage funds and maximize benefit to their tenants. Eligible projects receive efficiency upgrades such as space heating and hot water improvements, air sealing and insulation for the building envelope, and lighting and appliance replacements. By coordinating these upgrades, the program delivers heating energy and electric efficiency services in one stop.

Dedham Housing Authority's Parker Staples 26-unit apartment complex took advantage of this new program to make cost-saving efficiency upgrades in each unit. After conducting a comprehensive building assessment, program contractors and NSTAR coordinated the installation of air sealing, attic insulation, basement sill insulation, ventilation improvements, and energy efficient light fixtures and bulbs. Parker Staples was able to take advantage of financial incentives valued at $82,000 and technical assistance through NSTAR. At the same time, DHCD replaced aging heating systems in each of the 26 units, utilizing over $132,000 from the American Recovery and Reinvestment Act and US Department of Energy. The combined investment is projected to reduce heating energy by 30 percent, save 45,000 kWh annually, and save as much as $500 annually for each unit. Since tenants pay for their own utilities at this site, they will receive the immediate economic benefit of lower utility bills.

Small Commercial & Industrial Programs: Portfolio Description

The Small Business Services Program targets small and medium commercial and industrial customers, providing turn-key energy efficiency solutions to businesses with little or no access to internal technical or financial resources. The Program primarily employs direct install contractors who are responsible for outreach, audits, and installation. Equipment vendors and trade allies are also engaged to inform customers of program services. Customers can select from a list of pre-determined improvements that cover several typical efficiency opportunities. In an effort to increase the depth of appeal for the Program, additional upgrades may also be installed through a 'custom' approach.

2010 Small Commercial & Industrial Highlights

- A successful 'Mainstreets' pilot targeted small businesses in approximately five small business districts. Through door-to-door contact and, in some instances, same-day installation, implementation contractors were able to increase participation levels in the smallest category of business customers, such as barbershops and local retailers.
- Natural gas and electric program offerings have been successfully integrated, leading to comprehensive energy efficiency solutions for smaller businesses.

Table 4: Small C & I Portfolio Results, 2010								
2010	**Program Spending (million $)**	**Participants**	**Annual GWh**	**Lifetime GWh**	**Annual Therms (million)**	**Lifetime Therms (million)**	**Annual GHG (metric tons)**	**Lifetime GHG (metric tons)**
Actual	$34	5,000	71	864	0.1	0.6	34,979	422,717
Goal	$32	4,000	62	771	0.2	1.5	31,290	N/A

Combined Heat & Power in Small Business: YMCA in Lawrence
Partner: Columbia Gas of Massachusetts

The Merrimack Valley YMCA in Lawrence partnered with Columbia Gas of Massachusetts in 2010 to rebuild and upgrade an older combined heat and power system (CHP) into a high efficiency unit capable of using excess heat to provide useful service to other applications in the building. The innovative design now takes the highest temperature water to heat the single occupancy rooms in the building, then uses the same water, now slightly cooler, to heat domestic hot water units. Finally, this water is used to heat the swimming pool to approximately 83 degrees, saving over 30,000 therms annually. The total cost of the project was approximately $267,143, but with the $100,000 incentive from Columbia Gas and the estimated annual savings of $42,500, the project will pay for itself in just over four years. These savings will enable the YMCA to offer more financial aid for kids, family programs, camps and teen mentoring.

Given the creative design approach and significant savings of the project, the Merrimack Valley YMCA was selected and recognized as a MassSavers award recipient in 2010.

Equipment Upgrades & Technical Assistance: Atlantic Lighting in Fall River
Partner: New England Gas

Fall River has consistently had one of the highest unemployment rates in the Commonwealth, and local officials are working diligently to create "green jobs" in the community. One of the core goals of New England Gas Company and the Green Communities Act is to foster local economic benefits through implementation of energy efficiency.

Atlantic Lighting is a Fall River manufacturer of energy efficient LED lighting fixtures. New England Gas worked with the company to install a high efficiency catalytic curing oven, and a high efficiency washer and dry-off oven that improves the production process and helps Atlantic Lighting save energy at the same time. New England Gas provided a $23,400 rebate and estimates energy savings for these projects will be approximately 23,400 therms per year. Annual savings are estimated to be $32,526 per year.

This work with Atlantic Lighting has led to energy savings, increased operating efficiencies, job creation and preservation, and continued production of energy efficient technology. Atlantic Lighting President Gabe Estrela says, "I am delighted to have been able to participate in this program with New England Gas Company, which will help Atlantic Lighting reduce costs and remain competitive in the LED lighting fixtures industry."

This project has the potential to be a model for other employers/industries in the region and shows that investing in energy efficiency is good for business.

Large Commercial & Industrial Programs: Portfolio Description

The Large Commercial and Industrial (C&I) program portfolio consists of two programs—New Construction and Large C&I Retrofit. The New Construction Program strives to capture efficiency opportunities at the time of building design, encouraging best practices in new construction and major renovation projects. In addition, it serves existing buildings at the time of investment in new or replacement equipment or systems that use energy. The Program offers financial incentives (rebates and financing), technical and commissioning services, and a comprehensive set of standard improvements representing high efficiency cost-effective technologies that have not yet become common practice. Customized measures, specific to a customer's needs, are also promoted. In addition, the Program continually adjusts efficiency criteria as codes and standards advance.

The Large C&I Retrofit Program focuses on opportunities to reduce energy consumption from working, but outdated and energy inefficient equipment and systems. Larger customers benefit from the "Whole Building Assessment" (WBA) approach which helps them attain maximum savings through a comprehensive technical review of the entire facility, integrated and optimized action plan to address identified opportunities and overcome institutional barriers, and technical and financial assistance required to see the entire action plan completed. Also, certain customers, such as large industries, hospitals, and others with high year-round thermal use are eligible for combined heat and power (CHP) installations that efficiently produce both electricity and thermal energy for industrial process or other uses. Like the New Construction Program, the Retrofit Program provides an array of financial, technical, and project management services to overcome barriers to customer adoption of high efficiency equipment and systems, and offers both standardized and customized approaches.

2010 Large C & I Highlights

- Successfully engaged with several large institutional customers who signed long-term commitments to multi-stage, facility-wide energy efficiency investments
- Worked with the Massachusetts Bankers Association to develop readily available and accessible sources of lending capital

Table 5: Large C & I Portfolio Results, 2010

2010	Program Spending (million $)	Participants	Annual GWh	Lifetime GWh	Annual Therms (million)	Lifetime Therms (million)	Annual GHG (metric tons)	Lifetime GHG (metric tons)
Actual	$111	6,000	337	4,475	6.0	97.5	195,923	2,692,338
Goal	$130	7,000	381	5,086	6.0	97.0	217,008	N/A

Net Zero Goals: Cape Air in Hyannis
Partner: Cape Light Compact

Cape Air is one of the largest independent regional airlines, flying over 610,000 passengers to destinations across the country. When the company, now in its 21st year, made a commitment to make its operations center in Hyannis a net-zero electricity importer and to reduce electricity usage by 25 percent, it formed a productive relationship with its Mass Save Program Administrator, the Cape Light Compact (CLC). To meet Cape Air's ambitious goals, the CLC conducted a comprehensive energy assessment of Cape Air's operations building and recommended a host of cost-effective energy efficiency and weatherization improvements.

Based on these recommendations, Cape Air installed highly efficient and state-of-the-art lighting upgrades, such as lighting relay panels, occupancy sensors, photocells, and override switches to provide area control to lighting in the hangar restrooms, storage rooms and offices, as well as other areas of the facility. Together, these measures are expected to reduce Cape Air's electricity consumption by more than 60,000 kWh annually. To reduce natural gas consumption and achieve 3,592 annual therm savings, Cape Air added insulation to its facility and sealed air leaks. For implementing these robust upgrades, Cape Air received incentives valued at $35,515 from the Cape Light Compact, and will benefit from over $9,000 in annual energy savings.

The company realized a 25 percent reduction in electricity use at its operations center and is on its way to reducing heating and cooling use by 25 percent. Future plans involve upgrades to the building, including a high efficiency HVAC system, new windows, doors and additional insulation. For these efforts, Cape Air was recognized as a Mass Saver in 2010.

Corporate Sustainability: ALADCO Linen Services in Adams
Partner: Berkshire Gas

ALADCO Linen Services of Adams provides linen services such as table and kitchen linens, bed linens, uniforms, entrance mats and dust control to a variety of hospitality, institutional, and academic customers throughout New England, New York, and the Route 91 corridor. ALADCO is committed to being the linen rental industry leader in the sustainability movement and is the first hospitality linen rental facility in the nation to commit to driving operations in a sustainable manner.

ALADCO participated in Berkshire Gas' Commercial & Industrial Energy Audit Program and worked with the company to create a long-term plan to increase its energy efficiency. The first step was to gut and retrofit a 19th century building, and invest in a new Pulse-Flow continuous batch washing system that replaced eight regular industrial washer/extractors. ALADCO currently processes 600,000 pounds in linen products per month. The old process used 2.5 gallons of water per pound compared to 0.4 gallons today, 1,250,000 gallons of water saved each month. In addition to the reduction in water usage, there was a significant reduction in natural gas and electricity required to heat 84 percent less water than the old system.

Berkshire Gas provided technical assistance and a $50,000 incentive. Projected savings from this project are over 81,000 therms annually and nearly 1.7 million therms over the life of the equipment. These annual savings equate to the amount of natural gas needed to heat approximately 70 homes per year. The project also is estimated to save over 171,000 kWh per year, representing $17,100 savings per year.

"We are very happy with the new equipment and its performance so far; we continue to tweak the system to improve our water and gas usage," David Desmarais of ALADCO.

Municipal Programs: Portfolio Description

The Municipal sector is addressed as part of the Large C&I Retrofit Program through targeted initiatives designed to address communities' unique set of barriers. Municipalities are often capital and staff-constrained, and their procurement process is complex and lengthy. The Green Communities Act streamlines the contracting process by allowing municipalities to sole-source efficiency projects to a Program Administrator (PA) or the delivery contractor. By providing upfront, competitive bidding, the PA can provide turnkey solutions to municipalities. Coupled with flexible financing options, including on-bill financing, this Program addresses many of the barriers faced by municipalities. The PAs use direct, targeted outreach to ensure that municipalities are aware of all the services and customized assistance available to them, which helps leverage municipal budgets to enable deeper savings in participating facilities.

2010 Municipal Highlights

- Integrated Program Administrator programs with DOER's Energy Audit Program and provided assessments to more than 100 municipalities
- Developed a roadmap for future collaboration with DOER's Green Communities Division to promote and implement energy efficiency measures in municipalities and other governmental entities
- Targeted drinking water and wastewater treatment plants, the second largest municipal energy use category (after schools), by collaborating with MassDEP, DOER, and EPA to provide efficiency services

Table 6: Small Municipal Portfolio Results, 2010[7]

2010	Program Spending (million $)	Participants	Annual GWh	Lifetime GWh	Annual Therms (million)	Lifetime Therms (million)	Annual GHG (metric tons)	Lifetime GHG (metric tons)
Actual	$2	142	2	31	N/A	N/A	1,144	15,224
Goal	$3	187	7	85	N/A	N/A	3,177	N/A

[7] Therm savings from gas programs are not reported separately, but are included with the Large C&I Program. Results in this table are from electric programs only.

Serving Cities and Towns: Town of Andover
Partner: National Grid

Andover has a strong tradition of investing in education, library and community services, environmental conservation and energy efficiency. Andover rededicated itself to saving energy after Hurricane Katrina caused spikes in utility and fuel prices. It made town employees the center of municipal efforts, adopting the slogan, "Every dollar of energy saved is a piece of someone's salary." It also met five benchmarks to become one of the state's first Green Communities in 2010 and spent its $160,000 grant on lighting retrofits.

Andover has worked very closely with National Grid, using technical assistance and financial incentives for a variety of energy saving initiatives, including participation in National Grid's Whole Building Assessment, installation of high efficiency lighting systems in the Town Office and School Administration buildings, implementation of a "dark schools" program, operation of a town-wide program to address building envelope heat loss, conversion of all school buildings to dual fuel boilers, and a town/school-wide energy management system to control, monitor and troubleshoot HVAC equipment. Altogether, Andover's energy efficiency efforts are saving the Town $750,000 a year. For its commitment, results, and thorough approach, Andover was recognized as a Mass Savers award recipient in 2010.

Energy Efficiency in Massachusetts: An Economic Engine

Energy efficiency has emerged as a key policy solution to address high energy costs and the threat of climate change. As investments in energy efficiency programs increase, there is a need to understand economic effects on individual program participants and on the economy as a whole. In 2009, Environment Northeast (ENE) conducted a study to quantify the macroeconomic impacts of increased energy efficiency investments in New England, where efficiency assumed a leading role in energy policy. The macroeconomic benefits of efficiency derive from changes in the economy that occur as a result of increased spending on efficiency measures and decreased spending on energy.

The results for Massachusetts are promising. Based on ENE's modeling results, the annual 2010 efficiency program budgets in Massachusetts—$266 million invested for electric and $71.5 million for natural gas programs—are estimated to deliver substantial macroeconomic benefits over the lifetime of these measures. ENE estimates that the 2010 savings will contribute $2.237 billion ($1.7B electric; $537M gas) to Massachusetts' gross state product (GSP), the majority of which are due to energy savings. These savings on customer bills can be used in other parts of the state economy. As homeowners and businesses spend less on energy costs, they spend those dollars on other costs of living, such as health care, housing, and education; more of those dollars tend to remain in the state's economy than does spending on fuels and electricity. According to ENE's analysis, efficiency investments also contribute to another benefit—an estimated 14,172 job years (11,438 electric and 3,364 natural gas)[8]. Lower energy bills reduce the costs of doing business in the region, bolstering the global competitiveness of local employers and promoting additional growth. The following table shows the estimated economic benefits resulting from 2010 energy efficiency program investments.

Table 7: Summary of 2010 Massachusetts Economic Impacts [9]

	Electricity	Natural Gas
Total Efficiency Program Costs	$266 million	$71 million
Increase in Gross State Product (GSP)	$1.7 billion	$537 million
Percent of GSP Increase Resulting from Efficiency	13%	11%
Percent of GSP Increase Resulting from Energy Savings	87%	89%
Dollars of GSP Increase per $1 of Program Spending	6.4	7.5
Increase in Employment (Job Years)	11,000	3,000
Percent of Employment Increase from Efficiency	17%	15%
Percent of Employment Increase from Energy Savings	83%	85%
Job Years per $Million of Program Spending	43	47

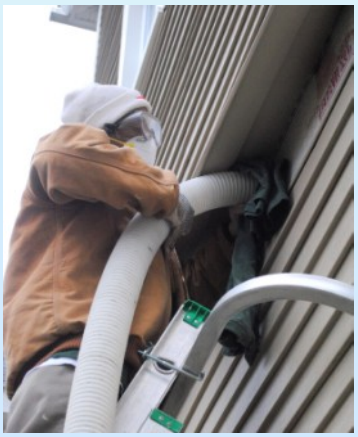
[9] Source: Environment Northeast analysis based on its report, Energy Efficiency: Engine of Economic Growth (2009)

[8] The figures are stated as "job years," which is the equivalent of one full-time job for one year. This allows fractions of jobs and jobs with varying durations to be accurately represented. A portion of the employment stimulus is created when efficiency measures are being implemented, but the majority occurs during the lifetime of the efficiency measures due to consumer savings on energy costs.

Jobs & Job Benefits: PACE, Inc. YouthBuild's Urban Energy Solutions in New Bedford

YouthBuild New Bedford, an affiliate of the 20-year-old YouthBuild USA, works with young people from low-income communities to obtain their high school diploma or equivalency and acquire skills in building affordable housing. For the past four years, PACE YouthBuild New Bedford has been interested in energy conservation and the environment. At the same time, the organization has been looking to develop a small business that would result in an income stream to support its programs. Ultimately the goal is to provide employment opportunities for New Bedford youth. When Massachusetts' expanded energy efficiency programs and the EEAC-sponsored Community Mobilization Initiative (CMI) pilot programs emerged, the timing was perfect to catalyze the founding of YouthBuild New Bedford's new company, Urban Energy Solutions. YouthBuild New Bedford, in partnership with the city of New Bedford, received over $300,000 in grants from the U.S. Conference of Mayors to support the launch of its energy efficiency and weatherization trainings, and materials needed to start the company.

> *"This opportunity has changed my life . . . I am looking forward to being the best Dad for my first-born child, supporting her with my weekly salary from this job. The referral to Urban Energy Solutions saved and changed my life."*
> Drew Pimentel of New Bedford (not pictured)



The staff of the small but motivated company became participating Mass Save contractors in the fall of 2010 and the company was selected as the lead contractor for the New Bedford CMI pilot project. Through Urban Energy Solutions, YouthBuild New Bedford has trained and employed five local residents to install efficiency improvements as part of the CMI residential efficiency pilot. Company leaders are eager to expand their business beyond the pilot to serve any New Bedford resident participating in the Mass Save program. Chief Operating Officer Gloria Williams says the efficiency work is a perfect match for the skills that YouthBuild New Bedford provides to its young participants. Ms Williams says they are acting on the inspiring words by former Obama Special Advisor on Green Jobs, Van Jones, "doing the work that needs doing by the people who need to do it most."

Accessing Green Jobs

As part of the statewide three-year plan process, PAs and a multi-stakeholder group called the Green Justice Coalition have been working to ensure that local residents receive energy retrofit training and the opportunity to access good jobs paying living wages. In this spirit, the Community Mobilization Initiatives—innovative outreach pilots in ethnically-diverse communities—include a jobs component. The Green Justice Coalition has also worked with larger Home Performance Contractors, such as Next Step Living, and with individual PAs to recommend language on responsible contracting standards. Some of this language, which further strengthens PA contracts with lead vendors and subcontractors, has been included in 2011 Lead Vendor contracts. These efforts are part of the overall process to ensure that participants receive the highest quality service from the efficiency programs.

Looking Forward

Looking ahead to 2011, Massachusetts will continue to lead the way in energy efficiency by pulling out all the stops to cut energy waste and save money in buildings across the Commonwealth. The programs will ramp up to meet energy savings goals in 2011 that are more than 40 percent higher than the 2010 goals, continuing the strong commitment to cost-effective energy efficiency. Achieving these higher goals will provide unparalleled energy savings and lower utility bills for residential and business customers throughout Massachusetts. The increasing investment in energy efficiency will also create local jobs and improve local economies, cut our dependence on imported fossil fuels, improve the quality of the air we breathe, and reduce pollution that causes climate change.

The 2011 energy efficiency programs will achieve the higher energy savings goals and secure the benefits of energy efficiency by increasing efforts to:

- Ensure quality services, technical assistance, and effective financial incentives that encourage and support businesses and residential customers to take action to reduce their energy bills
- Create deeper energy savings opportunities by motivating businesses and residential customers to take comprehensive action on energy efficiency through a variety of mechanisms, including energy benchmarking, multi-year commitments, and community-wide campaigns and competitions
- Continue to build awareness and engage more customers, including commercial sectors with historically low participation
- Enhance commercial investments in energy efficiency by expanding finance offers

Accomplishing the higher energy savings goals in 2011 will also keep the Commonwealth on the path to achieve the energy, economic, and environmental goals embodied in the Massachusetts Clean Energy and Climate Plan for 2020, adopted in December 2010. The energy savings delivered through the energy efficiency programs are the strongest single contributor to the benefits described in the Clean Energy and Climate Plan.

Resources

2010 Budget Summaries

Demand-Side Management Programs	2010 Actual Electric	2010 Plan Electric	2010 Actual Natural Gas	Plan Natural Gas
RESIDENTIAL				
ENERGY STAR Lighting	$ 12,674,083	$ 15,588,250	$	$
ENERGY STAR Appliances	5,526,694	5,021,440	-	-
Residential Cooling & Heating Equipment	4,964,629	4,556,276	14,860,103	14,235,230
Subtotal - Consumer Products	**$ 23,165,406**	**$ 25,165,965**	**$ 14,860,103**	**$ 14,235,230**
Residential New Construction & Major Renovation	$ 4,095,191	$ 3,545,841	$ 3,485,033	$ 5,020,220
Multi-Family Retrofit	9,772,744	11,272,561	1,643,915	2,558,585
MassSAVE	33,250,784	36,771,114	3,340,420	3,708,961
O Power	1,370,244	1,166,038	1,092,593	934,180
Heat Loan Program	6,246,095	5,962,221	-	-
Weatherization Program	-	-	10,630,720	12,922,138
Deep Energy Retrofit	413,814	1,546,322	386,930	1,237,802
Subtotal - Residential	**$ 55,148,872**	**$ 60,264,096**	**$ 20,579,611**	**$ 26,381,887**
LOW INCOME				
Low-Income Residential New Construction	$ 905,803	$ 1,067,377	$ 9,032,621	$ 11,599,195
Low-Income 1 to 4 Family Retrofit	15,128,047	18,215,364	-	-
Low-Income MultiFamily Retrofit	8,819,460	14,073,720	2,304,640	3,925,380
Subtotal - Low Income	**$ 24,853,310**	**$ 33,356,461**	**$ 11,337,260**	**$ 15,524,575**
COMMERCIAL & INDUSTRIAL				
C&I New Construction and Major Renovation	$ 29,650,693	$ 36,036,063	$ 5,723,823	$ 7,265,520
C&I Large Retrofit	68,174,133	75,934,670	7,661,700	10,381,315
C&I Small Retrofit	34,555,378	33,591,497	185,399	423,298
Subtotal - Commercial & Industrial	**$ 132,380,203**	**$ 145,562,231**	**$ 13,570,921**	**$ 18,070,133**
OTHER - PILOT PROGRAMS				
Power Monitor Pilot	$ 76,690	$ 233,333	$	$
Residential New Construction & Major Renovation - Major Renovation statewide pilot	89,975	631,666	-	-
Residential New Construction Multi Family (4-8 story) statewide pilot	239,602	539,589	-	-
Residential New Construction Lighting Design statewide pilot	20,773	57,522	-	-
Residential New Construction V3 Energy Star Homes statewide pilot	11,023	51,481	-	-
Heat Pump Water Heater Pilot	38,328	44,551	-	-
Hot Roofs	4,887	3,000	-	-
Home Automation	9,000	-	-	-
Community based Pilot	242,656	775,350	78,350	145,130
Subtotal - Pilot Programs	**$ 732,935**	**$ 2,336,492**	**$ 78,350**	**$ 145,130**
OTHER - EDUCATION AND OUTREACH				
Residential Education Program	$ 1,095,351	$ 1,538,794	$ 84,631	$ 196,420
Workforce Development	250,759	293,000	86,814	234,761
Energy Analysis: Internet Audit Program	-	-	145,776	229,797
Business Energy Analyzer	-	-	111,552	234,495
Statewide Marketing & Education	1,565,314	1,937,597	547,658	624,050
Subtotal - Education and Outreach	**$ 2,911,424**	**$ 3,769,391**	**$ 976,431**	**$ 1,519,523**
TOTAL ALL PROGRAMS	**$239,192,149**	**$270,454,635**	**$61,402,677**	**$75,876,478**

Glossary

Term	Description
Cost-Effective	In general terms this is a measure of whether an investment's benefits exceed its costs. When applying this term to investments in energy efficiency, it is important to consider the following parameters: • The stakeholder perspective of the test, whether program participant, utility, ratepayer, or society in general. • The key elements included in the costs and benefits, including avoided energy use, incentives, avoided need for new generation sources and new transmission and distribution, and avoided environmental impacts. • The baseline against which the costs and benefits are measured; what costs and benefits would have been realized without investment in energy efficiency?
Lifetime Savings	Lifetime savings refer to the sum total of savings over the entire life of an efficiency measure. For example, a CFL that saves 50 kWh per year and lasts 5 years will have lifetime savings of 250 kWh.
Lost Opportunity	Refers to a measure being installed at the time of planned investment in new equipment or systems. Often this reflects new construction, renovation, remodeling, planned expansion or replacement, or replacement on failure.
Measure	A product (piece of equipment), combination of products, or process designed to provide energy and/or demand savings. Measure can also refer to a service or a practice that provides savings. It can also refer to a specific combination of technology and market/customer/practice/strategy (e.g., direct install low-income CFL).
Measure Life	The number of years that an efficiency measure is expected to garner savings. These are generally based on engineering lives, but sometimes adjusted based on observations of market conditions.
Participant	A customer who installs a measure through regular program channels and receives any benefit (i.e. incentive) that is available through the program because of their participation.
Prescriptive Measure	A prescriptive measure is generally offered by use of a prescriptive form with a prescribed incentive based on the parameters of the efficient equipment or practice.
Program Administrator (PA)	Those entities that oversee public benefit funds in the implementation of energy efficiency programs. This generally includes regulated utilities, other organizations chosen to implement such programs, and state energy offices. The Massachusetts electric PAs include Cape Light Compact, National Grid, NSTAR, Western Massachusetts Electric Company (WMECO), and Unitil. The Massachusetts natural gas PAs include Berkshire Gas, Blackstone Gas Company, Columbia Gas of Massachusetts, National Grid, New England Gas Company, NSTAR, and Unitil.
Retrofit	The replacement of a piece of equipment or device before the end of its useful or planned life for the purpose of achieving energy savings. Retrofit measures are sometimes referred to as "early retirement" when the removal of the old equipment is aggressively pursued. May also refer to improvements made to an existing building's shell, such as insulation and air sealing.
Sector	A system for grouping customers with similar characteristics. For the purpose of this manual, the sectors are Commercial and Industrial (C&I), Small Business, Municipal, Residential, and Low-income.
Watt	A unit of electrical power. Equal to 1/1000 of a kilowatt.

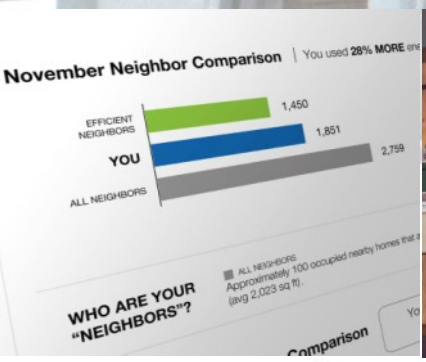
Massachusetts Energy Efficiency Advisory Council 2010

VOTING MEMBERS		
Representing	**Appointment**	**Organization**
Residential Consumers	**Penn Loh**	Tufts University
Low-Income Weatherization & Fuel Assistance Network	**Elliot Jacobson**	Low-Income Energy Affordability Network
Environmental Community	**Jeremy McDiarmid**	Environment Northeast
Businesses (including large C&I end users)	**Rick Mattila**	Genzyme
Manufacturing Industry	**Robert Rio**	Associated Industries of Massachusetts
Energy Efficiency Experts	**Heather Clark**	Winn Development
Organized Labor	**Charlie Harak**	Local 369 of the Utility Workers Union of America
Environmental Protection	**Lucy Edmondson** **James Colman**	Department of Environmental Protection (MassDEP)
Attorney General	**Martha Coakley**	The Office of the Attorney General
Housing & Economic Development	**Debra Hall**	Dept. of Housing and Community Development (DHCD)
Energy Resources	**Phil Giudice** **Frank Gorke**	Department of Energy Resources (DOER)

NON-VOTING MEMBERS		
Representing	**Appointment**	**Organization**
Energy Efficiency Businesses	**Paul Gromer**	Peregrine Energy
Heating Oil Industry	**Alisha Frazee**	
Municipal Aggregators	**John Ghiloni**	Town of Marlborough
Cape Light Compact	**Kevin Galligan**	
NSTAR	**Penelope Conner**	
National Grid	**Ed White**	
Western Mass Electric	**Richard Oswald**	
Unitil	**George Gantz**	
Bay State Gas	**Derek Buchler**	
Blackstone Gas	**Andrew Newman**	
Berkshire Gas	**Michael Sommer**	
New England Gas Company	**James Carey**	

Acknowledgements

The Energy Efficiency Advisory Council wishes to thank the extraordinary leadership of the General Court, Governor Deval Patrick, the Secretary of Energy and Environmental Affairs, and the Commissioner of the Department of Energy Resources. We would also like to acknowledge the Program Administrators, the Council consultants, the many organizations supporting implementation of the three-year plan, and a special thanks to those who wrote and edited this 2010 Energy Efficiency Advisory Council Report: Susan Kaplan (DOER), Danah Tench (ENE), Jane Pfister (EEA), and Jeff Loiter (Optimal).



Massachusetts Department of Energy Resources
100 Cambridge Street
Boston, MA 02114

www.mass.gov/doer
617.626.7300