2010 – 2012

Massachusetts

Joint Statewide Three-Year

Electric Energy Efficiency Plan

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Western Massachusetts Electric

The Northeast Utilities System

October 27, 2009

STATEWIDE THREE-YEAR ELECTRIC ENERGY EFFICIENCY PLAN

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I. EXECUTIVE SUMMARY

A. The Green Communities Act

An Act Relative to Green Communities, Chapter 169 of the Acts of 2008 ("Green Communities Act" or "Act")[1] was signed into law on July 2, 2008. A bold piece of legislation designed to promote enhanced energy efficiency throughout the Commonwealth, the Green Communities Act requires gas and electric distribution companies and municipal aggregators (together "Program Administrators" or "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." G.L. c. 25, § 21(b)(1). In connection with these energy efficiency plans, the Green Communities Act established a new advisory body, the Energy Efficiency Advisory Council (the "Council"), consisting of eleven voting members of diverse backgrounds and expertise, a non-voting member from the heating oil industry, a non-voting member from the energy efficiency business, and a non-voting member from each Program Administrator. Pursuant to the Act, the electric and gas Program Administrators, respectively, are required to provide a statewide electric efficiency investment plan and a statewide natural gas efficiency investment plan (each, a "Plan") on or before April 30, 2009. *Id.* The Act further specifies the contents of those plans, which are to be prepared by the Program Administrators in coordination with the Council. *Id.*,§ 21(b)(1)-(2). In meeting that statutory deadline, the Massachusetts electric Program Administrators worked collaboratively to prepare a Plan that represented the collective efforts and objectives of the Program Administrators. On April 30, 2009, the electric Program Administrators, by unanimous consent, submitted a Plan for the Council's review and approval.

[1] A Glossary of defined terms is included as Appendix A.

Since April, the Program Administrators have been engaged in a collaborative process with the Council and its Consultants ("Consultants"), as well as other interested stakeholders, to further develop and refine the statewide plans. In accordance with the Act, the Program Administrators are required to file their respective PA-specific three-year plans, "together with the Council's approval or comments and a statement of any unresolved issues, to the Department . . . on or before October 31." G.L. c. 25, § 21(d). In preparing this Plan, the electric Program Administrators worked with the Council, the Consultants, and interested stakeholders, with the collective intent of delivering a plan that satisfies fully the mandates of the Green Communities Act.[2]

Although this Plan responds to the directives of the Green Communities Act, the Program Administrators are also cognizant of the role that the statewide electric and gas efficiency investment plans occupy in the Commonwealth's broader, historically ambitious energy and environmental statutory scheme. With a series of bold legislative enactments, the Commonwealth of Massachusetts has signaled its commitment to ensuring that the Commonwealth is a worldwide leader in developing the green economy. On August 13, 2008, shortly after the enactment of the Green Communities Act, Governor Deval Patrick signed the Global Warming Solutions Act ("GWSA") and the Green Jobs Act. The GWSA mandates the gradual reduction of greenhouse gas emissions ("GHG") in the Commonwealth, establishing a schedule of emissions goals designed to spur innovation and promote research and development in the area of clean energy. Enacted concurrently, the Green Jobs Act provides a robust funding source for the green technology industry, facilitating economic development and job growth in the clean energy sector. Taken together, these legislative enactments reflect the

[2] Concurrently today, the Massachusetts gas Program Administrators are also submitting an updated statewide natural gas energy efficiency plan.

Commonwealth's commitment to climate protection and its leadership in promoting clean and renewable energy. The Program Administrators welcome the opportunity to design and implement innovative energy efficiency programs that not only advance the objectives of the Green Communities Act, but also promote the parallel goals of decreasing GHGs and promoting job creation in the clean energy sector.

B. D.P.U. 08-50-A

Although the Program Administrators have a well-established and very successful history in developing and implementing energy efficiency programs that are nationally recognized, the Department of Public Utilities (the "Department") recognized that the passage of the Act expanded existing energy efficiency requirements and, in particular, the standards imposed upon electric and gas distribution companies and other Program Administrators. Responding to these new directives, the Department opened an investigation in 2008 into its then-existing Energy Efficiency Guidelines in an effort to clarify those guidelines in light of the Act and to provide more detailed guidance to the Program Administrators in preparing the three-year, statewide plans required pursuant to the Act. During the Department's investigation, it solicited comments from the Program Administrators, governmental bodies, and other interested stakeholders. The resulting Order, Investigation by the Department of Public Utilities on its own Motion into Updating its Energy Efficiency Guidelines Consistent with An Act Relative to Green Communities, D.P.U. 08-50-A (March 16, 2009) ("D.P.U. 08-50-A"), was a comprehensive clarification of the criteria to be applied in demonstrating cost-effectiveness and the process by which three-year energy efficiency plans should be prepared and reviewed.

The Program Administrators have benefited from the guidance of the Department, not only in its Order in D.P.U. 08-50-A, but also by means of the numerous and very productive D.P.U. 08-50 Working Group sessions convened by the Department and moderated by the Department and the Department of Energy Resources (the "DOER"). The format of today's filing, including the organization of the Plan, all statistical tables, and the bill impact review model, reflect the productive and collaborative process that occurred in the context of the D.P.U. 08-50 Working Group.

C. D.P.U. 08-50-B

Building upon the working group sessions and reports, Department supplemented its 08-50-A Order through the issuance of its Order, Investigation by the Department of Public Utilities on its own Motion into Updating its Energy Efficiency Guidelines Consistent with An Act Relative to Green Communities, D.P.U. 08-50-B (September 26, 2009) ("D.P.U. 08-50-B"). The 08-50-B Order includes further directives clarifying how the electric Program Administrators are to conduct and present their bill impact analysis and evaluation, monitoring and verification measures. The Program Administrators have reviewed the 08-50-B Order and are attempting to ensure that the PA-specific plans to be filed on October 30, 2009 comply with its directives.

D. The Council Process to Date

The Program Administrators are non-voting members of the Council and have participated collaboratively in the Council meetings that have occurred since its inception. The Program Administrators have benefited greatly from the thoughtful input provided by the Council and its Consultants, including the detailed guidance set forth in the Council's March 24, 2009 *Resolution Concerning Its Priorities to Guide the Development, Implementation and Evaluation of the PA Efficiency Plans* (the "Priorities Resolution"). Indeed, the Priorities

Resolution is frequently referenced within this Plan. Additionally, the Program Administrators appreciate the degree to which the Council has worked collaboratively with the Program Administrators to ensure that the Plan complies fully with each of the specific mandates of the Green Communities Act.

Incorporating comments provided by the Council and its Consultants, as well as responding to comments from interested stakeholders, the Program Administrators filed a revised statewide plan for Council review on July 16, 2009. By a resolution approved on July 28, 2009, the Council recognized the progress made by the Program Administrators in developing energy efficiency plans that would meet the mandates of the Green Communities Act. The resolution ("July 28th Resolution") lauded the "unprecedented collaboration among program administrators and acknowledged that the July plans represented a "significant improvement over the April 30 plans," addressing and responding to many Council comments and questions. The July 28th Resolution noted, however, that work remained to improve and further develop certain aspects of the plans in anticipation of the filing of the final statewide plans.

Today's filing, which updates and enhances the filings made on April 30 and July 16, 2009, responds to the comments and contributions of the Council, the Consultants, the various working groups, and other interested parties, and is being submitted as part of the iterative process contemplated by the Green Communities Act. Specifically, the Act provides that following the submission of the April 30 plan, the Program Administrators will:

> provide any additional information requested by the Council that is relevant to the consideration of the [P]lan. The Council shall review the [P]lan and any additional information and shall submit its approval or comments to the electric and natural gas distribution companies and municipal aggregators not later than 3 months after submission of the [P]lan. The electric and natural gas distribution

> companies and municipal aggregators may make any changes or revisions to reflect the input of the Council.

G.L. c. 25, § 21(c). Consistent with this statutory framework, the electric Program Administrators have participated in an extensive and rigorous series of meetings and discussions with the Council and its Consultants since the April 30 filing. In addition to bi-weekly Council meetings and at least weekly conferences with the Consultants, the Program Administrators have benefited from the work and thoughtful input of a number of specialized working groups. Notably, the D.P.U. 08-50 Working Group sessions have afforded an extremely productive opportunity for the Program Administrators to collaborate with the Department, the DOER, Council Members and members of the public in evaluating and addressing the bill impacts of the energy efficiency programs proposed by the Program Administrators. A variety of additional working groups have been created, allowing the Program Administrators to focus intensive attention on specific issues of concern, such as Combined Heat and Power ("CHP") and multi-family issues. The Program Administrators have been especially cognizant of the concerns articulated by the Council in its July 28th Resolution—as well as concerns raised by interested stakeholders through the public comment process—and the Program Administrators believe that today's filing incorporates those concerns and more comprehensively addresses the goals and statutory prescriptions of the Green Communities Act. The Program Administrators thank the Council members, the Consultants, and other interested parties for their extensive efforts to date, and believe that the Plan has benefited, and will continue to benefit, from this collaborative and iterative process contemplated by the Act.

E. Next Steps

Following the submittal of this Plan, the Council will prepare one or more resolutions indicating support for the Plan as a whole or in part, and discussing remaining concerns, if any, with certain elements of the Plan.

Pursuant to the Act, "The electric and natural gas distribution companies and municipal aggregators shall submit their respective plans, together with the council's approval or comments and a statement of any unresolved issues, to the department every 3 years on or before October 31. The department shall consider the plans and shall provide an opportunity for interested parties to be heard in a public hearing." G.L. c. 25, § 21(d)(1). The Department will then have a 90-day period to issue its decision on the respective PA-specific plans. *Id.*, §21(d)(2). In particular, the Department is to ensure that such plans identify and capture "all energy efficiency and demand reduction resources that are cost effective or less expensive than supply" and the Department may "approve, modify and approve, or reject and require the resubmission of the plan" based upon its review. *Id.* The Department is also charged with approving a fully reconciling funding mechanism and, in the case of municipal aggregators, "a fully reconciling funding mechanism that requires coordination between the distribution company and the municipal aggregator to ensure that program costs are collected, allocated and distributed in a cost effective, fair and equitable manner." *Id.* Each of the Program Administrators will be filing a PA-specific plan on October 30th that is consistent with, and flows out of, the statewide Plan submitted today.

Once their three-year plans are up and running in 2010, the Program Administrators will be required to provide quarterly reports to the Council, and the Council will be required to

provide an annual report to the Department. G.L. c. 25, § 22(d).[3] The Department is also required to determine the effectiveness of each Program Administrator's plan on an annual basis. *Id.*, § 21(d)(2). In order to help facilitate this review process, the Program Administrators, working collaboratively with the Department and the Council, will develop model quarterly and annual reporting templates for use by the Program Administrators.

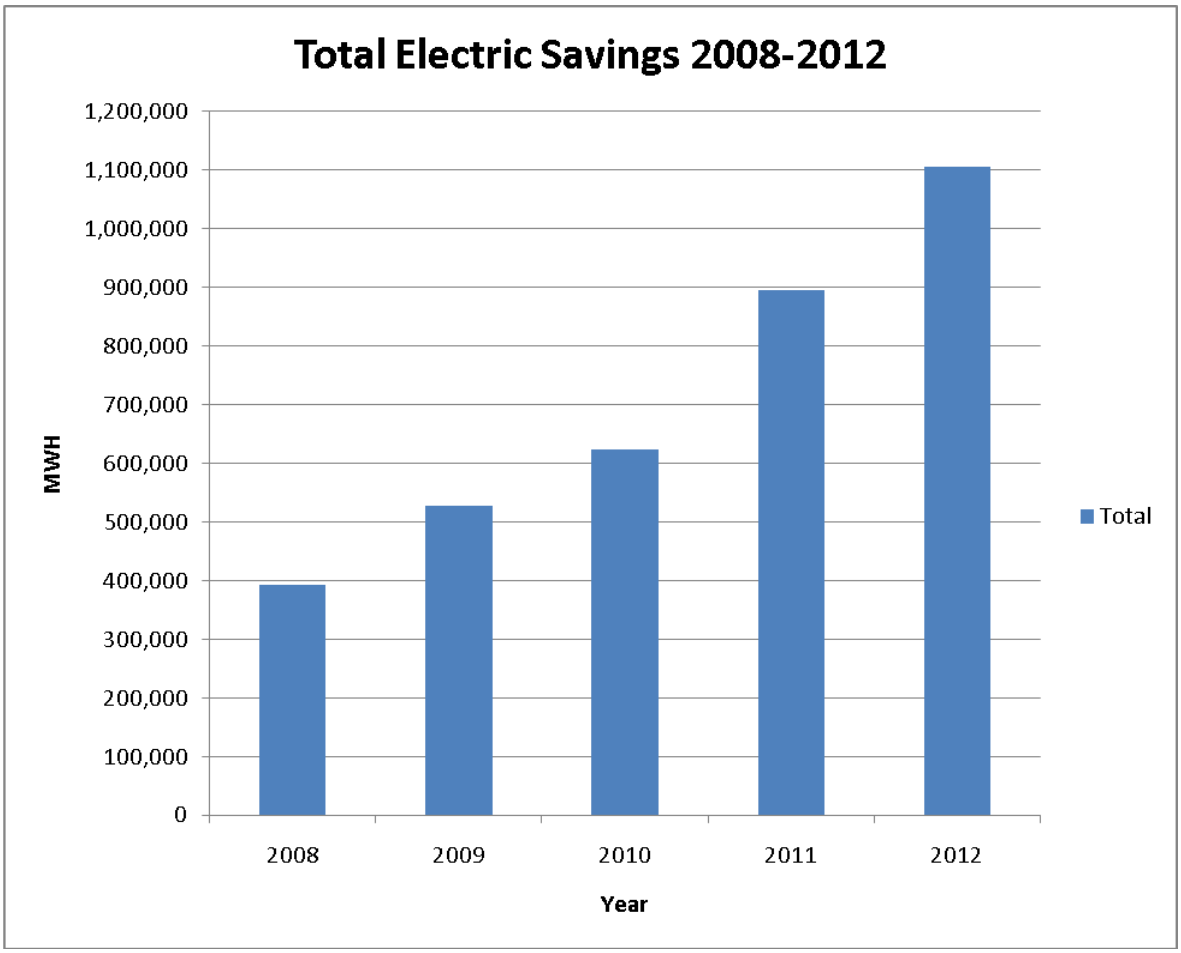
In sum, the Program Administrators have developed this updated Plan based upon an unprecedented multi-party collaborative process and, as contemplated in the Green Communities Act, plan to continue such collaborative process throughout the three-year term of the Plan.

F. Overview of the Key Aspects of the Plan

1. *Benefits*

As indicated in the table below, the Program Administrators are seeking to increase, very substantially, the level of savings derived from energy efficiency activities, consistent with the bold actions contemplated under the Act. In particular, this Plan calls for cumulative savings on an overall statewide basis of 2,625,600 MWH over the three-year period. The ramp-up to achieve these savings is graphically illustrated in the table below. As a direct result of these savings, CO_2 emissions will be reduced by approximately 9,759,374 short tons. This achievement is comparable to the environmental benefits achieved by taking approximately 1,622,000 cars off the road, by annually sequestering carbon in a pine forest roughly the size of 38 percent of the entire state, or by recycling 3.0 million tons of waste instead of sending it to the landfill.

[3] The Plan contemplates that the Program Administrators will file quarterly and annual reports with both the Council and the Department.



2. *Cost-Effectiveness*

The Program Administrators have undertaken a preliminary statewide-level screening of the cost-effectiveness of the implementation of the Plan using the Department's Total Resource Cost ("TRC") Test. This testing indicates that the plan is cost effective with a statewide benefit/cost ratio ("BCR") of 3.27 over the three years of the plan and is expected to produce net economic benefits of **$3,712,173,481**.

Total Resource Cost Test, 2010-2012				
Sector	**B/C Ratio**	**Net Benefits**	**Benefits**	**Costs (1)**
Residential	**3.58**	**$1,104,120,727**	**$1,531,264,772**	**$427,144,045**
Residential New Construction & Major Renovation	1.98	28,492,771	57,645,930	29,153,159
Residential Cooling & Heating Equipment	1.40	7,476,158	26,277,886	18,801,728
Multi-Family Retrofit	2.61	84,245,217	136,537,288	52,292,070
MassSAVE	5.73	825,687,921	1,000,269,778	174,581,856
O Power	4.73	17,484,402	22,174,990	4,690,587
ENERGY STAR Lighting	3.66	172,525,091	237,497,052	64,971,961
ENERGY STAR Appliances	2.05	26,036,670	50,861,849	24,825,180
Residential Education Program	n/a	n/a	n/a	6,869,476
Workforce Development	n/a	n/a	n/a	1,043,382
Heat Loan Program	n/a	n/a	n/a	27,852,773
Deep Energy Retrofit	n/a	n/a	n/a	5,959,341
Power Monitor Pilot	n/a	n/a	n/a	124,534
Residential New Construction & Major Renovation - Major Renovation statewide pilot	n/a	n/a	n/a	1,987,601
Residential New Construction Multi Family (4-8 story) statewide pilot	n/a	n/a	n/a	1,710,324
Residential New Construction Lighting Design statewide pilot	n/a	n/a	n/a	360,128
Residential New Construction V3 Energy Star Homes statewide pilot	n/a	n/a	n/a	305,329
Heat Pump Water Heater Pilot	n/a	n/a	n/a	68,402
Residential Technical Development	n/a	n/a	n/a	59,331
Hot Roofs	n/a	n/a	n/a	26,565
Home Automation	n/a	n/a	n/a	49,738
Community Based Pilot	n/a	n/a	n/a	986,830
Statewide Marketing & Education	n/a	n/a	n/a	4,624,901
EEAC Consultants	n/a	n/a	n/a	3,698,608
DOER Assessment	n/a	n/a	n/a	1,738,895
Sponsorships & Subscriptions	n/a	n/a	n/a	361,347
Low Income	**2.77**	**$251,444,162**	**$393,708,089**	**$142,263,927**
Low-Income Residential New Construction	2.18	5,115,231	9,446,904	4,331,673
Low-Income 1 to 4 Family Retrofit	2.82	135,868,078	210,666,401	74,798,323
Low-Income Multi Family Retrofit	2.92	114,175,767	173,594,784	59,419,017
Statewide Marketing & Education	n/a	n/a	n/a	490,455
Low-Income Energy Affordability Network Funding	n/a	n/a	n/a	2,557,806
DOER Assessment	n/a	n/a	n/a	666,653
Commercial & Industrial	**3.21**	**$2,356,608,591**	**$3,423,863,082**	**$1,067,254,490**
C&I New Construction and Major Renovation	3.93	597,914,714	801,789,082	203,874,368
C&I New Construction and Major Renovation - Government	6.27	11,562,546	13,756,214	2,193,668
C&I Large Retrofit	3.21	1,389,071,914	2,017,468,818	628,396,904
Large C&I Retrofit - Government	3.89	5,991,129	8,064,562	2,073,433
C&I Small Retrofit	2.76	356,968,946	559,428,573	202,459,627
C&I Small Retrofit - Government	2.49	13,987,479	23,355,833	9,368,355
Community Based Pilot	n/a	n/a	n/a	1,325,525
Statewide Marketing & Education	n/a	n/a	n/a	4,164,370
EEAC Consultants	n/a	n/a	n/a	7,448,298
DOER Assessment	n/a	n/a	n/a	3,539,214
Sponsorships & Subscriptions	n/a	n/a	n/a	2,410,730
GRAND TOTAL	**3.27**	**$3,712,173,481**	**$5,348,835,943**	**$1,636,662,463**

3. *Progress Toward Green Communities Act Requirements and Goals*

Consistent with the Act, this Plan seeks to capture all available cost-effective energy efficiency for the three-year period beginning January 1, 2010 with the consideration of factors and concerns noted at the Council, including, but not limited to, bill impacts, environmental benefits, and the need for a reasonable ramp-up schedule. In determining the level of savings to achieve in order to satisfy this mandate, the Program Administrators considered and weighed multiple factors, including: (1) the terms of the Act; (2) the directives of the Council, including the Council's Priorities Resolution, the July 28th Resolution, and the Resolution of October 6, 2009 (the "October 6th Resolution"); (3) the Department's Order in D.P.U. 08-50-A (including preliminary bill impact considerations); (4) the Department's Order in D.P.U. 08-50-B; (5) the Assessment of All Available Cost-Effective Electric and Gas Savings: Energy Efficiency and CHP adopted by the Council on July 14 (the "Assessment"); and (6) their own experience in implementing nationally-recognized energy efficiency programs for over two decades. The Program Administrators met collaboratively on a frequent basis to determine the appropriate savings goals and budgets to propose in this Plan. The Program Administrators also engaged in a very productive and rigorous series of discussions with the Council, culminating in the October 6th Resolution, which established approved statewide savings targets, performance incentives, and, after collaboration the Council and its Consultants, program costs. The goals approved in the October 6th Resolution are incorporated in this statewide plan and represent an unprecedented collaboration on the part of the Program Administrators, Council, and its Consultants. As a result of this iterative and collaborative process, and after considering the directives of the Council, the Program Administrators have achieved an unprecedented statewide unanimous

consensus with respect to the savings goals, proposed budget levels, and implementation strategies set forth herein.

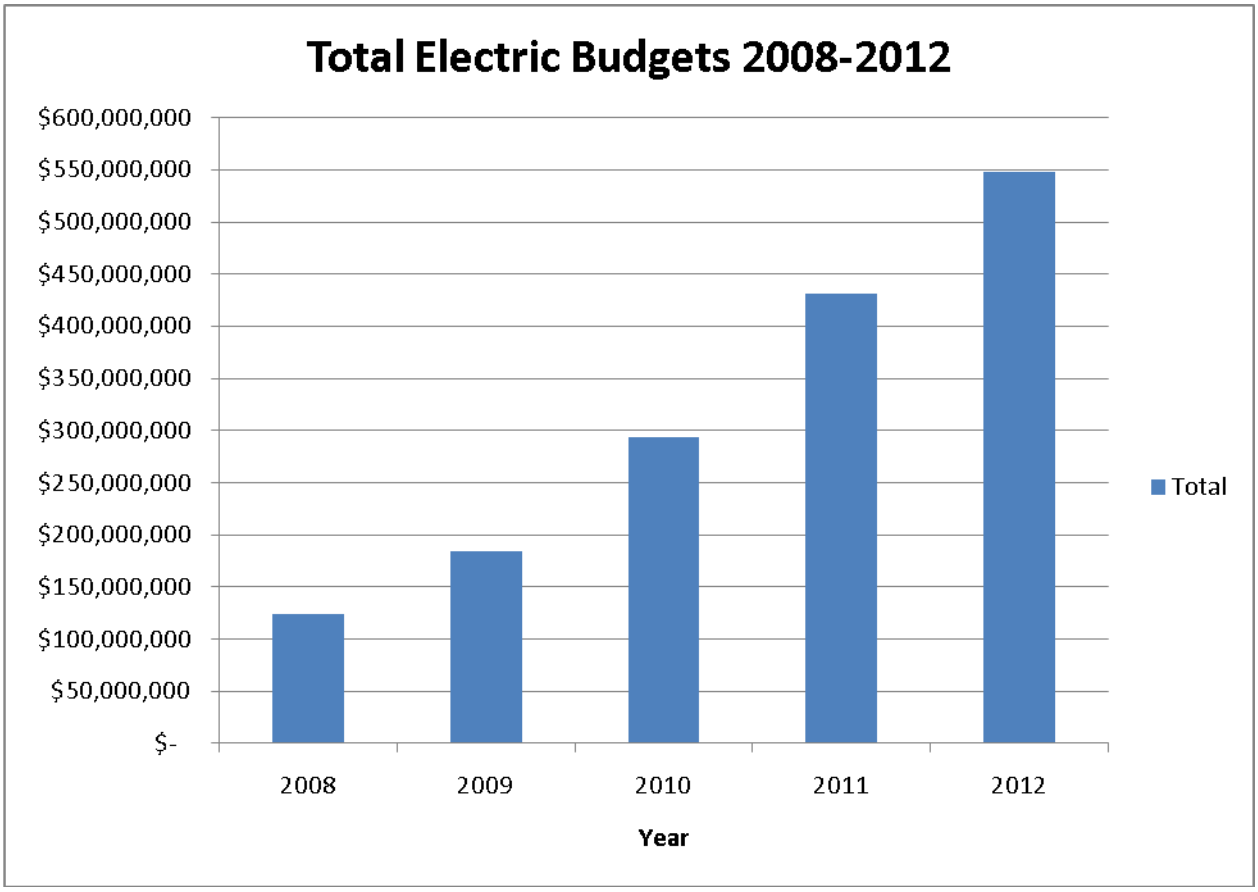
Among other areas of emphasis, the Plan seeks to maximize the usage of competitive procurement processes. The Plan also seeks to support the development of an enhanced energy services delivery infrastructure in Massachusetts. An important ancillary benefit of this effort will be job creation throughout the Commonwealth in the energy efficiency services sector. Indeed, the Program Administrators estimate that 3,100 jobs will be created in the Commonwealth over the next three years, as a result of the implementation of the Plan. The job creation benefit has been an important focus of the Council and of the Program Administrators.

Another unique aspect of the Plan is the level of coordination and integration of effort among the Program Administrators, as well as with the low-income program delivery network. The Plan seeks to enhance program designs in order to provide a seamless experience for customers seeking services from both gas and electric Program Administrators. Such coordination by the Program Administrators should allow for the achievement of deeper and broader levels of savings at customer homes and facilities, all in a more cost-effective manner. In turn, these increased savings levels, over time, will help the Program Administrators reduce their costs of providing services and provide economic and environmental benefits to all customers.

4. *Program Budgets*

The summary table below sets forth the ramp-up of energy efficiency expenditures contemplated for the implementation of this Plan. As indicated below, the Program Administrators are proposing a phased ramp-up to the annual 2012 statewide expenditure level of $548,018,332, which represents a 341 percent increase of past annual (2008) expenditures on

energy efficiency. Total three-year expenditures are proposed to be $1,273,517,051. This ramp-up is necessary in order to ensure that a trained delivery infrastructure is in place so that high quality services are provided to customers. The ramp-up also will help provide smoother bill impacts with respect to implementation of the Plan. While the expenditures on energy efficiency under the Plan are significant and will result in certain increased elements of customer bills, the net present economic value of the benefits to be achieved under the Plan is $3,712,173,481. The magnitude of these benefits helps demonstrate the value of the increased energy efficiency expenditures called for in the Plan. The Program Administrators' sensitivity to issues of bill impacts is highlighted in Section II.E of the Plan.



5. *Highlights of Program Design Strategies*

The Plan sets forth detailed strategies for coordinated program implementation in the residential, low-income, and commercial and industrial ("C&I") sectors. The detailed plans in the program description section of the Plan represent the results of collaboration and cooperation among the Program Administrators (both gas and electric), Council members, other interested parties, and the Consultants. Notably, the proposed low-income programs were developed in collaboration with the low-income weatherization and fuel assistance program network, and build upon the current successful collaborative approach to program delivery to this important customer sector. The program designs reflect comprehensive strategies that provide for: 1) greater consistency in offerings throughout the state; 2) an enhanced customer experience, including seamless delivery strategies that integrate gas and electric efforts; 3) an expanded, diverse, and well-trained workforce; 4) the delivery of state-of-the-art new technologies; and 5) a new model for addressing low-income customers living in multi-family dwellings, regardless of their rate class or whether they rent or own their home.

6. *Evaluation and Monitoring*

Recognizing that the increased savings and expenditures proposed under the Plan need to be subject to rigorous evaluation and monitoring, the Program Administrators have proposed a comprehensive and transparent approach to evaluation and monitoring. The Program Administrators seek to undertake evaluation and monitoring activities in a transparent and carefully constructed manner consisted with the Council's September 8, 2009 Resolution on Evaluation, Measurement and Verification ("EM&V Resolution"). The new process will allow the Program Administrators, working with the Council, to measure savings resulting from

programs, enhance the quality of program delivery, and ensure that the programs are effectively addressing various barriers. This Plan also sets forth specific initial areas for study and evaluation using a "research areas" approach that integrates gas and electric evaluation activities into core areas of attention (*e.g.*, residential new construction, residential retrofit and low-income).

7. *Cost Recovery and Performance Incentives*

Cost recovery, including the recovery of lost base revenues ("LBR") and performance incentives (or through implementation of a Department-approved decoupled rate structure), is a critical element of the Plan. The Plan sets forth proposals on cost recovery that seek to utilize existing recovery mechanisms that have worked well in the field for many years and that are well understood by most customers. The Plan seeks to ensure that, prior to the collection of funds from customers, the Program Administrators have fully accessed other potential available sources of funding, such as funds available from the Regional Greenhouse Gas Initiative ("RGGI"), the Forward Capacity Market ("FCM"), and other sources, including outside funding. The Plan allows the Program Administrators the opportunity to recover their costs and be made economically whole for aggressively pursuing sales-reducing energy efficiency efforts, as well as to earn a reasonable return associated with this investment based upon their actual performance and achievement. In this regard, based on the October 6th Resolution, the Program Administrators have set savings targets that provide for an incentive pool of $17.5 million in 2010, $22.0 million in 2011, and $25.5 million in 2012, for a total three-year incentive pool of $65.0 million. Program Administrators can earn higher incentives by exceeding performance targets, but the amount of the statewide incentive pool is capped at 125% of the incentive amount related to the achievement of target savings levels for each Program Administrator in 2010.

Future discussions will determine whether there will be a cap in incentives for 2011 and 2012, and if so, the appropriate level. Incentive targets will be allocated among the individual Program Administrators according to their respective target savings goals as opposed to the levels of their budgets.

8. *Mid-Term Revisions*

Consistent with the Department's Order in D.P.U. 08-50-A, the Plan provides objective standards that enable the Program Administrators to retain flexibility to make ongoing revisions and enhancements after the adoption of the Plan in order to reflect in-the-field conditions, more accurate information on costs and savings of programs, technological advances, financing opportunities, and state-of-the-art new technologies. In particular, in the event that targets for outside funding are not achieved by certain dates as set forth in this Plan, the Program Administrators are permitted reasonable flexibility to modify savings goals and budgets by specific stipulated dates in order to reflect the actual outside funding levels achieved. In general, the Program Administrators will retain the flexibility to adjust spending and add or subtract program measures; however, Program Administrators will not add a new program or terminate an existing program or change a program budget by more than twenty percent without prior approval by the Department, with the opportunity for full participation by the Council.

9. *Economic Development and Job Growth*

An important element of the Plan is the economic impact of energy efficiency on the Commonwealth and its citizens, including the job creation and retention benefits of energy efficiency programs. The Program Administrators have taken economic and job growth impacts into account as they have developed the Plan, and anticipate, based on the budgets, savings

goals, and programs detailed herein, the creation of 31,005 job years (corresponding to 3,100 jobs), and approximately $2,000,000,000 in Gross State Product. One way that energy efficiency affects consumers and businesses is by reducing energy costs, thereby allowing the money saved to be spent elsewhere, thus stimulating the economy. Additionally, energy efficiency programs create a wide variety of jobs, many of them tied to local communities. The Program Administrators are committed to job training for emerging clean energy industries, as well as sustainable funding of energy efficiency programs in order to maintain a consistent work force. The following chart illustrates estimated job growth related to the Plan over its three-year term.

	2010	**2011**	**2012**
Jobs Created	651	1,085	1,364

10. *Summary*

In sum, the Plan represents an unprecedented collaboration among all the Program Administrators in Massachusetts, both gas and electric, as well as diverse interested parties, and fully complies with the bold initiatives required under the Green Communities Act. The Program Administrators thank the Council, its Consultants, and other interested participants in the plan development process for all their efforts, analysis, and suggestions to date. The Program Administrators look forward to working cooperatively with the Council and other interested parties in reviewing this Plan and ensuring that Massachusetts customers are provided with programs that are marked by excellence and innovation, and that produce economic and environmental benefits throughout Massachusetts.

II. THE THREE-YEAR PLAN

A. Core Benefits: Energy & Demand Savings, Greenhouse Gas Reductions, Net Economic Benefits and Progress Towards Green Communities Act Requirements and Goals

1. *Energy and Demand Savings*

The savings goals and program budgets set forth in this Plan are presented on an aggregate, statewide program-level basis within three major customer sectors (residential, low-income, and C&I). In the PA-specific filings, each Program Administrator is setting forth its own recommended savings and budget levels for the three-year period commencing January 1, 2010, consistent with the overall goals and budgets developed in the statewide Plan review process. The Program Administrators note that this phased process complies with the Act, which first requires the development of a joint statewide plan by all Program Administrators in April 2009, followed in October 2009 by individual PA-specific plans, after the Council has concluded its review of the statewide plans. *See* G.L. c. 25, §§ 21(b)-21(d).

In developing today's proposed statewide goals and budgets, each Program Administrator was tasked with submitting to the full group of Program Administrators its own updated PA-specific proposed savings goals and budgets for the three-year period. These proposals were subject to a review process that allowed for adjustments to be made by all Program Administrators based not only on peer review, but also upon (a) the presentations made at the Council meetings by the Consultants, (b) Council discussions regarding the savings goals and budgets advanced by the Program Administrators in their April 30 and July 16 filings, and (c) discussions and negotiations with the Council's Consultants. The savings goals and budgets presented on a statewide basis by the Program Administrators today represent the results of that iterative process. The aggregate savings goals and budgets presented individually by the Program Administrators in their individual, PA-specific filings are generally targeted on, and

flow out of, the overall goals developed in the statewide Plan review process.[4] The following table summarizes, on a per-program basis, by year and in total, the annual savings goals proposed by the Program Administrators in this Plan.

YEAR	PROGRAM	Total Annual MWh	% Increase from 2008	% Increase from 2009
Baseline 1-2008	**TOTAL**	**392,010**		
Baseline 2-2009	**TOTAL**	**528,275**	**35%**	
2010	**Residential (total)**	**152,491**		
	Residential New Construction & Major Renovation	2,734		
	Residential Cooling & Heating Equipment	2,172		
	Multi-Family Retrofit	14,350		
	MassSAVE	28,587		
	O Power	26,000		
	ENERGY STAR Lighting	66,385		
	ENERGY STAR Appliances	12,263		
	Low Income (total)	**21,788**		
	Low-Income Residential New Construction	429		
	Low-Income 1 to 4 Family Retrofit	9,108		
	Low-Income Multi Family Retrofit	12,251		
	Commercial & Industrial (total)	**449,568**		
	C&I New Construction and Major Renovation	96,806		
	C&I New Construction and Major Renovation - Government	1,452		
	C&I Large Retrofit	283,817		
	Large C&I Retrofit - Government	966		
	C&I Small Retrofit	63,365		
	C&I Small Retrofit - Government	3,161		
	GRAND TOTAL	**623,847**	**59%**	**18%**
2011	**Residential (total)**	**206,062**		
	Residential New Construction & Major Renovation	3,219		
	Residential Cooling & Heating Equipment	2,846		
	Multi-Family Retrofit	18,992		
	MassSAVE	38,216		
	O Power	52,000		
	ENERGY STAR Lighting	74,337		

[4] The Act provides that Program Administrators are not required to make all changes or revisions recommended by the Council in filing their October PA-specific plans. *See* G.L. c. 25, § 21(c)-(d)(1).

	ENERGY STAR Appliances	16,453		
	Low Income (total)	**28,950**		
	Low-Income Residential New Construction	508		
	Low-Income 1 to 4 Family Retrofit	11,410		
	Low-Income Multi Family Retrofit	17,032		
	Commercial & Industrial (total)	**660,367**		
	C&I New Construction and Major Renovation	127,363		
	C&I New Construction and Major Renovation - Government	1,902		
	C&I Large Retrofit	426,502		
	Large C&I Retrofit - Government	1,271		
	C&I Small Retrofit	99,229		
	C&I Small Retrofit - Government	4,101		
	GRAND TOTAL	**895,379**	**128%**	**69%**
2012	**Residential (total)**	**261,385**		
	Residential New Construction & Major Renovation	3,814		
	Residential Cooling & Heating Equipment	3,788		
	Multi-Family Retrofit	23,488		
	MassSAVE	45,801		
	O Power	74,520		
	ENERGY STAR Lighting	90,775		
	ENERGY STAR Appliances	19,199		
	Low Income (total)	**35,485**		
	Low-Income Residential New Construction	693		
	Low-Income 1 to 4 Family Retrofit	15,338		
	Low-Income Multi Family Retrofit	19,454		
	Commercial & Industrial (total)	**809,505**		
	C&I New Construction and Major Renovation	143,653		
	C&I New Construction and Major Renovation - Government	2,682		
	C&I Large Retrofit	515,491		
	Large C&I Retrofit - Government	1,801		
	C&I Small Retrofit	140,153		
	C&I Small Retrofit - Government	5,725		
	GRAND TOTAL	**1,106,375**	**182%**	**109%**
THREE YEAR TOTAL: 2010-2012	**Residential (total)**	**619,939**		
	Residential New Construction & Major Renovation	9,767		
	Residential Cooling & Heating Equipment	8,805		
	Multi-Family Retrofit	56,830		
	MassSAVE	112,603		
	O Power	152,520		

	ENERGY STAR Lighting	231,497		
	ENERGY STAR Appliances	47,915		
	Low Income (total)	**86,222**		
	Low-Income Residential New Construction	1,629		
	Low-Income 1 to 4 Family Retrofit	35,856		
	Low-Income Multi-Family Retrofit	48,737		
	Commercial & Industrial (total)	**1,919,439**		
	C&I New Construction and Major Renovation	367,822		
	C&I New Construction and Major Renovation - Government	6,037		
	C&I Large Retrofit	1,225,810		
	Large C&I Retrofit - Government	4,038		
	C&I Small Retrofit	302,747		
	C&I Small Retrofit - Government	12,986		
	GRAND TOTAL	**2,625,600**		

2. *Environmental Benefits*

In addition to economic benefits, efficiency resources bring significant environmental benefits that reduce air pollution and improve air quality in Massachusetts and in the region. The efficiency programs and initiatives included in this Plan are aimed at reducing the amount of electricity and natural gas required to run the Commonwealth's economy. By reducing the amount of energy consumed in all sectors of the economy, important air and water benefits are delivered. Decreasing energy consumption results in less demand for energy from fossil fuel powered plants and natural gas pipelines. By reducing plant operation time, emissions of air pollutants and greenhouse gases can be reduced.

Generating electricity from non-renewable fossil fuels (*e.g.*, coal, oil, natural gas) produces nitrogen and sulfur oxides—two of the six "criteria pollutants" defined by the Clean Air Act and identified as air quality indicators by the U.S. Environmental Protection Agency ("EPA"). Nitrogen oxides are precursors to ozone, a primary component of summer smog. Nitrogen and sulfur oxides in particulate form reduce visibility, are associated with public health

problems such as asthma, and are linked to acid rain. Curbing the amount of energy needed to run power plants reduces the amount of nitrogen and sulfur oxide pollution emitted into the atmosphere.

In addition to providing cleaner air and water for Massachusetts, the Plan will provide climate benefits by reducing energy consumption—both the natural gas needed to heat homes, schools, and businesses, and the fuels needed to run power plants. By participating in the RGGI, Massachusetts has capped power plant emissions of carbon dioxide, the most prevalent greenhouse gas. Importantly, Massachusetts has committed to reinvesting at least 80 percent of the proceeds from the auction of RGGI allowances back into energy efficiency programs, which will save consumers hundreds of millions of dollars. *See* G.L. c. 25 § 19(a). In addition, Massachusetts has adopted the GWSA, which calls for economy-wide reductions in GHGs starting in 2020, making it ever more critical to achieve climate benefits through energy efficiency, and other efforts (such as enhancements in the transportation sector).

Collectively, the programs contained in this Plan are expected to provide three-year cumulative annual savings of 2,625,600 MWH and lifetime savings of 30,884,096 MWH. Based on the region's average power plant emissions rate, these lifetime MWH savings will avoid 9,759,000 short tons of CO_2, 2,300 short tons of SO_2, and 1,100 short tons of NOx. In addition, these programs will provide non-electric benefits such as reductions in fuel oil and water use.

Under climate cap and trade programs such as the RGGI, the GWSA, and a potential federal program, investment in energy efficiency is recognized as the most effective cost-containment and consumer protection tool. Indeed, the Program Administrators expect that a significant portion of the three-year Plan's funding will come from the proceeds of the sale of RGGI allowances. Investing cap and trade proceeds in energy efficiency lowers energy

consumption, which reduces GHGs and the demand for allowances. The result is a lower price for carbon allowances and lower overall cost of the cap and trade program.

3. *Net Benefits and Cost Effectiveness Summary with Summary Table*

The Program Administrators have projected the expected benefits and costs associated with this statewide Plan consistent with the requirements of the Department's Order in D.P.U. 08-50-A. In this Order, "the Department reaffirms that the Total Resource Cost test is the appropriate test for evaluation of the cost-effectiveness of ratepayer-funded energy efficiency programs."

To conduct the TRC test, Program Administrators routinely update their benefit/cost screening models to reflect new assumptions relating to program costs and benefits, the discount rate, the general rate of inflation, and avoided costs. To this end, the Program Administrators contracted with Synapse Energy Economics to provide an updated avoided cost study, which was completed on August 21, 2009. In general, the benefit categories in the TRC test include the value of energy savings, gas and electric system benefits, and other measurable benefits (for example, participant resource benefits, participant non-resource benefits, and benefits due to measurable market effects).

Costs included in the TRC test include all Program Administrator costs and program participant costs. Program Administrator costs include program implementation expenses, evaluation costs, proposed performance incentives, and the tax liability for performance incentives.[5] Program participant costs include initial costs incurred by customers as a result of their participation in the program.

The benefit/cost screening model uses all of this data to calculate the present value of the program benefits and costs, and then calculates ratios of these values to produce BCRs for the

[5] Performance incentives are not applicable to the Cape Light Compact. Please see D.P.U. 08-50-A at 51.

TRC test. The present value of costs and benefits is calculated over the expected duration of the useful life of the measures installed through the program.

The table below summarizes the expected benefits, costs, and BCR for the portfolio of programs the Program Administrators propose to implement over the three-year period. For more detailed information see tables in Section II.D below.

Total Resource Cost Test, 2010-2012				
Sector	**B/C Ratio**	**Net Benefits**	**Benefits**	**Costs (1)**
Residential	**3.58**	**$1,104,120,727**	**$1,531,264,772**	**$427,144,045**
Residential New Construction & Major Renovation	1.98	28,492,771	57,645,930	29,153,159
Residential Cooling & Heating Equipment	1.40	7,476,158	26,277,886	18,801,728
Multi-Family Retrofit	2.61	84,245,217	136,537,288	52,292,070
MassSAVE	5.73	825,687,921	1,000,269,778	174,581,856
O Power	4.73	17,484,402	22,174,990	4,690,587
ENERGY STAR Lighting	3.66	172,525,091	237,497,052	64,971,961
ENERGY STAR Appliances	2.05	26,036,670	50,861,849	24,825,180
Residential Education Program	n/a	n/a	n/a	6,869,476
Workforce Development	n/a	n/a	n/a	1,043,382
Heat Loan Program	n/a	n/a	n/a	27,852,773
Deep Energy Retrofit	n/a	n/a	n/a	5,959,341
Power Monitor Pilot	n/a	n/a	n/a	124,534
Residential New Construction & Major Renovation - Major Renovation statewide pilot	n/a	n/a	n/a	1,987,601
Residential New Construction Multi Family (4-8 story) statewide pilot	n/a	n/a	n/a	1,710,324
Residential New Construction Lighting Design statewide pilot	n/a	n/a	n/a	360,128
Residential New Construction V3 Energy Star Homes statewide pilot	n/a	n/a	n/a	305,329
Heat Pump Water Heater Pilot	n/a	n/a	n/a	68,402
Residential Technical Development	n/a	n/a	n/a	59,331
Hot Roofs	n/a	n/a	n/a	26,565
Home Automation	n/a	n/a	n/a	49,738
Community Based Pilot	n/a	n/a	n/a	986,830
Statewide Marketing & Education	n/a	n/a	n/a	4,624,901
EEAC Consultants	n/a	n/a	n/a	3,698,608
DOER Assessment	n/a	n/a	n/a	1,738,895
Sponsorships & Subscriptions	n/a	n/a	n/a	361,347
Low Income	**2.77**	**$251,444,162**	**$393,708,089**	**$142,263,927**
Low-Income Residential New Construction	2.18	5,115,231	9,446,904	4,331,673
Low-Income 1 to 4 Family Retrofit	2.82	135,868,078	210,666,401	74,798,323
Low-Income Multi Family Retrofit	2.92	114,175,767	173,594,784	59,419,017
Statewide Marketing & Education	n/a	n/a	n/a	490,455
Low-Income Energy Affordability Network Funding	n/a	n/a	n/a	2,557,806

DOER Assessment	n/a	n/a	n/a	666,653
Commercial & Industrial	**3.21**	**$2,356,608,591**	**$3,423,863,082**	**$1,067,254,490**
C&I New Construction and Major Renovation	3.93	597,914,714	801,789,082	203,874,368
C&I New Construction and Major Renovation - Government	6.27	11,562,546	13,756,214	2,193,668
C&I Large Retrofit	3.21	1,389,071,914	2,017,468,818	628,396,904
Large C&I Retrofit - Government	3.89	5,991,129	8,064,562	2,073,433
C&I Small Retrofit	2.76	356,968,946	559,428,573	202,459,627
C&I Small Retrofit - Government	2.49	13,987,479	23,355,833	9,368,355
Community Based Pilot	n/a	n/a	n/a	1,325,525
Statewide Marketing & Education	n/a	n/a	n/a	4,164,370
EEAC Consultants	n/a	n/a	n/a	7,448,298
DOER Assessment	n/a	n/a	n/a	3,539,214
Sponsorships & Subscriptions	n/a	n/a	n/a	2,410,730
GRAND TOTAL	**3.27**	**$3,712,173,481**	**$5,348,835,943**	**$1,636,662,463**

4. *Progress Towards Green Communities Act Requirements and Goals*

i. Acquisition and Assessment of All Available Cost-Effective Energy Efficiency and Demand Reduction Resources

The Green Communities Act provides that the Plan "shall provide for the acquisition of *all available* energy efficiency and demand reduction resources that are cost effective or less expensive than supply." G.L. c. 25, § 21(d) (emphasis added). The Act does not define the term "all available energy efficiency". For the Program Administrators, determining the optimal proposal in this regard constituted a core task in assembling the Plan. Indeed, today's filing sets forth an update of the first three-year Plan filing ever conducted by any Program Administrator under the Green Communities Act, and the Program Administrators expect that, over time, helpful precedent and further guidelines will be developed with respect to this fundamental aspect of the Act. The Program Administrators have engaged in numerous, iterative discussions with the Council and its Consultants in order to ensure the Act's mandates are satisfied. The Program Administrators note that, while the Act requires the acquisition of "all available" energy efficiency, the Act does not require an exact numeric level of cost-effective energy efficiency and demand-reduction resources to be acquired under the Plan nor does it define the term "available"; likewise, what may be deemed to be the amount of "all available" efficiency today may not be the same as what becomes available three or six years from now because of

technological advances and market changes. That said, the Program Administrators respectfully submit that this Plan, which calls for an increase, by 2012, in annual savings of almost triple 2008 levels and increased expenditures on energy efficiency programs of almost 4.5 times 2008 expenditures, falls squarely within the appropriate range of bold effort contemplated under the Green Communities Act. In developing this proposal and assessing the issue of the acquisition of all available cost-effective energy efficiency under the Act, the Program Administrators referred to six primary sources, which are outlined below.

First, the Program Administrators referred to the mandates of the Green Communities Act, in particular G.L. c. 25, § 25(b), which specifies that the Plans should provide for a "*sustained* and integrated statewide energy efficiency effort." (Emphasis added). The Program Administrators interpret the use of the term "sustained" in the Act as indicating a clear desire by the General Court that the energy efficiency efforts being undertaken pursuant to the Plan constitute steps in a multi-year, sustained effort rather than a short-term, and likely highly leveraged, effort to obtain all available cost-effective energy efficiency in a three or even a six-year period.

Second, the Program Administrators referred to, and carefully reviewed, the Council's Priorities Resolution, and subsequently engaged in numerous discussions with the Council and its Consultants, which resulted in the negotiated targets and savings goals set forth in the October 6th Resolution. Today's filing seeks to be expressly consistent with the October 6th Resolution with respect to savings goals.

Third, the Program Administrators also referred to the Department's order in D.P.U. 08-50-A. The Department noted in D.P.U. 08-50-A that, consistent with the Green Communities Act, the consideration of rate impacts of energy efficiency programs must be factored into the

development of the Plans. More specifically, in D.P.U. 08-50-A, the Department stated that the Green Communities Act requires the Department to:

> "consider the effect of rate increases on residential and commercial customers" when reviewing proposals for increased funding of energy efficiency activities. G.L. c. 25, § 19(a). The assessment of rate impacts from the energy efficiency programs will be important to the Department, and we expect that it will be of importance to many of the Massachusetts energy efficiency stakeholders. Therefore, consistent with the Act, and consistent with the Department's traditional review of any change in rates, charges and tariffs subject to our jurisdiction, we will require Program Administrators to include in their three-year energy efficiency plans a comprehensive and well-documented assessment of rate impacts and average bill impacts associated with their energy efficiency activities. . . The Department does not expect there to be any "bright line" or single standard that can be used to determine whether a particular rate or average bill impact associated with a particular energy efficiency plan is acceptable. Instead, we expect Program Administrators to present a comprehensive estimate of how energy efficiency programs are likely to impact customers' rates and average bills, and describe why the estimated impacts are appropriate in light of the expected benefits of the energy efficiency programs.

D.P.U. 08-50-A at 56-57 (quotations in text). As set forth in Section II.E, of the Plan, the Program Administrators have analyzed billing impacts in proposing this Plan and believe that the Plan appropriately balances the need for bold action, with the need to avoid rate continuity issues and the possible negative effects that bill impact concerns could have on the overall success of the Plan.

Fourth, Program Administrators referred to the Assessment presented at the Council's meeting on June 23, 2009. The Assessment is included in Appendix F. The Program Administrators submit that the Assessment helps them and the Council address the requirements of the Act, and that it is appropriate for inclusion in the Plan at this time as an initial presentation, subject to the qualifications and discussion below. As noted above, the Program Administrators submit that use of the term "available" energy efficiency in the Act (as opposed

to "achievable" or "potential") mandates consideration of bill and rate impacts of energy efficiency programs in the development of three-year Plans, and believe that a consideration of bill impacts must be factored into the establishment of the savings goals for the Plan. Importantly, the Council Resolution of July 14, 2009 expressly recognizes the need to consider bill impacts in establishing savings goals for the Plan. *See* Appendix F. While the Assessment is a useful tool and guidepost, it was not developed in order to address bill impacts with specificity. Additionally, savings goals of "about" three percent of annual load set forth in the Assessment are at the very high, aggressive end of the spectrum of reasonableness for a long-term analysis (*i.e.*, ten-year period). The Program Administrators note that for the upcoming three-year period, savings forecasts must also reflect additional short-term factors, such as contractor infrastructure constraints, the current economic downturn, and equipment availability. (Commendably, the Assessment expressly recognizes the need for a ramp-up to the savings levels set forth therein, and avoids fixing an exact numeric standard, and judiciously utilizes the word "about" in setting forth its three percent estimate.) The goals outlined in the Assessment are also at the aggressive end of the spectrum, in part because they do not reflect several other issues that negatively affect savings. Such considerations include:

- The history of successful energy efficiency activity in Massachusetts, which, while commendable, also makes increased energy efficiency more difficult than in other states cited in the Assessment;
- Current economic trends, which include decreased retail activity, decreased residential new construction permits (down approximately 41 percent from 2007 to 2008) and business shut-downs or ramp-downs, all of which decrease available savings opportunities;
- The impact of stimulus funding on new energy efficiency efforts, which will make it more difficult for Program Administrators to generate savings independently; and

- The Assessment's use of 0.3 to 0.5 percent annual savings from CHP, which figures appear high based on activities undertaken to date by the Program Administrators.

The Program Administrators note that achieving exact precision in any assessment of all available energy efficiency is not cost-effective, and thus in their comments on the Assessment they recommend the adoption of a broader range of results (two percent to three percent savings) than are set forth in the Assessment. That said, the Assessment has served as a valuable tool for the Program Administrators and all Council members, and the Program Administrators appreciate the efforts of all Council members and the Consultants in developing the Assessment.[6]

Fifth, in developing their target savings for the Plans, the Program Administrators referred to, among others, the following primary studies and analyses of technical potential: the NEEP 2005 study of "Economically Achievable Energy Efficiency Potential in New England"; the "Massachusetts Residential Appliance Saturation Survey" conducted by Opinion Dynamics Corporation; "Natural Gas Energy Efficiency Potential in Massachusetts" by GDS Associates, Inc., and Summit Blue Consulting, April 2009; and the Federal Energy Regulatory Commission's April 3, 2009 "Electric Market Overview: Energy Efficiency Resource Standards and Goals." These studies have helped the Program Administrators identify and determine cost-effective achievable savings levels. These studies are referenced in the Bibliography attached as Appendix C and are available on the Council's website www.ma-eeac.org (the "Website").

Sixth, the Program Administrators reviewed and discussed their own experience in implementing nationally-recognized energy efficiency programs over the past two decades. The Program Administrators met collaboratively on a frequent and intense basis to determine the

[6] As noted in Section II.H, the Programs Administrators recommend that a detailed technical potential study be performed during the course of the initial three-year Plan and that an updated assessment of all available energy efficiency be prepared in connection with the next three-year plan to take effect in 2013. In the next assessment, the Program Administrators would seek to address the issues described in this Plan, and focus on more Massachusetts-specific data, which should become more fully developed over the next several years.

appropriate savings goals and budgets to propose in this Plan, and carefully considered comments and feedback on the initial April 30 Plan and subsequent July 16 Plan. Without limiting the foregoing, each Program Administrator was required to make projections for its individual service area, and was given the opportunity to comment on other Program Administrators' projections and statewide projections.

As a result of this iterative and ongoing process, and after consideration of all these factors, and, in particular, the October 6th Resolution, the Program Administrators, acting by unanimous consensus, are submitting this updated Plan. In the following sections, the Program Administrators provide a more detailed discussion of certain issues regarding assessing all available, cost-effective energy efficiency.

ii. Further Discussion of the Program Administrators' Assessment Activities and of Key Barriers and Challenges

For purposes of this statewide Plan, the Program Administrators have also assessed "the estimated lifetime cost, reliability and magnitude of all available energy efficiency and demand reduction resources that are cost-effective or less expensive than supplied." G.L. c. § 21(b)(2) (emphasis added). In particular, the Program Administrators have specifically set forth the estimated costs associated with the available energy efficiency proposed for the Plan. *See* Section II.D. Based upon many years of experience and study, the Program Administrators have also assessed the reliability of energy efficiency resources and note that energy efficiency resources have proven to produce persistent savings and be reliable over the extended life of installed measures; indeed, energy efficiency has been a notably reliable part of the services that Program Administrators have provided over many years. The Program Administrators have similarly provided an assessment of the magnitude of the benefits and costs associated with obtaining these resources. *See* Section II.D. Without limiting future assessment activities, the Program

Administrators recommend that a comprehensive technical potential study be performed during the period 2010-2012 that targets both electric and gas end uses. Such a technical potential study will be a useful tool in future assessments under the Act.

iii. Key Factors, Challenges and Market Barriers

This Massachusetts statewide Plan aggressively advances energy efficiency in the Commonwealth and positions Massachusetts as the national leader in energy efficiency investments. The Green Communities Act requires that electric and natural gas resource needs shall first be met through all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply. In this sub-section of the Plan, the Program Administrators discuss certain key factors, challenges and market barriers that have factored into their assessment of the achievable level of energy efficiency set forth in the Plan.

- **Electric and natural gas resource needs shall first be met through all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply.**
    - The Program Administrators recognize that energy efficiency investments are the fastest way to address growing energy demands. Efficiency programs can be scaled and implemented in a short period of time, often in one to three years. Energy efficiency programs and demand reduction programs reduce demand for energy, thereby also reducing GHGs. In addition to emission reductions and energy savings, demand-side management also brings benefits of lower water use and reduced environmental damage from fossil fuel extraction. The programs and initiatives contained in this Plan outline bold action and are intended to serve as the first resource by which to meet overall

energy demand. The Program Administrators developed this Plan leveraging knowledge and expertise they have gained over the past two decades delivering nationally-recognized energy efficiency programs that have provided energy consumers with significant savings.

- **The acquisition plan for all available cost-effective energy efficiency recognizes the significant barriers that must be overcome in order to achieve the aggressive goals outlined in the plan.**
    - The significant ramp-up of energy efficiency savings outlined in this Plan provides a strong foundation to rapidly provide the Commonwealth and its residents (including businesses and low-income customers) with all realistically achievable energy efficiency. This Plan, which strives to obtain all realistically achievable energy efficiency, is also grounded in an understanding of market barriers and deliberately strives to address significant market barriers and policy concerns.
- **Market Barriers**

To be successful in energy efficiency, the programs must bridge the four major market barriers of awareness, availability, accessibility, and affordability. These barriers affect customers' adoption of energy efficiency measures and the ability of Program Administrators to achieve and obtain savings. This Plan outlines many initiatives that Program Administrators feel are critical in bridging these four major market barriers.

- **Awareness** is a barrier that historically was not confronted on a grand scale, given capped budgets, marketing, and outreach. This Plan

recognizes that enhanced public education, marketing, and outreach, including community-based measures, will be needed to achieve deeper and broader penetration. Deeper penetration refers to the promotion of additional cost-effective technologies and strategies to capture comprehensive, whole-building savings among the traditional base of expected program participants. This deeper penetration requires raising participants' awareness and understanding of the value of investing in additional measures that create increased savings per participant. In addition to expanding marketing and incentive strategies, this Plan incorporates other strategies to overcome awareness barriers, with the goal of dramatically increasing the level of participation among eligible customers, *i.e.*, making participation broader. Broader penetration can include outreach to traditionally hard-to-reach customer groups, including economically marginalized communities and groups where English is not the first language.

- **Availability** is a barrier when manufacturers either do not produce or do not effectively market significant quantities of energy efficiency products. Availability may be constrained also by limited workforce or delivery mechanisms. The challenge for manufacturing in the energy efficiency sector is to respond not only to the Commonwealth's efficiency increases, but also to increases across the nation. This challenge is compounded by the current economic crisis, which has hindered manufacturing from making additional investments. From a workforce perspective, Program Administrators recognize that additional workforce must be trained and deployed to effectively deliver the programs. This is not an insignificant barrier.

- **Accessibility** is another market barrier which refers to the customers' access to the product. To mitigate this barrier, Program Administrators must connect with mid-stream market actors, such as distribution retailers, to help ensure that products are displayed and stocked in sufficient quantity. The program descriptions set forth in this Plan provide for work with key market actors, and include campaigns for training and marketing, as well as proposed community mobilization outreach strategies.

- **Affordability** is a market barrier resulting from the initial cost of energy efficiency solutions. With the current economic environment, Program Administrators are concerned that affordability is a major barrier and one that is more difficult to predict as customer buying

patterns have changed dramatically with the advent of more limited credit. The Plans attempt to mitigate this barrier through the use of incentives and loan mechanisms, as well as through the use of on-bill and other broadly accessible financing mechanisms.

- **Policy Concerns**

In addition to market barriers, it is important to also understand the policy concerns that need to be addressed to secure all achievable energy efficiency. These include economic, sustainability, and regulatory concerns.

  - **Economic** obstacles are particularly relevant in today's environment. The Program Administrators recognize the Plan's tremendous value, but also understand that it is important to consider the rate impacts of the ramp-up of these programs. Given the societal sensitivity to the cost of the programs, this Plan discusses the associated preliminary expected bill impacts of program implementation. Detailed bill impact analyses for each Program Administrator are being provided in the PA-specific Plans and will also contain the information required by the Department's orders in D.P.U. 08-50-A and D.P.U. 08-50-B.

  - **Sustainability** of the programs is an important consideration for the Plan. Many advocates, including the Program Administrators, stress that in achieving all available energy efficiency, the annual efforts must also strive to be sustainable for the long term. This sustainability is vital to support the health of the economy, and the growth of the workforce and infrastructure needed to ensure the long-term benefits of these efforts.

  - **Regulatory Concerns** include the support of strong regulatory frameworks that complement the Program Administrators' ramp-up of programs. These frameworks create a healthy regulatory infrastructure by which Program Administrators can confidently advance programs knowing that there is clarity in the regulatory rules and process and the opportunity to align shareholder objectives with public policy objectives. The Program Administrators will look to the Council, the DOER, the Department, and other interested stakeholders for a continuation of their strong record of clear guidance and consistent policy making.

- **Assessing technical potential**

As noted above, the Program Administrators used multiple resources to build a robust understanding of the potential for all available cost-effective energy efficiency and demand-reduction resources. These resources include the Assessment, the materials and data amassed by the Consultants, the NEEP 2005 study of "Economically Achievable Energy Efficiency Potential in New England", the 2009 "Massachusetts Residential Appliance Saturation Survey" conducted by Opinion Dynamics Corporation, "Natural Gas Energy Efficiency Potential in Massachusetts" by GDS Associates, Inc., Summit Blue Consulting, April 2009, and the Federal Energy Regulatory Commission's April 3, 2009 "Electric Market Overview and Energy Efficiency Resource Standards and Goals." *See* Appendix C and the Website.

These studies all are grounded in the definition of technical potential as "the complete penetration of all measures analyzed in applications where they are deemed technically feasible from an engineering perspective. The Technical Potential does not necessarily take into account cost-effectiveness, budget constraints, or whether homeowners or businesses are willing to undertake energy saving actions or investments."[7]

Economically Achievable Energy Efficiency Potential is defined as that portion of the technical potential that is cost-effective (either from a customer, societal, or total resources perspective). This three-year Plan aggressively targets

[7] Economically Achievable Energy Efficiency Potential in New England, May 2005; prepared by Optimal Energy, Inc. for Northeast Energy Efficiency Partnership, Inc.

all cost-effective energy-efficiency resources, but the Plan is also grounded by realistic constraints to achievable program implementation such as market and policy barriers. Such barriers lead to this Plan's focus on obtaining all available or realistically achievable potential in a manner that allows for a sustained effort and that does not create unacceptable short-term bill impacts.

Realistically achievable potential takes "into account impediments to program implementation, including financial, political, and regulatory barriers that are likely to limit the amount of savings that might be achieved through energy efficiency and demand response programs."[8] It, therefore, recognizes both the market and policy barriers. After almost two decades of successfully implementing energy efficiency programs, the Program Administrators have an in-depth understanding of these barriers and were able to integrate their knowledge of both market and policy concerns with the various technical potential studies used to inform this Plan. The program incentive design, delivery models, and support infrastructure developed by the Program Administrators and discussed in Section II.F of this Plan are grounded in a careful review of different types of potential.

5. *Demand Response Issues*

The Program Administrators are working to incorporate Demand Response ("DR") measures in all offerings, as appropriate, over the term of this Plan. A number of these resources are detailed in the program descriptions found in Section II.F below. In addition, as technical assessment studies are undertaken for customers, the studies will also address how to make the

[8] Assessment of Achievable Potential from Energy Efficiency and Demand Response Programs in the U.S. (2010-2030), January 2009; Electric Power Research Institute.

proposed energy efficiency measures demand responsive through load automation techniques (*e.g.*, recommending specific load management algorithms within any energy management software for lighting, Heating Ventilation, and Air-Conditioning ("HVAC"), and other process applications). In addition, the studies would identify other options available for customers to manage their loads in the event that the customer takes advantage of hourly pricing options from energy suppliers, or participates in on-going ISO-New England ("ISO-NE") programs, including the FCM. In short, enabling an energy efficiency measure to be demand responsive will be less expensive if it is done at the time the measure is installed versus having to retrofit or re-program energy management software in the future.

6. *Competitive Procurement*

Historically, the Program Administrators have utilized the competitive procurement process to retain contractors and vendors to perform activities including, but not limited to: audit delivery; quality control; monitoring and evaluation; marketing; and website design. The Program Administrators are committed to utilizing competitive procurement practices to the fullest extent throughout the implementation of this Plan. Therefore, consistent with past practice, the Program Administrators anticipate that they will issue Requests for Proposals ("RFPs") to engage the appropriate third-party vendors to provide energy efficiency services, will consider the input and direction of the Council and its Consultants with respect to the retention of necessary consultants, and, where necessary, will work collaboratively to ensure that energy efficiency services have been procured in a manner that minimizes cost to the ratepayers, while maximizing the associated benefits of that investment. The Program Administrators recognize, however, that there are firms who may be qualified to perform some, but not all of the tasks generally included in the contracts for program delivery services. To further the job growth

and retention goals of the Act, the Program Administrators will work to expand the pool of qualified program vendors, to promote the entry of new market actors into subcontractor roles, and make transparent the subcontractor bidding process and the selection criteria used to evaluate proposals. One area of special focus will be increasing the number of qualified weatherization contractors, through expanded training opportunities.

7. *Gas and Electric Program Integration and Coordination; Seamless Delivery*

i. Background/General Overview

In this section of the Plan, which is common to both the statewide electric Plan and the statewide gas Plan, the Program Administrators describe the approaches contemplated under the Plans to provide seamless program delivery from the customer's perspective and an optimal level of program integration, collaboration, and coordination. In preparing this section, the Program Administrators primarily referred to three sources: (1) the Green Communities Act; (2) the Council's Priorities Resolution; and (3) each Program Administrator's individual in-field experience. In compiling this section of the Plan, the Program Administrators also took note of presentations from the Consultants to the Council, individual Councilor's remarks at Council meetings, and input from various parties in program design working groups and internal discussions. Based upon this review, the Program Administrators propose the following methodology to integrate and coordinate gas and electric program offerings in an enhanced manner, with the ultimate (and related) goals of simplifying participation for customers and increasing energy savings in a cost-effective manner. The Program Administrators note that they will continue to work through the various issues associated with program integration in a collaborative fashion with the Council and its Consultants throughout the three-year period referenced in the Plan.

a) *The Act*

The core provisions of the Act that relate to program integration are set forth below. The Act is explicit that gas programs are to be administered by the gas Program Administrators and electric programs are to be administered by electric Program Administrators. In particular, with respect to electric programs, the Act provides:

> *The programs shall be administered by the electric distribution companies and by municipal aggregators* with energy plans certified by the Department under Subsection (b) of Section 164 of Chapter 164.
>
> . . . In authorizing such programs, the Department shall ensure that they are delivered in a cost-effective manner capturing all available efficiency opportunities, minimizing administrative costs to the fullest extent practicable and utilizing competitive procurement processes to the fullest extent practicable.

G.L. c. 25, § 19(a) (emphasis added).

Similarly, with respect to gas programs, the Act provides:

> The Department may approve and fund gas energy efficiency programs proposed by gas distribution companies including, but not limited to, demand side management programs. Energy efficiency activities eligible for funding under this section shall include combined heat and power and geothermal heating and cooling projects. Funding may be supplemented by funds authorized by Section 21. *The programs shall be administered by the gas distribution companies*. In authorizing such programs, the Department shall ensure that they are delivered in a cost-effective manner capturing all available efficiency opportunities, minimizing administrative costs to the fullest extent practicable and utilizing competitive procurement processes to the fullest extent practicable.

G.L. c. 25, § 19(a) (emphasis added).

The Act goes further with respect to integration and coordination and specifically provides:

> The Council shall, as part of the approval process by the Department, seek to maximize net economic benefits through energy efficiency and load management resources and to achieve energy, capacity, climate and environmental goals through *a sustained and integrated statewide energy efficiency effort*. . .
>
> The Council shall, as part of its review of plans, examine opportunities *to offer joint programs* providing similar efficiency measures that save more than 1 fuel resource *or to coordinate programs* targeted at saving more than one fuel resource. Any costs for joint programs shall be allocated equitably among the efficiency programs.

G.L. c. 25, § 22(b) (emphasis added).

This statutory background establishes the clear intention of the General Court for the Plans to build upon the expertise developed by the Program Administrators; the statutory language makes clear also that the gas and electric Program Administrators are ultimately responsible for the implementation of gas and electric programs, respectively, under the Act. The Council is tasked with seeking to achieve a "sustained and integrated statewide energy efficiency effort" and ensuring that opportunities "to offer joint programs" and "to coordinate programs" are fully examined. The Program Administrators' proposals set forth below seek to build upon, and are consistent with, this explicit statutory guidance.

b) *The Council's Priorities Resolution*

In its Priorities Resolution adopted on March 24, the Council provided guidance to the Program Administrators in terms of its goals regarding program integration and seamless delivery. Most specifically, in Section 2 of its Priorities Resolution, the Council stated:

> In order to plan for the successful on-going attainment of the savings goals derived from the Green Communities Act, the PAs are expected to develop strategies to provide comprehensive treatment and to acquire deep savings in customer facilities. *The Council also expects the PAs to develop and implement a comprehensive outreach, communication, and marketing strategy to inform and encourage program participation* and to support the development of the infrastructure necessary to provide these efficiency services.

Priorities Resolution, Section 2 (emphasis added).

In Section 22 of its Priorities Resolution, the Council further stated that:

> *The PAs shall strive to maximize seamless delivery to the customer, without duplication or complexity, regardless of a given property's rate class, territory or utility type by*:
>
> - Simplifying the number of programs in which a property can participate and instead develop comprehensive single-point programs that take a whole building approach to energy savings, while seamlessly integrating electric and gas efficiency measures into one program.
>
> - Streamlining program administration so every "property" is required to fill out only one application that encompasses gas and electric programs and is blind to a property's rate class or territory.
>
> - Developing consistency and coordination across service territories so that entities with multiple locations across the Commonwealth receive program services (gas, electric and some renewable) in a manner that reduces administrative burdens.
>
> - Implementing inter-utility, inter-fuel type, and inter-rate class funding mechanisms which enable single point programs for properties that are

served by two PAs, properties that have multiple rate class meters, and/or properties that are participating in whole-building approach programs.

- *Including a shared chapter in the gas and electric plans that describes how programs specifically integrate gas and electric initiatives to maximize overall utility savings*.

See Priorities Resolution, Section 22 (emphasis added).

The Program Administrators have sought to be responsive to these priorities in their proposals, noting that a number of these goals will be approached in a phased effort that will necessarily take time to succeed fully. Where the Program Administrators have points of amplification with respect to certain of these specific goals of the Council, they are set forth below. Further, the Program Administrators have established target dates for certain core integration milestones, which are noted in Section II.A.7.iv below.

c) *The Experience of the Program Administrators*

Gas and electric Program Administrators have historically engaged in coordinated and integrated activities to serve common customers. In the C&I sector, such activities, while productive, have been less formal and have been approached on an individual basis, typically involving extensive efforts to serve large customers in a coordinated fashion. These efforts have resulted in some notable successes throughout the Commonwealth.[9] The Program Administrators seek to build on these successes and the lessons learned in these projects as they move to a more standardized approach to integration and coordination. In the residential sector, the Program Administrators, working cooperatively with the DOER, have fully coordinated and integrated several activities, most notably in the development and operation of the Residential

[9] Examples of successful joint gas and electric projects include, without limitation, the Hampden County Sheriff's Office Project, the Greater Lawrence Sanitary District Project, and the Medfield Schools Project.

Conservation Services ("RCS") audit program under the "MassSAVE" umbrella. The residential new construction program and statewide low-income program are award-winning approaches to statewide consistency and market development of whole building performance in both the new construction and retrofit markets. The Program Administrators are seeking to leverage on this experience and create higher quality and more comprehensive approaches geared to providing a seamless experience from the customer's perspective.

ii. Benefits of Enhanced Integration and Coordination

The core potential benefits of increased integration and coordination of gas and electric programs include:

- Enhanced customer service, including fuel-blind recommendations and priorities for energy savings and simplified application processes.
- Simplified consistent messaging to customers and other market actors.
- Economies and efficiency in program delivery.
- Capturing more comprehensive savings at participating facilities.
- Improved cost-effectiveness analysis that ensures all energy and non-energy benefits are identified and accounted for.
- Improved BCRs that reflect benefits of both gas and electric measures.

By ensuring that customers understand all of the options for energy efficiency available to them through both gas and electric program offerings, the Program Administrators believe that customers will be encouraged to implement a more comprehensive package of measures, thereby maximizing energy savings. Once the programs are fully implemented, customers and the practitioners designing buildings will have knowledge of, and access to, the wide array of program offerings accessible to them through one convenient systems selection process.

iii. Specific Approaches and Actions Regarding Gas and Electric Program Integration and Coordination

In order to achieve enhanced program integration and coordination, the Program Administrators propose the following approaches and activities. As noted above, these efforts will be refined and further developed as the Program Administrators continue their implementation planning for the programs included in the Plan. The Program Administrators will be including updates on their integration efforts in their progress reporting.

a) Definitions and Terminology for Integration Efforts

Both the Green Communities Act and the Council's Priorities Resolution use the terms "integration" and "coordination" without any particular distinction. In an effort to achieve a common understanding of these terms, the Program Administrators have developed the following working definitions. *Integration* refers to taking previously separate entities and blending them into a unified whole (*i.e.,* the multi-family program offers both gas and electric measures, and within each fuel, measures that are that are traditionally considered "residential" and those that are considered "C&I" are all available through this single program). By distinction, *coordination* denotes organizing two or more separate entities so that they align to achieve a common goal. For example, the Program Administrators will integrate their marketing efforts to prevent customer confusion, but will also coordinate regional variations to maximize their effectiveness. Throughout the Plan, the Program Administrators use both of these paradigms, as appropriate, to deliver a seamless experience for program participants.

b) *Specific Building Blocks for Integration Applications*

While the strategies for achieving integration may vary between programs, the Program Administrators will utilize a common set of building blocks that apply to multiple end-uses and

fuel sources to address integration/coordination issues, as well as applying consistent prescriptive applications where appropriate, regardless of technology. In so doing, the Program Administrators will develop a consistent incentive structure and design (*e.g.*, percentage of incremental cost), so that they may offer customers a package of measures for gas and electric energy efficiency opportunities. The success of the Program Administrators in addressing this strategic goal (with the collaborative assistance of the Council's Consultants through the course of many working group meetings) is perhaps best demonstrated by the integrated gas and electric program designs, adopted with the unanimous consent of all gas and electric Program Administrators in both this Plan and the plan being filed simultaneously today by the gas Program Administrators.

Additionally, the Program Administrators continue to develop a single set of program rules for application regardless of fuel type (*e.g.*, technical assistance co-pay offer, TRC cost-effectiveness guidelines, payback limits, eligibility). Further, electric Program Administrators will include the savings associated with those measures that save oil in the screening for cost-effectiveness in accordance with the Department's D.P.U. 08-50 screening guidelines.

The Program Administrators intend to develop a common customer experience that can be monitored, measured, and enhanced over time, and, as such, will develop this integration experience based on a single set of common assumptions for prescriptive measures and project screening, thereby allowing both electric and gas measures to be evaluated consistently. The Program Administrators note, however, that differences will remain with respect to transmission and distribution ("T&D") avoided capacity costs and utility-specific line losses, given how those cost categories are unique to gas and electric. With respect to efforts or initiatives that are end-use or measure specific (*e.g.*, Cool Choice and certain outreach efforts to trade allies and

manufacturers), there will appropriately be some gas and electric differences due to the end uses associated with the measures. However, where possible, the Program Administrators are committed to integrating these initiatives.

Each Program Administrator will be able to provide the data required for jointly assessing the new integrated/coordinated programs as they are implemented. In analyzing upstream marketing and distribution strategies for a single integrated approach, the Program Administrators will focus on increased consistency and integration with trade allies, manufacturers, market actors, and market channels, and will develop guidelines for allocating program costs and savings among different fuel customers for joint programs where benefits accrue to each energy system.

Lastly, the Program Administrators will work to develop consistent messaging to customers regarding program offerings and the availability of measures for both gas and electric measures. The Program Administrators will work collaboratively to coordinate and implement to the fullest extent possible an integration and coordination strategy during the initial three-year Plan periods.

c) *Enhanced Program Designs For Integration/Coordination*

The Program Administrators, through various working group structures, have utilized the building blocks described above to develop enhanced program designs which specifically address the integration/coordination issues outlined in the Act and the Council's Priority Resolution. The integrated designs, collaboratively developed through a working group process with the Council's Consultants, are set forth in Section II.F. The Program Administrators respectfully submit that this level of integrated effort, on a statewide basis that is supported by each gas and electric Program Administrator, has not been surpassed in the United States.

One unique example of integration techniques is found in the new, collaboratively developed multi-family program (a key focus of many Council members). At the cornerstone of the multi-family integration model is the provision of a "Multi-Family Market Integrator" function. The main responsibility of the Multi-Family Market Integrator will be to manage a project in a seamless manner for the customer. Given that one size does not fit all in this market, the working group developed a model that is scalable and thus able to support projects that run the gamut from simple to very complex. Throughout the project lifecycle, customers will be able to turn to the Multi-Family Market Integrator to facilitate responses to their inquiries, thus eliminating the need for customers to directly contact multiple parties.

Currently, all program design teams plan to continue to work to ensure that: a) all Program Administrators remain abreast of the key energy efficiency activities of other Program Administrators; b) energy efficiency implementation activities and efforts by all Program Administrators are integrated and coordinated to the optimal extent; c) statewide marketing and media campaigns are developed with easy-to-understand communications for all customers; and d) best practices and integration/coordination efforts in other jurisdictions are reviewed and discussed to maximize collaboration efforts and build on the experiences in other regions. In so doing, the Program Administrators have committed to the ongoing process of collaboration and integration in a manner that will ultimately result in program offerings for customers that offer as much "one-stop shopping" as is practically feasible.

d) *Specific Program Integration and Coordination Challenges*

While the Program Administrators fully support the integration and coordination goals set forth in both the Act and the Council's Priorities Resolution, there is a general recognition of the substantial time required to accomplish these joint objectives. The Program Administrators

note that completing the integration/coordination efforts is a time intensive process given the number of programs involved, the existing variances between Program Administrator offerings, and number of program design elements (measures, incentives, delivery mechanisms) that must be addressed. In addition, the Program Administrators will need to issue RFPs and review any responsive bids for the services required to support the enhanced program designs associated with the Plan. This too will take time.

Lastly, the Program Administrators are committed to performing due diligence with respect to best practices both within and outside of Massachusetts. So doing will allow the Program Administrators to maximize expected savings and will provide new information on those measures that are seeing success in the marketplace. The Program Administrators will continue to research best practices throughout the three-year period, and will review current studies and findings before making the substantive programmatic changes contemplated by both the Act and the Council's Priority Resolutions.

e) *Integrated Marketing Efforts*

The Program Administrators have worked collaboratively with DOER and other interested parties to establish a comprehensive integrated public outreach and education marketing initiative. Section II.G provides a more thorough discussion of the marketing and education initiatives that have been developed to promote the program goals set forth in this Plan.

As discussed elsewhere in this Plan, a critical key component of integration and seamless delivery is consistent messaging. The establishment of a statewide website (marketing portal) and marketing approach to make customers aware of program offerings will minimize the market confusion that could result from competing advertising campaigns that may otherwise

overlap in the mass media. The Program Administrators have initiated a process to develop and operate a central web-based site that allows customers to gain access to all relevant information, applications, and forms, and expect that the site will be operational in 2010. Additionally, individual Program Administrators (and, likely, the GasNetworks group on a collaborative basis for gas Program Administrators) will coordinate complementary marketing initiatives to reinforce and support the overall statewide marketing strategy as well as address unique local conditions and/or sub-markets in their service areas. These individual activities will be undertaken in consultation with other Program Administrators in order to maintain good communications, promote the statewide efforts, and avoid inconsistent messaging.

f) *Other Core Principles*

In developing integrated/coordinated programs, Program Administrators will emphasize and adhere to several core principles. First, the gas and electric Program Administrators commit to coordinate and integrate their activities and pool their knowledge and expertise so that customers enjoy a seamless process. Second, the Program Administrators will work to ensure that customers will be able to turn to their local gas or electric company or other Program Administrator (for example, the Cape Light Compact) for the provision of energy efficiency services. Third, Program Administrators will also ensure that low-income customers will be able to turn to their local low-income weatherization and fuel assistance program network in addition to their local Program Administrators for accurate and up-to-date information regarding energy efficiency program opportunities and initiatives.

As integration and coordination efforts increase, it is important that customers (perhaps most pointedly a large C&I customer) retain the ability to contact their dedicated account representative for help in developing customized services that best meet that customer's needs.

Indeed, to ensure maximum customer uptake, multiple customer channels should be preserved, including direct contact with the Program Administrator. Program Administrators have established strong, long-term relationships with customers, and maintain a robust understanding of their business requirements; this provides a natural opportunity to promote programs in a customized fashion that is meaningful to customers, particularly large customers. The Program Administrators will leverage these important relationships in the delivery of energy efficiency services, but will also ensure that regardless of the point of entry, customers will have available to them a seamless program offering without the need to contact multiple parties.

Further, Program Administrators will maintain the ability to provide direct and responsive service to any customer (from a small residential customer to the largest industrial customer) who reaches out to them for assistance. In these instances, the Program Administrator contacted will work with any other Program Administrator (or their vendor) serving the same territory to encourage the customer to pursue additional efficiency opportunities. The Program Administrators recognize that some customers will only undertake a single or limited set of measures at a given point in time; however, a positive experience for that particular customer will help to ensure their participation in future energy efficiency undertakings.

Program Administrators require the flexibility to continue to create innovative processes and programs. Increased integration should in no way inhibit the innovations of Program Administrators, particularly with respect to the development and implementation of pilot programs. Program Administrators should be able to propose innovative pilot efforts that are not fully coordinated or integrated with other statewide activities. Indeed, a key goal of such pilots is that they yield data as to whether the approach explored in the pilot should be implemented on a larger, statewide scale.

As Program Administrators successfully increase their integration efforts, they will need to document the costs and savings associated with this integration, whether from manual or automated solutions, and will also need to quantify any increased efficiencies associated with these efforts. Therefore, a full understanding of costs and benefits will enable Program Administrators to provide a more seamless experience from the perspectives of vendors and market actors, as well as customers.

iv. Conclusion

The Program Administrators have developed a core, consistent set of statewide programs and strategies that can be delivered to customers in an integrated fashion that ensures seamless service, regardless of whether the customer is served by a combined gas/electric utility, municipal aggregator, by different gas and electric utilities, or has facilities or projects in multiple Program Administrator service areas. While there may be limited areas or initiatives where some diversity in approach will be appropriate based on unique service territory characteristics, or will be useful in supporting local economic and infrastructure development objectives (*e.g.*, utilizing multiple, local/geographically dispersed service providers and equipment suppliers) or developing a longer term approach (*e.g.*, utilizing different incentive structures for certain new programs in different areas for a finite time period to see if one of several approaches has better success), the Program Administrators anticipate that such variances will be limited. The findings associated with these individual efforts will be documented and circulated to all Program Administrators for discussion purposes, as well as provided in the individual PA-specific filings.

Over the course of the next three years, the Program Administrators expect to see unprecedented consistency in participation requirements, available core services and measures,

conditions, exclusions, and limits, and incentive amounts and/or calculations. To demonstrate the Program Administrators' commitment to this goal, the table below provides the anticipated key milestones that the Program Administrators intend to work towards for the integration of applicable programs.

Target Milestone Date	**Measures Associated with Target**
November 15, 2009	Review and Develop Screening and Diagnostic Visit Criterion for Residential Retrofit Program
December 31, 2009	Develop Scope of Work for the Program Expeditor (to facilitate offering a fully integrated program) in the multi-family sector.
January 1, 2010	Integration of Marketing and Outreach Efforts and Delivery to Customer for C&I Lost Opportunity Program and Large C&I Retrofit programs
January 1, 2010	Establish Track Enhancements for C&I Lost Opportunity Program and Large C&I Retrofit programs
January 1, 2011	Investigate and Evaluate Financing Options for Large C&I Retrofit Program

8. *Progress Toward Other Massachusetts Policy Goals/Requirements*

Although this Plan is directed primarily at the mandates of the Green Communities Act, the Program Administrators are cognizant of the role that the statewide electric and gas efficiency investment plans occupy in the Commonwealth's broader, historically ambitious statutory scheme and policy goals. As noted in the Executive Summary, on August 13, 2008, shortly following the enactment of the Green Communities Act, Governor Patrick signed the GWSA and the Green Jobs Act. Taken together, these legislative enactments reflect the

Commonwealth's commitment to climate protection and its leadership in promoting clean and renewable energy. The Program Administrators welcome the continued opportunity to design and implement innovative programs that promote the Commonwealth's goals of promoting energy efficiency, decreasing GHGs, and spurring job creation in the clean energy sector.

B. Funding Sources[10]

The Program Administrators project that there will be approximately $1,336,673,564 in funds available statewide to support energy efficiency efforts during the three-year period. This section of the Plan includes the following tables which provide detailed information on the sources of funding the Program Administrators currently expect will be available to support their proposed programs.

- Summary Table
- Supporting Tables for each funding source listed in the Summary Table:
    - System Benefit Charge Funds
    - FCM Proceeds
    - Regional Greenhouse Gas Initiative Proceeds
    - Other Funding Sources
    - Carryover
    - Energy Efficiency Reconciliation Factor

As shown in the summary table below, in addition to the estimated proceeds from the System Benefit Charge ("SBC"), FCM, and RGGI, the funding for the period 2010 to 2012 includes carryover, and, for some of the Program Administrators, funds collected through an Energy Efficiency Reconciliation Factor ("EERF"). The SBC funding is calculated consistently with G.L. c. 25, § 19(a) which states: "The department shall require a mandatory charge of 2.5 mills per kilowatt-hour for all consumers, except those served by a municipal lighting plant, to

[10] Please refer to accompanying Excel Workbook, with cross-linkages.

fund energy efficiency programs including, but not limited to, demand side management programs." Consistent with the Act, a minimum of 10 percent of the amount expended for electric energy efficiency programs will be spent on comprehensive low-income residential Demand-Side Management ("DSM") and education programs. G.L. c. 25, § 19. FCM and RGGI funding is based on proceeds the Program Administrators expect to receive during the three-year period. The calculation of the EERF is further described in Section I, Cost Recovery, of this Plan.

1. *Summary Table*

Allocation of Funding Sources, 2010							
Sector	**SBC (1)**	**FCM (2)**	**RGGI (3)**	**Other (4)**	**Carryover (5)**	**EERF (6)**	**TOTAL**
Residential	$35,630,885	$3,304,070	$15,606,218	$351,053	$1,840,183	$67,085,930	**$123,818,339**
% of Residential	29%	3%	13%	0%	1%	54%	**100%**
Low Income	$12,545,460	$1,173,418	$5,484,004	$91,351	($49,379,929)	$2,169,482	**($27,916,214)**
% of Low Income	-45%	-4%	-20%	0%	177%	-8%	**100%**
Commercial & Industrial	$72,038,019	$6,860,009	$31,431,768	$15,794,297	$38,581,577	$42,166,492	**$206,872,161**
% of Commercial & Industrial	35%	3%	15%	8%	19%	20%	**100%**
TOTAL	**$120,214,363**	**$11,337,497**	**$52,521,990**	**$16,236,700**	**($8,958,168)**	**$111,421,904**	**$302,774,286**
% of Total	**40%**	**4%**	**17%**	**5%**	**-3%**	**37%**	**100%**

Allocation of Funding Sources, 2011							
Sector	**SBC (1)**	**FCM (2)**	**RGGI (3)**	**Other (4)**	**Carryover (5)**	**EERF (6)**	**TOTAL**
Residential	$36,002,199	$3,382,156	$15,867,579	$22,107,801	NA	$57,092,744	**$134,452,480**
% of Residential	27%	3%	12%	16%	NA	42%	**100%**
Low Income	$12,675,486	$1,198,319	$5,579,278	$5,207,457	NA	$674,139	**$25,334,678**
% of Low Income	50%	5%	22%	21%	NA	3%	**100%**
Commercial & Industrial	$72,804,042	$6,943,654	$31,969,796	$71,587,206	NA	$107,587,677	**$290,892,376**
% of Commercial & Industrial	25%	2%	11%	25%	NA	37%	**100%**
TOTAL	**$121,481,727**	**$11,524,129**	**$53,416,653**	**$98,902,464**	**NA**	**$165,354,561**	**$450,679,534**
% of Total	**27%**	**3%**	**12%**	**22%**	**NA**	**37%**	**100%**

Allocation of Funding Sources, 2012							
Sector	**SBC (1)**	**FCM (2)**	**RGGI (3)**	**Other (4)**	**Carryover (5)**	**EERF (6)**	**TOTAL**
Residential	$36,614,212	$3,590,950	$11,692,071	$44,173,680	NA	$69,987,319	**$166,058,233**
% of Residential	22%	2%	7%	27%	NA	42%	**100%**
Low Income	$13,060,840	$1,285,060	$4,176,762	$10,358,192	NA	$1,043,386	**$29,924,239**
% of Low Income	44%	4%	14%	35%	NA	3%	**100%**

Commercial & Industrial	$75,597,308	$7,410,690	$24,098,398	$125,773,055	NA	$154,357,821	**$387,237,273**
% of Commercial & Industrial	20%	2%	6%	32%	NA	40%	**100%**
TOTAL	**$125,272,360**	**$12,286,700**	**$39,967,231**	**$180,304,927**	**NA**	**$225,388,525**	**$583,219,744**
% of Total	**21%**	**2%**	**7%**	**31%**	**NA**	**39%**	**100%**

Allocation of Funding Sources, 2010-2012							
Sector	**SBC (1)**	**FCM (2)**	**RGGI (3)**	**Other (4)**	**Carryover (5)**	**EERF (6)**	**TOTAL**
Residential	$108,247,296	$10,277,176	$43,165,869	$66,632,534	$1,840,183	$194,165,993	**$424,329,051**
% of Residential	26%	2%	10%	16%	0%	46%	**100%**
Low Income	$38,281,786	$3,656,797	$15,240,043	$15,656,999	($49,379,929)	$3,887,007	**$27,342,703**
% of Low Income	140%	13%	56%	57%	-181%	14%	**100%**
Commercial & Industrial	$220,439,369	$21,214,353	$87,499,963	$213,154,558	$38,581,577	$304,111,990	**$885,001,810**
% of Commercial & Industrial	25%	2%	10%	24%	4%	34%	**100%**
TOTAL	**$366,968,450**	**$35,148,326**	**$145,905,874**	**$295,444,091**	**($8,958,168)**	**$502,164,991**	**$1,336,673,564**
% of Total	**27%**	**3%**	**11%**	**22%**	**-1%**	**38%**	**100%**

2. *Supporting page/table for each funding source listed in Summary Table*

i. System Benefit Charge Table/Info

SBC Funds, 2010						
Sector	**kWh Sales**	**Energy Efficiency Charge**	**Collections**	**% Collections of Total**	**Allocation**	**% Allocation of Total**
Residential (1)	15,332,733,531	0.0025	$38,331,834	31.9%	$35,630,885	29.6%
Low Income (2)	1,633,237,017	0.0025	$4,083,093	3.4%	$12,545,460	10.4%
Commercial & Industrial (3)	31,119,774,724	0.0025	$77,799,437	64.7%	$72,038,019	59.9%
TOTAL	48,085,745,272		$120,214,363	100%	$120,214,363	100%

SBC Collections, 2011						
Sector	**kWh Sales**	**Energy Efficiency Charge**	**Collections**	**% Collections of Total**	**Allocation**	**% Allocation of Total**
Residential (1)	15,471,249,162	0.0025	$38,678,123	31.8%	$36,002,199	29.6%
Low Income (2)	1,709,015,500	0.0025	$4,272,539	3.5%	$12,675,486	10.4%
Commercial & Industrial (3)	31,412,462,517	0.0025	$78,531,156	64.6%	$72,804,042	59.9%
TOTAL	48,592,727,179		$121,481,818	100%	$121,481,727	100%

SBC Collections, 2012						
Sector	**kWh Sales**	**Energy Efficiency Charge**	**Collections**	**% Collections of Total**	**Allocation**	**% Allocation of Total**
Residential (1)	15,717,772,846	0.0025	$39,294,432	32.4%	$36,614,212	29.2%
Low Income (2)	1,815,292,365	0.0025	$4,538,231	2.4%	$13,060,840	10.4%
Commercial & Industrial (3)	32,584,829,040	0.0025	$81,462,073	65.2%	$75,597,308	60.3%

TOTAL	50,117,894,250		$125,294,736	100%	$125,272,360	100%

SBC Collections, 2010-2012						
Sector	**kWh Sales**	**Energy Efficiency Charge**	**Collections**	**% Collections of Total**	**Allocation**	**% Allocation of Total**
Residential (1)	46,521,755,538	0.0025	$116,304,389	31.7%	$108,247,296	29.5%
Low Income (2)	5,157,544,882	0.0025	$12,893,862	3.5%	$38,281,786	10.4%
Commercial & Industrial (3)	95,117,066,281	0.0025	$237,792,666	64.8%	$220,439,369	60.1%
TOTAL	146,796,366,702		$366,990,917	100%	$366,968,450	100%

ii. Forward Capacity Market Proceeds Table/Info

Forward Capacity Market Revenue, 2010													
Portfolio	Nov. 2009			Dec. 2009			Jan. 2010			Feb. 2010			
	kW	FCM Transition Price	Revenue	kW	FCM Transition Price	Revenue	kW	FCM Transition Price	Revenue	kW	FCM Transition Price	Revenue	
	192,043	$4.10	$787,378	242,297	$4.10	$993,419	246,024	$4.10	$1,008,699	252,739	$4.10	$1,036,231	
Portfolio	Mar. 2010			Apr. 2010			May-10			June 2010 - Dec 2010 (1)			TOTAL 2010 Revenue
	kW	FCM Transition Price	Revenue	kW	FCM Transition Price	Revenue	kW	FCM Transition Price	Revenue	kW	FCM Clearing Price	Revenue	
	252,213	$4.10	$1,034,073	190,244	$4.10	$780,001	190,698	$4.10	$781,863	235,289	$4.25	$7,006,439.15	$11,647,307

Forward Capacity Market Revenue, 2011							
Portfolio	Jan 2010 - May 2011 (1)			June 2011 - Dec 2011 (1)			TOTAL 2011 Revenue
	kW	FCM Clearing Price	Revenue	kW	FCM Clearing Price	Revenue	
	213,641	$4.25	$4,544,146	341,542	$3.12	$7,456,884	$12,001,030

Forward Capacity Market Revenue, 2012							
Portfolio	Jan 2011 - May 2012 (1)			June 2012 - Dec 2012 (1)			TOTAL 2012 Revenue
	kW	FCM Clearing Price	Revenue	kW	FCM Clearing Price	Revenue	
	281,566	$3.12	$4,391,026	469,671	$2.95	$9,698,704	$14,089,730

Allocation of 2010-2012 FCM Revenue								
Sector	2010		2011		2012		TOTAL	
	FCM Revenue	% of Total FCM Revenue (2)	FCM Revenue	% of Total FCM Revenue (2)	FCM Revenue	% of Total FCM Revenue (2)	FCM Revenue	% of Total FCM Revenue (2)
Residential	$3,304,070	29.1%	$3,382,156	29.3%	$3,590,950	29.2%	$10,277,176	29.2%
Low Income	$1,173,418	10.3%	$1,198,319	10.4%	$1,285,060	10.5%	$3,656,797	10.4%
Commercial & Industrial	$6,860,009	60.5%	$6,943,654	60.3%	$7,410,690	60.3%	$21,214,353	60.4%
TOTAL	$11,337,497	100.0%	$11,524,129	100.0%	$12,286,700	100.0%	$35,148,326	100.0%

iii. Regional Greenhouse Gas Initiative Proceeds Table/Info

The Program Administrators have estimated the proceeds they expect to receive from their participation in the RGGI based on the following assumptions:

- In 2010, the Program Administrators will receive revenues from all RGGI auctions held during 2010. In 2011, the Program Administrators will receive revenues from all RGGI auctions held in 2011. And, similarly, in 2012, the Program Administrators will receive revenue from all auctions held in 2012.
- Eighty percent of the Massachusetts proceeds from RGGI auctions will be allocated to energy efficiency Program Administrators, consistent with the Legislature's directives in the Green Communities Act that cap-and-trade pollution control programs including, but not limited to, not less than 80 percent of amounts generated by the carbon dioxide allowance trading mechanism established under the RGGI Memorandum of Understanding and the NOx Allowance Trading Program will be made available for energy efficiency program expenditures. *See* G.L. c. 25, § 19(a).
- Program Administrators will receive RGGI proceeds in proportion to the amount of funding required to fund their energy efficiency programs above the SBC and FCM.

Additional assumptions used by the Program Administrators with regard to the number of Massachusetts allowances sold in each year and the clearing price of future auctions are provided in the table below.

Regional Greenhouse Gas Initiative Proceeds, 2010 (1)

Auction Projections	Auction 1 (2)		Auction 2 (2)		Auction 3 (2)		Auction 4 (2)		TOTAL
	Compliance Period 1 (3)	Compliance Period 2 (3)	Compliance Period 1 (3)	Compliance Period 2 (3)	Compliance Period 1 (3)	Compliance Period 2 (3)	Compliance Period 1 (3)	Compliance Period 2 (3)	
MA Proceeds (4)									
MA Allowances Sold	6,578,405	328,921	6,578,405	328,921	6,578,405	328,921	6,578,405	328,921	
Auction Clearing Price	$2.38	$1.90	$2.39	$1.90	$2.41	$1.90	$2.42	$1.90	
Total Proceeds to MA	$15,656,604	$624,950	$15,722,388	$624,950	$15,853,956	$624,950	$15,919,740	$624,950	$65,652,488
Proceeds to MA EE Plan (4)									
Percent of MA Funds to EE Plans (e.g., >=80%)	80%	80%	80%	80%	80%	80%	80%	80%	
Total $ to MA Energy Efficiency Plans	$12,525,283	$499,960	$12,577,910	$499,960	$12,683,165	$499,960	$12,735,792	$499,960	$52,521,990
Allocation to PA									
Total MA kWh (4)									
PA kWh									
% PA kWh of State	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
TOTAL $ to PA	**$12,525,283**	**$499,960**	**$12,577,910**	**$499,960**	**$12,683,165**	**$499,960**	**$12,735,792**	**$499,960**	**$52,521,990**

Regional Greenhouse Gas Initiative Proceeds, 2011 (1)									
Auction Projections	**Auction 1 (2)**		**Auction 2 (2)**		**Auction 3 (2)**		**Auction 4 (2)**		**TOTAL**
	Compliance Period 1 (3)	**Compliance Period 2 (3)**	**Compliance Period 1 (3)**	**Compliance Period 2 (3)**	**Compliance Period 1 (3)**	**Compliance Period 2 (3)**	**Compliance Period 1 (3)**	**Compliance Period 2 (3)**	
MA Proceeds (4)									
MA Allowances Sold	6,578,405	328,921	6,578,405	328,921	6,578,405	328,921	6,578,405	328,921	
Auction Clearing Price	$2.42	$1.90	$2.43	$1.90	$2.45	$1.90	$2.47	$1.90	
Total Proceeds to MA	$15,919,740	$624,950	$15,985,524	$624,950	$16,117,092	$624,950	$16,248,660	$624,950	$66,770,816
Proceeds to MA EE Plan (4)									
Percent of MA Funds to EE Plans (e.g., >=80%)	80%	80%	80%	80%	80%	80%	80%	80%	
Total $ to MA Energy Efficiency Plans	$12,735,792	$499,960	$12,788,419	$499,960	$12,893,674	$499,960	$12,998,928	$499,960	$53,416,653
Allocation to PA									
Total MA kWh (4)									
PA kWh									
% PA kWh of State	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
TOTAL $ to PA	**$12,735,792**	**$499,960**	**$12,788,419**	**$499,960**	**$12,893,674**	**$499,960**	**$12,998,928**	**$499,960**	**$53,416,653**

Regional Greenhouse Gas Initiative Proceeds, 2012 (1)									
Auction Projections	**Auction 1 (2)**		**Auction 2 (2)**		**Auction 3 (2)**		**Auction 4 (2)**		**TOTAL**
	Compliance Period 1 (3)	**Compliance Period 2 (3)**	**Compliance Period 1 (3)**	**Compliance Period 2 (3)**	**Compliance Period 1 (3)**	**Compliance Period 2 (3)**	**Compliance Period 1 (3)**	**Compliance Period 2 (3)**	
MA Proceeds (4)									
MA Allowances Sold	6,249,485	320,697	6,249,485	320,697	6,249,485	320,697	6,249,485	320,697	
Auction Clearing Price	$1.90	$1.92	$1.90	$1.92	$1.90	$1.92	$1.90	$1.92	
Total Proceeds to MA	$11,874,022	$615,738	$11,874,022	$615,738	$11,874,022	$615,738	$11,874,022	$615,738	$49,959,039
Proceeds to MA EE Plan (4)									
Percent of MA Funds to EE Plans (e.g., >=80%)	80%	80%	80%	80%	80%	80%	80%	80%	
Total $ to MA Energy Efficiency Plans	$9,499,217	$492,591	$9,499,217	$492,591	$9,499,217	$492,591	$9,499,217	$492,591	$39,967,231
Allocation to PA									
Total MA kWh (4)									
PA kWh									
% PA kWh of State	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
TOTAL $ to PA	**$9,499,217**	**$492,591**	**$9,499,217**	**$492,591**	**$9,499,217**	**$492,591**	**$9,499,217**	**$492,591**	**$39,967,231**

Notes:

(1) Include auctions in which proceeds will be applied for the applicable program year.

(2) The actual date of each auction shall be included and are uniform across all PAs.

(3) The dates of each compliance period shall be included and are uniform across all PAs.

(4) Information included in sections "MA Proceeds" and "Proceeds to MA EE Plan" and in line "Total MA kWh" are uniform across all electric PAs.

Allocation of RGGI Proceeds								
Sector (5)	2010		2011		2012		TOTAL	
	RGGI Funds	% of Total RGGI Funds	RGGI Funds	% of Total RGGI Funds	RGGI Funds	% of Total RGGI Funds	RGGI Funds	% of Total RGGI Funds
Residential	$14,129,508	26.9%	$14,400,515	27.0%	$10,831,509	27.1%	$39,361,532	27.0%
Low Income	$5,898,132	11.2%	$6,014,032	11.3%	$4,516,901	11.3%	$16,429,065	11.3%
Commercial & Industrial	$32,494,350	61.9%	$33,002,106	61.8%	$24,618,821	61.6%	$90,115,278	61.7%
TOTAL	$52,521,990	100.0%	$53,416,653	100.0%	$39,967,231	100.0%	$145,905,874	100.0%

Notes:

(5) Describe fully the manner in which RGGI proceeds are allocated to each customer sector.

Revenue is allocated across customer sector based on SBC % allocation of total.

(6) 2010 RGGI Funds include 2009 Auction 3 and Auction 4 Funds

iv. Other Funding Table/Info

Other Funding Sources, 2010 (1)		
Other Funding Sources Available	**Description**	**Funding Amount**
See Company specific information	See Company specific information	$16,136,700
		$0
See Company specific information	See Company specific information	$100,000
TOTAL		$16,236,700
Other Funding Sources, 2011 (1)		
Other Funding Sources Available	**Description**	**Funding Amount**
See Company specific information	See Company specific information	$56,388,464
See Company specific information	See Company specific information	$42,514,000
		$0
TOTAL		$98,902,464
Other Funding Sources, 2012 (1)		
Other Funding Sources Available	**Description**	**Funding Amount**
See Company specific information	See Company specific information	$112,776,927
See Company specific information	See Company specific information	$67,528,000
		$0
TOTAL		$180,304,927
Other Funding Sources, 2010-2012 (1)		
Other Funding Sources Available	**Description**	**Funding Amount**
See Company specific information	See Company specific information	$169,902,091
See Company specific information	See Company specific information	$125,442,000
See Company specific information	See Company specific information	$100,000
TOTAL		$295,444,091

- **Discussion of Other Funding Sources; Potential Outside Capital and Expanded On-Bill Financing Opportunities**

In developing the programs detailed in this Plan, the Program Administrators have explored, and will continue to explore, the acquisition of new outside capital (*e.g.*, bond issuances, third-party funding) and the expansion of existing on-bill financing options, in the interest of making energy efficiency programs more financially accessible to customers. Through the discussions of program working groups, the Program Administrators have focused

on expanding existing on-bill financing as part of the program offerings and program delivery under the Plan, as well as considering potential new sources of outside capital that may be available for the financing of energy efficiency programs. The objective is to identify, analyze, and implement additional funding sources and mechanisms over the three-year period that will make energy efficiency programs more attractive to customers, while minimizing bill impacts, in order to achieve (or even surpass) the ambitious savings goals proposed by the Program Administrators in this Plan. With that in mind, the Program Administrators, with the support of the Council, have set aggressive targets for outside financing, and have factored in such outside financing in their savings goals.

The Program Administrators regard outside capital and on-bill financing as an important tool in reducing or removing financial barriers that may prevent or delay customers' investments in energy efficiency measures. Such financing mechanisms can help address barriers associated with the potentially substantial up-front costs of installing energy efficiency measures and the difficulties customers may encounter in securing financing independently.[11] Customers—from residential to large C&I—may refrain from installing cost-effective energy efficiency measures due to concerns regarding the financial commitment involved. For example, customers may be deterred by the potentially considerable up-front costs associated with energy efficiency measures or they may be discouraged by the interest and transaction costs associated with independent financing; likewise, customers may face barriers related to creditworthiness or the prospect of having to repay a loan before the full savings associated with the measure has been realized. In confronting these barriers, outside capital and on-bill financing can: (1) assist

[11] For a more extended analysis of considerations surrounding on-bill financing, *see* State of New York Public Service Commission, Case 07-M-0548, "Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard (EEPS)", Working Group VI—On-Bill Financing, Final Report (Dec. 19, 2008).

customers in identifying a financing source; (2) facilitate and expedite the lending process; and (3) provide an administratively easy method for the customer to repay the financing, particularly in the instance where the repayment is included in utility bills the customer already receives.

In addition to existing on-bill financing practices, the Program Administrators are exploring various new outside sources of funding for energy efficiency efforts. Third-party funding could include traditional lending sources (such as banks) or non-traditional sources (such as retailers and other private entities), with the Program Administrator acting to bring customers together with lenders in order to effect a loan for an energy efficiency project. Outside capital might also be raised through the sale of tax-exempt bonds or other government initiatives. There are other possible approaches under discussion nationally as well, including possible strategies that would use a federal "backstop" on loans.

In order to help foster outside funding efforts, the DOER has convened an On-Bill Financing Working Group (the "OBF Working Group") that is reviewing multiple technical, legal, and regulatory issues related to on-bill financing. The DOER has also convened informal working sessions to discuss possible outside funding approaches and initiatives. The Program Administrators plan to continue to participate actively in these important, multi-party efforts.

The Program Administrators emphasize that, in all instances, to the extent that financing efforts are expanded to derive funding from outside sources, the Program Administrators need to address a variety of legal and practical factors, depending upon the structure being proposed, prior to implementation. For example, the Program Administrators must always ensure that programs comply with all applicable lending and debt collection laws and regulations. The expansion of financing options also presents concerns relating to customer creditworthiness. Historically, the Program Administrators' on-bill financing programs have not required

additional credit checks for customers who are current in their bills. However, as programs are expanded on a very large-scale basis, additional measures might be required to determine creditworthiness and to address the consequences of increased delinquency and non-payment. Similar challenges have been met before and are by no means insurmountable, but they merit careful analysis to ensure that the administrative costs are reasonable and that the funding mechanisms are viable, cost-effective, and promote the overall objectives of the Act. In addition, careful scrutiny needs to be applied to the overall debt levels borne by customers. The Program Administrators seek to ensure that they do not promote financing mechanisms that would cause customers to become over-leveraged. Many of these issues will be explored in the OBF Working Group.

While the Program Administrators seek to ensure that outside funding does not negatively impact customers, they also believe in the benefits of outside capital and funding sources, and are committed to working with the Council, the Commonwealth, and interested stakeholders in seeking to obtain significant outside capital to finance energy efficiency measures for customers over the next three years. As the complex process of analyzing potential outside funding and capital sources is still in the early stages, the Program Administrators have committed to savings goals in 2010 that include already-known levels of outside financing, such as the HEAT Loan program. *See* Table II.D.3.ii. Moreover for 2010 the Program Administrators anticipate determined levels of financing will be identified to support the first year ramping up of spending and savings goals. The Plan expressly contemplates that the Program Administrators will be in a position to offer expanded energy efficiency programs that are supported by a larger amount of outside funding by 2011, and the Program Administrators, in conjunction with DOER and the Consultants, have set target levels of $100,000,000 of outside

funding for that year. Building on the anticipated knowledge to be gained through the OBF Working Group and through actual program implementation in 2011, the Program Administrators have set target levels of outside funding at $200,000,000 for 2012. For planning purposes, the Program Administrators are assuming that sixty percent (60%) of the outside funding will be available in the form of funds/grants that would directly off-set program costs, similar to FCM and RGGI funds, with the other forty percent (40%) of funding forming a loan or similar pool that would provide capital to customers, which would be repaid through on-bill or other mechanisms. The successful achievement of these targets for outside financing (both dollar targets and the 60%/40% allocation of outside funds) are embedded in the savings goals and bill impact analyses for 2011 and 2012 set forth in this Plan.

Because the target levels of outside financing are reflected in the savings goals and bill impacts analyses, if such target levels of outside capital are not achieved by September 1, 2010, the Program Administrators would re-file 2011 and 2012 goals and budgets on or about September 30, 2010 with consideration, *inter alia*, of the bill impacts resulting from the inability to obtain outside capital at these levels. Similarly, if the then-current target levels of outside capital for 2012 are not achieved by September 1, 2011, the Program Administrators would re-file 2012 goals and budgets on or about September 30, 2011 with the same considerations.

In sum, Program Administrators are dedicated to exploring, analyzing, and implementing sources and mechanisms for outside funding and capital sources, as well as expanding existing on-bill financing offerings. The Program Administrators have set ambitious targets for the acquisition of outside financing. Nevertheless, due to the complexity of establishing this aggressive outside financing system, limitations on the ability of the Program Administrators to accurately forecast the success of their efforts, and fluctuations in the economy, the Program

Administrators are given reasonable flexibility to make mid-term modifications to the Plan; thus, revised budget and savings goals will be re-filed if such outside financing targets are not met by the above-referenced target dates. The Program Administrators will work to achieve the aggressive outside funding targets set forth in this Plan, but, as discussed at Council meetings, will need partners in this effort. The Program Administrators are committed to working collaboratively with the Council, the Commonwealth, and other interested parties to seek to meet the targets for new sources of outside capital that can be used to help finance energy efficiency efforts.

v. Energy Efficiency Reconciliation Factor Table/Info

Calculation of Energy Efficiency Reconciliation Factor Funds, 2010							
Sector	**Total Budget**	**Lost Base Revenue**	**SBC + FCM + RGGI + Other Funds**	**EERF Funding Required**	**% of Total Company kWh**	**Low Income Allocation**	**EERF Funding Allocation**
Residential	$97,234,368	$3,072,123	$56,635,932	$43,670,559	31.9%	$21,154,731	$64,825,290
Low Income	$36,037,008	$209,296	($30,098,096)	$66,344,401	3.4%	$2,253,394	$2,253,394
Commercial & Industrial	$160,540,636	$5,230,854	$164,364,546	$1,406,945	64.7%	$42,936,275	$44,343,220
TOTAL	$293,812,012	$8,512,274	$190,902,382	$111,421,904	100%	$66,344,401	$111,421,904

Calculation of Energy Efficiency Reconciliation Factor Funds, 2011							
Sector	**Total Budget**	**Lost Base Revenue**	**SBC + FCM + RGGI + Other Funds**	**EERF Funding Required**	**% of Total Company kWh**	**Low Income Allocation**	**EERF Funding Allocation**
Residential	$122,223,666	$4,513,251	$77,359,735	$49,377,181	31.8%	$7,390,164	$56,767,345
Low Income	$47,421,964	$449,901	$24,660,539	$23,211,326	3.5%	$816,347	$816,347
Commercial & Industrial	$261,776,692	$14,140,175	$183,304,699	$92,612,169	64.6%	$15,004,816	$107,616,984
TOTAL	$431,422,323	$19,103,326	$285,324,973	$165,200,676	100%	$23,211,326	$165,200,676

Calculation of Energy Efficiency Reconciliation Factor Funds, 2012							
Sector	**Total Budget**	**Lost Base Revenue**	**SBC + FCM + RGGI + Other Funds**	**EERF Funding Required**	**% of Total Company kWh**	**Low Income Allocation**	**EERF Funding Allocation**
Residential	$147,537,860	$8,060,969	$96,070,914	$59,527,916	32.4%	$10,423,606	$69,951,522
Low Income	$60,252,071	$756,570	$28,880,853	$32,127,787	2.4%	$758,165	$758,165
Commercial & Industrial	$339,998,176	$26,404,222	$232,879,452	$133,522,946	65.2%	$20,946,016	$154,468,962
TOTAL	$547,788,107	$35,221,761	$357,831,219	$225,178,649	100%	$32,127,787	$225,178,649

Calculation of Energy Efficiency Reconciliation Factor Funds, 2010-2012							
Sector	**Total Budget**	**Lost Base Revenue**	**SBC + FCM + RGGI + Other Funds**	**EERF Funding Required**	**% of Total Company kWh**	**Low Income Allocation**	**EERF Funding Allocation**
Residential	$366,995,894	$15,646,343	$230,066,582	$152,575,656	31.7%	$38,968,501	$191,544,157
Low Income	$143,711,044	$1,415,766	$23,443,296	$121,683,514	3.5%	$3,827,906	$3,827,906
Commercial & Industrial	$762,315,504	$45,775,251	$580,548,696	$227,542,059	64.8%	$78,887,107	$306,429,167
TOTAL	$1,273,022,442	$62,837,361	$834,058,574	$501,801,229	100%	$121,683,514	$501,801,229

NOTE: Program Administrators are confirming based on the Order in D.P.U. 08-50-B.

C. Program Budgets and Budget Categories

The program budgets set forth in Tables II.C.1 below are presented on an aggregate, statewide basis by program within the three major customer sectors (residential, low-income, and C&I). These budgets reflect an unprecedented rapid increase in the energy efficiency funding in the Commonwealth needed to support the aggressive savings goals outlined in this Plan. For example, the statewide budget for the residential sector increases 52 percent from 2010 to 2012. In the low-income sector, the budget increases 67 percent from 2010 to 2012. Similarly, the C&I budget increases 112 percent from 2010 to 2012.

In the PA-specific filings being filed on October 30th, each Program Administrator will set forth its individual proposed budget levels for the three-year period commencing January 1, 2010, consistent with the overall goals developed in the statewide Plan review process.

Budget categories

Consistent with the DOER's 225 CMR 11.00 "Guidelines Energy Efficiency Oversight and Coordination" dated June 2004, the Program Administrators have developed their budgets using the following categories:

- **Program Planning and Administration ("PP&A")**. The funds in the PP&A budget category provide for all in-house and outsourced costs associated with planning activities and program administration.
- **Marketing and Advertising**. This budget provides funds for all in-house and outsourced costs associated with marketing activities such as the development and implementation of advertising campaigns that inform customers about energy efficient products and services and other special energy education efforts.
- **Participant Incentive**. The budget dollars in this category fund customer incentive costs (*e.g.*, rebates) needed to overcome market barriers.
- **Sales, Technical Assistance & Training**. The function of the dollars budgeted in this category is to provide for all in-house and outsourced costs associated with

implementation activities, including inspections and technical assistance, and all costs related to delivery of the program.

- **Evaluation & Market Research**. Budgeted dollars in this category fund all in-house and outsourced costs associated with evaluation activities, including costs related to cost-effectiveness evaluation, market research (*e.g.*, baseline studies, market assessments, surveys), impact and process evaluation reports, and other costs clearly associated with evaluating the program.

- **Performance Incentive.** This budget category funds the performance incentive that can be earned by electric distribution companies if they meet established goals.

1. *Summary Table*

Program Administrator Budget, 2010 (1)									
Program	PA Costs (1)						Lost Base Revenue (3)	Performance Incentive (2)	TOTAL PA Budget (4)
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total PA Costs			
Residential (total)	$7,918,914	$8,152,470	$53,948,303	$18,378,655	$3,636,072	$92,034,414	$3,072,123	$5,199,953	$100,306,491
Residential New Construction & Major Renovation	506,843	432,534	1,681,452	720,246	205,158	3,546,233	0	205,000	3,751,233
Residential Cooling & Heating Equipment	584,600	374,131	2,795,691	647,282	154,752	4,556,457	0	174,196	4,730,653
Multi-Family Retrofit	709,651	326,698	7,464,798	2,169,260	403,308	11,073,716	0	1,860,549	12,934,264
MassSAVE	2,104,702	2,001,810	22,439,773	8,331,235	1,904,020	36,781,541	0	1,571,846	38,353,387
O Power	72,011	0	346,251	20,000	55,800	494,062	0	48,334	542,397
ENERGY STAR Lighting	1,058,792	1,950,750	9,755,327	2,313,949	509,354	15,588,171	0	1,052,513	16,640,684
ENERGY STAR Appliances	437,387	760,482	2,386,570	1,271,108	166,066	5,021,613	0	245,412	5,267,025
Residential Education Program	394,577	538,576	0	1,251,750	5,000	2,189,903	0	4,615	2,194,518
Workforce Development	10,300	0	0	282,700	0	293,000	0	1,775	294,775
Heat Loan Program	93,930	0	5,098,000	771,000	0	5,962,930	0	26,802	5,989,732
Deep Energy Retrofit	248,135	19,500	1,154,000	161,000	111,047	1,693,682	0	8,911	1,702,593
Power Monitor Pilot	0	0	75,000	0	8,333	83,333	0	0	83,333
Residential New Construction & Major Renovation - Major Renovation statewide pilot	31,500	67,301	429,035	53,925	49,905	631,666	0	0	631,666
Residential New Construction Multi Family (4-8 story) statewide pilot	34,950	136,038	215,306	126,500	26,795	539,589	0	0	539,589
Residential New Construction Lighting Design statewide pilot	3,000	0	30,000	20,000	4,522	57,522	0	0	57,522
Residential New Construction V3 Energy Star Homes statewide pilot	3,619	0	31,000	14,000	2,862	51,481	0	0	51,481
Heat Pump Water Heater Pilot	8,000	0	13,200	19,200	4,151	44,551	0	0	44,551
Residential Technical Development	0	0	20,000	0	0	20,000	0	0	20,000
Hot Roofs	0	0	3,000	0	0	3,000	0	0	3,000
Home Automation	0	0	9,900	900	0	10,800	0	0	10,800
Community Based Pilot	0	105,000	0	204,600	25,000	334,600	0	0	334,600
Statewide Marketing & Education	0	1,439,649	0	0	0	1,439,649	0	0	1,439,649
EEAC Consultants	919,414	0	0	0	0	919,414	0	0	919,414
DOER Assessment	581,339	0	0	0	0	581,339	0	0	581,339
Sponsorships & Subscriptions	116,162	0	0	0	0	116,162	0	0	116,162

Low Income (total)	$3,211,603	$692,430	$23,758,921	$5,641,538	$1,061,979	$34,366,472	$209,296	$1,670,537	$36,246,304
Low-Income Residential New Construction	164,888	8,592	756,286	83,444	52,030	1,065,240	0	60,568	1,125,808
Low-Income 1 to 4 Family Retrofit	923,862	405,174	13,619,349	2,711,430	559,797	18,219,613	0	786,353	19,005,965
Low-Income Multi Family Retrofit	1,261,089	147,696	9,383,286	2,832,913	450,152	14,075,137	0	823,616	14,898,752
Statewide Marketing & Education	0	122,718	0	0	0	122,718	0	0	122,718
Low-Income Energy Affordability Network Funding	638,816	8,250	0	13,750	0	660,816	0	0	660,816
DOER Assessment	222,948	0	0	0	0	222,948	0	0	222,948
Commercial & Industrial (total)	$16,818,901	$2,933,264	$103,821,491	$20,441,786	$6,127,997	$150,143,440	$5,230,854	$10,397,197	$165,771,491
C&I New Construction and Major Renovation	4,085,499	791,327	23,938,928	5,199,433	1,530,106	35,545,293	0	2,554,788	38,100,082
C&I New Construction and Major Renovation - Government	15,656	3,583	376,697	62,104	34,789	492,829	0	0	492,829
C&I Large Retrofit	7,035,069	1,093,996	53,361,543	10,826,171	3,342,923	75,659,702	1	6,006,218	81,665,921
Large C&I Retrofit - Government	15,235	3,486	366,555	60,432	20,378	466,085	0	0	466,085
C&I Small Retrofit	2,091,196	500,936	24,050,019	3,739,045	1,116,332	31,497,528	0	1,833,687	33,331,216
C&I Small Retrofit - Government	69,730	15,957	1,677,749	285,001	59,819	2,108,255	0	0	2,108,255
Community Based Pilot	27,500	105,000	50,000	234,600	23,650	440,750	0	0	440,750
Statewide Marketing & Education	0	418,979	0	0	0	418,979	0	0	418,979
EEAC Consultants	1,710,300	0	0	0	0	1,710,300	0	0	1,710,300
DOER Assessment	1,186,615	0	0	0	0	1,186,615	0	0	1,186,615
Sponsorships & Subscriptions	582,102	0	0	35,000	0	617,102	0	2,503	619,604
GRAND TOTAL	**$27,949,418**	**$11,778,164**	**$181,528,715**	**$44,461,979**	**$10,826,048**	**$276,544,325**	**$8,512,274**	**$17,267,687**	**$302,324,286**

Program Administrator Budget, 2011 (1)

Program	PA Costs (1)						Lost Base Revenue (3)	Performance Incentive (2)	TOTAL PA Budget (4)
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total PA Costs			
Residential (total)	$8,369,759	$8,901,594	$71,643,969	$21,908,114	$5,289,755	$116,113,190	$4,513,251	$6,150,807	$126,777,248
Residential New Construction & Major Renovation	452,244	443,130	2,008,656	769,445	256,726	3,930,201	0	205,263	4,135,465
Residential Cooling & Heating Equipment	545,215	471,646	3,833,686	784,104	173,535	5,808,187	0	186,952	5,995,139
Multi-Family Retrofit	791,884	412,513	10,379,497	2,868,500	509,084	14,961,479	0	2,906,651	17,868,130
MassSAVE	2,155,501	2,206,170	29,392,852	10,610,105	3,048,205	47,412,834	0	1,609,094	49,021,928
O Power	89,769	0	1,291,000	20,000	89,200	1,489,969	0	86,552	1,576,521
ENERGY STAR Lighting	1,082,299	2,017,819	11,214,175	2,038,562	731,263	17,084,118	0	866,089	17,950,207
ENERGY STAR Appliances	427,724	859,548	3,016,461	1,453,852	216,171	5,973,756	0	234,752	6,208,508

Residential Education Program	348,300	595,495	0	1,360,631	8,581	2,313,006	0	6,077	2,319,083
Workforce Development	13,939	0	0	342,922	0	356,861	0	2,250	359,111
HEAT Loan Program	137,650	0	8,329,153	1,052,922	0	9,519,724	0	36,734	9,556,458
Deep Energy Retrofit	287,044	24,625	1,361,628	181,698	140,066	1,995,062	0	10,393	2,005,455
Power Monitor Pilot	0	0	37,500	0	4,167	41,667	0	0	41,667
Residential New Construction & Major Renovation - Major Renovation statewide pilot	31,500	69,181	457,840	54,002	51,995	664,518	0	0	664,518
Residential New Construction Multi Family (4-8 story) statewide pilot	34,950	139,400	232,320	127,770	26,795	561,235	0	0	561,235
Residential New Construction Lighting Design statewide pilot	3,000	0	30,000	20,000	4,522	57,522	0	0	57,522
Residential New Construction V3 Energy Star Homes statewide pilot	0	0	17,500	12,500	3,333	33,333	0	0	33,333
Heat Pump Water Heater Pilot	0	0	2,800	7,200	1,111	11,111	0	0	11,111
Residential Technical Development	0	0	20,000	0	0	20,000	0	0	20,000
Hot Roofs	0	0	9,000	0	0	9,000	0	0	9,000
Home Automation	0	0	9,900	9,900	0	19,800	0	0	19,800
Community Based Pilot	0	106,000	0	194,000	25,000	325,000	0	0	325,000
Statewide Marketing & Education	0	1,556,067	0	0	0	1,556,067	0	0	1,556,067
EEAC Consultants	1,262,272	0	0	0	0	1,262,272	0	0	1,262,272
DOER Assessment	584,847	0	0	0	0	584,847	0	0	584,847
Sponsorships & Subscriptions	121,620	0	0	0	0	121,620	0	0	121,620
Low Income (total)	$3,630,375	$972,360	$32,359,959	$7,192,004	$1,555,307	$45,710,005	$449,901	$1,832,608	$47,992,514
Low-Income Residential New Construction	124,485	12,394	963,876	96,371	65,786	1,262,911	0	60,711	1,323,621
Low-Income 1 to 4 Family Retrofit	1,114,258	517,940	17,417,499	3,226,208	582,177	22,858,082	0	811,030	23,669,112
Low-Income Multi Family Retrofit	1,329,866	257,714	13,978,584	3,854,425	907,345	20,327,934	0	960,867	21,288,801
Statewide Marketing & Education	0	175,312	0	0	0	175,312	0	0	175,312
Low-Income Energy Affordability Network Funding	837,667	9,000	0	15,000	0	861,667	0	0	861,667
DOER Assessment	224,098	0	0	0	0	224,098	0	0	224,098
Commercial & Industrial (total)	$19,503,587	$6,425,899	$182,239,906	$29,989,077	$10,194,330	$248,352,797	$14,140,175	$13,527,299	$276,020,271
C&I New Construction and Major Renovation	5,040,826	1,509,032	40,245,153	7,989,227	2,646,294	57,430,531	0	2,927,093	60,357,625
C&I New Construction and Major Renovation - Government	15,664	4,636	537,613	80,623	49,516	688,052	0	0	688,052
C&I Large Retrofit	7,916,621	2,379,282	97,674,646	15,065,903	5,818,933	128,855,385	0	8,123,046	136,978,431
Large C&I Retrofit - Government	15,242	4,512	523,139	78,453	29,074	650,419	0	0	650,419
C&I Small Retrofit	2,006,946	741,964	40,814,908	6,127,107	1,530,410	51,221,336	0	2,473,626	53,694,961
C&I Small Retrofit - Government	69,763	20,650	2,394,447	369,984	84,353	2,939,197	0	0	2,939,197

Community Based Pilot	27,500	106,000	50,000	224,000	35,750	443,250	0	0	443,250
Statewide Marketing & Education	0	1,659,822	0	0	0	1,659,822	0	0	1,659,822
EEAC Consultants	2,470,586	0	0	0	0	2,470,586	0	0	2,470,586
DOER Assessment	1,190,176	0	0	0	0	1,190,176	0	0	1,190,176
Sponsorships & Subscriptions	750,263	0	0	53,780	0	804,043	0	3,534	807,577
GRAND TOTAL	**$31,503,720**	**$16,299,853**	**$286,243,833**	**$59,089,195**	**$17,039,392**	**$410,175,993**	**$19,103,326**	**$21,510,714**	**$450,790,033**

Program Administrator Budget, 2012 (1)

Program	PA Costs (1)						Lost Base Revenue (3)	Performance Incentive (2)	TOTAL PA Budget (4)
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total PA Costs			
Residential (total)	$9,020,538	$9,596,846	$89,549,981	$25,471,154	$6,679,658	$140,318,177	$8,060,969	$7,280,599	$155,659,745
Residential New Construction & Major Renovation	471,460	455,636	2,264,259	853,222	312,800	4,357,377	0	225,872	4,583,249
Residential Cooling & Heating Equipment	630,816	606,376	5,201,723	1,089,293	221,824	7,750,031	0	246,194	7,996,225
Multi-Family Retrofit	874,987	525,744	12,462,900	3,273,412	663,278	17,800,320	0	3,529,042	21,329,363
MassSAVE	2,222,681	2,325,313	36,045,501	12,681,621	3,947,928	57,223,043	0	1,819,703	59,042,747
O Power	99,927	0	2,253,500	20,000	135,100	2,508,527	0	139,723	2,648,250
ENERGY STAR Lighting	1,084,081	2,172,306	14,603,489	2,241,575	871,741	20,973,192	0	998,506	21,971,698
ENERGY STAR Appliances	431,685	878,907	3,545,537	1,559,344	239,860	6,655,333	0	244,553	6,899,886
Residential Education Program	357,813	614,007	0	1,433,020	12,473	2,417,314	0	8,351	2,425,665
Workforce Development	17,160	0	0	380,369	0	397,529	0	2,928	400,457
HEAT Loan Program	153,296	0	11,338,716	1,323,369	0	12,815,381	0	51,339	12,866,719
Deep Energy Retrofit	331,094	24,833	1,011,732	192,373	162,200	1,722,233	0	14,388	1,736,621
Power Monitor Pilot	0	0	0	0	0	0	0	0	0
Residential New Construction & Major Renovation - Major Renovation statewide pilot	31,500	70,716	493,420	54,081	55,025	704,742	0	0	704,742
Residential New Construction Multi Family (4-8 story) statewide pilot	34,950	143,011	251,506	127,774	26,795	584,036	0	0	584,036
Residential New Construction Lighting Design statewide pilot	3,000	0	30,000	20,000	4,522	57,522	0	0	57,522
Residential New Construction V3 Energy Star Homes statewide pilot	0	0	0	0	0	0	0	0	0
Heat Pump Water Heater Pilot	0	0	2,800	7,200	1,111	11,111	0	0	11,111
Residential Technical Development	0	0	20,000	0	0	20,000	0	0	20,000
Hot Roofs	0	0	15,000	0	0	15,000	0	0	15,000
Home Automation	0	0	9,900	9,900	0	19,800	0	0	19,800

Community Based Pilot	0	105,000	0	204,600	25,000	334,600	0	0	334,600
Statewide Marketing & Education	0	1,674,997	0	0	0	1,674,997	0	0	1,674,997
EEAC Consultants	1,559,656	0	0	0	0	1,559,656	0	0	1,559,656
DOER Assessment	589,502	0	0	0	0	589,502	0	0	589,502
Sponsorships & Subscriptions	126,930	0	0	0	0	126,930	0	0	126,930
Low Income (total)	$4,069,618	$1,107,099	$41,734,319	$9,188,700	$2,001,527	$58,101,264	$756,570	$2,172,619	$61,030,452
Low-Income Residential New Construction	124,171	15,973	1,247,006	111,581	80,912	1,579,642	0	89,017	1,668,659
Low-Income 1 to 4 Family Retrofit	1,315,010	640,200	24,705,332	4,598,818	793,402	32,052,762	0	1,086,840	33,139,603
Low-Income Multi Family Retrofit	1,367,992	268,541	15,781,981	4,461,426	1,127,213	23,007,154	0	996,762	24,003,916
Statewide Marketing & Education	0	172,260	0	0	0	172,260	0	0	172,260
Low-Income Energy Affordability Network Funding	1,036,265	10,125	0	16,875	0	1,063,265	0	0	1,063,265
DOER Assessment	226,180	0	0	0	0	226,180	0	0	226,180
Commercial & Industrial (total)	$22,060,606	$9,173,830	$239,974,682	$40,519,420	$12,594,474	$324,323,012	$26,404,222	$15,822,662	$366,549,895
C&I New Construction and Major Renovation	5,376,380	2,323,611	48,818,129	12,087,517	3,120,131	71,725,769	0	3,332,235	75,058,004
C&I New Construction and Major Renovation - Government	18,134	6,138	825,627	117,569	76,071	1,043,540	0	0	1,043,540
C&I Large Retrofit	8,771,493	3,634,291	123,676,436	20,553,781	6,751,273	163,387,274	0	9,154,212	172,541,486
Large C&I Retrofit - Government	17,646	5,973	803,398	114,404	44,568	985,989	0	0	985,989
C&I Small Retrofit	2,290,400	938,844	62,123,877	6,787,634	2,438,687	74,579,442	0	3,330,956	77,910,399
C&I Small Retrofit - Government	80,768	27,339	3,677,215	538,836	127,994	4,452,152	0	0	4,452,152
Community Based Pilot	27,500	105,000	50,000	234,600	35,750	452,850	0	0	452,850
Statewide Marketing & Education	0	2,132,633	0	0	0	2,132,633	0	0	2,132,633
EEAC Consultants	3,354,686	0	0	0	0	3,354,686	0	0	3,354,686
DOER Assessment	1,196,521	0	0	0	0	1,196,521	0	0	1,196,521
Sponsorships & Subscriptions	927,077	0	0	85,077	0	1,012,154	0	5,259	1,017,413
GRAND TOTAL	**$35,150,762**	**$19,877,775**	**$371,258,983**	**$75,179,274**	**$21,275,659**	**$522,742,452**	**$35,221,761**	**$25,275,880**	**$583,240,093**

Program Administrator Budget, 2010-2012 (1)

Program	PA Costs (1)						Lost Base Revenue (3)	Performance Incentive (2)	TOTAL PA Budget (4)
	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Total PA Costs			
Residential (total)	$25,309,211	$26,650,910	$215,142,253	$65,757,923	$15,605,485	$348,465,781	$15,646,343	$18,631,360	$382,743,485
Residential New Construction & Major Renovation	1,430,547	1,331,300	5,954,367	2,342,913	774,683	11,833,811	0	636,135	12,469,946
Residential Cooling & Heating Equipment	1,760,630	1,452,153	11,831,100	2,520,679	550,112	18,114,674	0	607,342	18,722,017

Multi-Family Retrofit	2,376,523	1,264,955	30,307,195	8,311,172	1,575,670	43,835,515	0	8,296,242	52,131,757
MassSAVE	6,482,885	6,533,293	87,878,126	31,622,961	8,900,153	141,417,418	0	5,000,644	146,418,062
O Power	261,707	0	3,890,751	60,000	280,100	4,492,558	0	274,609	4,767,168
ENERGY STAR Lighting	3,225,172	6,140,874	35,572,992	6,594,086	2,112,357	53,645,481	0	2,917,108	56,562,589
ENERGY STAR Appliances	1,296,797	2,498,938	8,948,568	4,284,304	622,097	17,650,702	0	724,717	18,375,419
Residential Education Program	1,100,690	1,748,078	0	4,045,401	26,054	6,920,223	0	19,044	6,939,266
Workforce Development	41,399	0	0	1,005,991	0	1,047,390	0	6,953	1,054,343
HEAT Loan Program	384,875	0	24,765,868	3,147,291	0	28,298,035	0	114,875	28,412,910
Deep Energy Retrofit	866,273	68,958	3,527,360	535,072	413,313	5,410,976	0	33,692	5,444,669
Power Monitor Pilot	0	0	112,500	0	12,500	125,000	0	0	125,000
Residential New Construction & Major Renovation - Major Renovation statewide pilot	94,500	207,198	1,380,295	162,008	156,925	2,000,926	0	0	2,000,926
Residential New Construction Multi Family (4-8 story) statewide pilot	104,850	418,449	699,132	382,044	80,385	1,684,860	0	0	1,684,860
Residential New Construction Lighting Design statewide pilot	9,000	0	90,000	60,000	13,567	172,567	0	0	172,567
Residential New Construction V3 Energy Star Homes statewide pilot	3,619	0	48,500	26,500	6,195	84,814	0	0	84,814
Heat Pump Water Heater Pilot	8,000	0	18,800	33,600	6,373	66,773	0	0	66,773
Residential Technical Development	0	0	60,000	0	0	60,000	0	0	60,000
Hot Roofs	0	0	27,000	0	0	27,000	0	0	27,000
Home Automation	0	0	29,700	20,700	0	50,400	0	0	50,400
Community Based Pilot	0	316,000	0	603,200	75,000	994,200	0	0	994,200
Statewide Marketing & Education	0	4,670,714	0	0	0	4,670,714	0	0	4,670,714
EEAC Consultants	3,741,342	0	0	0	0	3,741,342	0	0	3,741,342
DOER Assessment	1,755,689	0	0	0	0	1,755,689	0	0	1,755,689
Sponsorships & Subscriptions	364,712	0	0	0	0	364,712	0	0	364,712
Low Income (total)	$10,911,596	$2,771,889	$97,853,199	$22,022,242	$4,618,813	$138,177,740	$1,415,766	$5,675,763	$145,269,270
Low-Income Residential New Construction	413,543	36,958	2,967,168	291,397	198,728	3,907,794	0	210,295	4,118,089
Low-Income 1 to 4 Family Retrofit	3,353,131	1,563,314	55,742,179	10,536,456	1,935,376	73,130,457	0	2,684,224	75,814,681
Low-Income Multi Family Retrofit	3,958,948	673,952	39,143,852	11,148,764	2,484,709	57,410,225	0	2,781,244	60,191,470
Statewide Marketing & Education	0	470,290	0	0	0	470,290	0	0	470,290
Low-Income Energy Affordability Network Funding	2,512,748	27,375	0	45,625	0	2,585,748	0	0	2,585,748
DOER Assessment	673,226	0	0	0	0	673,226	0	0	673,226
Commercial & Industrial (total)	$58,383,094	$18,532,992	$526,036,079	$90,950,283	$28,916,801	$722,819,248	$45,775,251	$39,747,158	$808,341,657
C&I New Construction and Major Renovation	14,502,706	4,623,970	113,002,210	25,276,177	7,296,531	164,701,594	0	8,814,117	173,515,711

C&I New Construction and Major Renovation - Government	49,454	14,357	1,739,937	260,297	160,376	2,224,421	0	0	2,224,421
C&I Large Retrofit	23,723,182	7,107,570	274,712,625	46,445,855	15,913,129	367,902,361	1	23,283,477	391,185,839
Large C&I Retrofit - Government	48,123	13,971	1,693,092	253,289	94,019	2,102,493	0	0	2,102,493
C&I Small Retrofit	6,388,542	2,181,744	126,988,804	16,653,787	5,085,430	157,298,306	0	7,638,269	164,936,575
C&I Small Retrofit - Government	220,261	63,946	7,749,411	1,193,821	272,165	9,499,604	0	0	9,499,604
Community Based Pilot	82,500	316,000	150,000	693,200	95,150	1,336,850	0	0	1,336,850
Statewide Marketing & Education	0	4,211,435	0	0	0	4,211,435	0	0	4,211,435
EEAC Consultants	7,535,573	0	0	0	0	7,535,573	0	0	7,535,573
DOER Assessment	3,573,312	0	0	0	0	3,573,312	0	0	3,573,312
Sponsorships & Subscriptions	2,259,442	0	0	173,857	0	2,433,299	0	11,295	2,444,594
GRAND TOTAL	**$94,603,900**	**$47,955,792**	**$839,031,531**	**$178,730,448**	**$49,141,099**	**$1,209,462,770**	**$62,837,361**	**$64,054,281**	**$1,336,354,412**

2. *Summary Table Showing Percentage Increases from 2008-2012*

This table shows an alternative presentation to the budget data, and includes data showing percentage increases in budgets from 2008 and 2009 to each year of the Plan, without the inclusion of LBR amounts.

YEAR	PROGRAM	Program Planning and Administration	Marketing and Advertising	Participant Incentive	Sales, Technical Assistance & Training	Evaluation and Market Research	Performance Incentive	TOTAL	% Increase from 2008	% Increase from 2009
Baseline 1-2008	**TOTAL**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**$ 124,343,806**		
Baseline 2-2009	**TOTAL**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**$ 184,266,304**	**48%**	
2010	**Residential (total)**	$7,918,914	$8,152,470	$53,948,303	$18,378,655	$3,636,072	$5,199,953	**$97,234,368**		
	Residential New Construction & Major Renovation	506,843	432,534	1,681,452	720,246	205,158	205,000	3,751,233		
	Residential Cooling & Heating Equipment	584,600	374,131	2,795,691	647,282	154,752	174,196	4,730,652		
	Multi-Family Retrofit	709,651	326,698	7,464,798	2,169,260	403,308	1,860,549	12,934,264		
	MassSAVE	2,104,702	2,001,810	22,439,773	8,331,235	1,904,020	1,571,846	38,353,387		
	O Power	72,011	0	346,251	20,000	55,800	48,334	542,397		
	ENERGY STAR Lighting	1,058,792	1,950,750	9,755,327	2,313,949	509,354	1,052,513	16,640,684		
	ENERGY STAR Appliances	437,387	760,482	2,386,570	1,271,108	166,066	245,412	5,267,025		
	Residential Education Program	394,577	538,576	0	1,251,750	5,000	4,615	2,194,518		
	Workforce Development	10,300	0	0	282,700	0	1,775	294,775		
	Heat Loan Program	93,930	0	5,098,000	771,000	0	26,802	5,989,732		
	Deep Energy Retrofit	248,135	19,500	1,154,000	161,000	111,047	8,911	1,702,593		
	Power Monitor Pilot	0	0	75,000	0	8,333	0	83,333		
	Residential New Construction & Major Renovation - Major Renovation statewide pilot	31,500	67,301	429,035	53,925	49,905	0	631,666		
	Residential New Construction Multi Family (4-8 story) statewide pilot	34,950	136,038	215,306	126,500	26,795	0	539,589		
	Residential New Construction Lighting Design statewide pilot	3,000	0	30,000	20,000	4,522	0	$57,522		
	Residential New Construction V3 Energy Star Homes statewide pilot	3,619	0	31,000	14,000	2,862	0	51,481		
	Heat Pump Water Heater Pilot	8,000	0	13,200	19,200	4,151	0	44,551		
	Residential Technical Development	0	0	20,000	0	0	0	20,000		
	Hot Roofs	0	0	3,000	0	0	0	3,000		
	Home Automation	0	0	9,900	900	0	0	10,800		

	Community Based Pilot	0	105,000	0	204,600	25,000	0	$334,600		
	Statewide Marketing & Education	0	1,439,649	0	0	0	0	1,439,649		
	EEAC Consultants	919,414	0	0	0	0	0	919,414		
	DOER Assessment	581,339	0	0	0	0	0	581,339		
	Sponsorships & Subscriptions	116,162	0	0	0	0	0	116,162		
	Low Income (total)	$3,211,603	$692,430	$23,758,921	$5,641,538	$1,061,979	$1,670,537	**$36,037,008**		
	Low-Income Residential New Construction	164,888	8,592	756,286	83,444	52,030	60,568	1,125,808		
	Low-Income 1 to 4 Family Retrofit	923,862	405,174	13,619,349	2,711,430	559,797	786,353	19,005,965		
	Low-Income Multi Family Retrofit	1,261,089	147,696	9,383,286	2,832,913	450,152	823,616	14,898,752		
	Statewide Marketing & Education	0	122,718	0	0	0	0	122,718		
	Low-Income Energy Affordability Network Funding	638,816	8,250	0	13,750	0	0	660,816		
	DOER Assessment	222,948	0	0	0	0	0	222,948		
	Commercial & Industrial (total)	$16,818,901	$2,933,264	$103,821,491	$20,441,786	$6,127,997	$10,397,197	**$160,540,636**		
	C&I New Construction and Major Renovation	4,085,499	791,327	23,938,928	5,199,433	1,530,106	2,554,788	38,100,082		
	C&I New Construction and Major Renovation - Government	15,656	3,583	376,697	62,104	34,789	0	492,829		
	C&I Large Retrofit	7,035,069	1,093,996	53,361,543	10,826,171	3,342,923	6,006,218	81,665,920		
	Large C&I Retrofit - Government	15,235	3,486	366,555	60,432	20,378	0	466,085		
	C&I Small Retrofit	2,091,196	500,936	24,050,019	3,739,045	1,116,332	1,833,687	33,331,216		
	C&I Small Retrofit - Government	69,730	15,957	1,677,749	285,001	59,819	0	2,108,255		
	Community Based Pilot	27,500	105,000	50,000	234,600	23,650	0	440,750		
	Statewide Marketing & Education	0	418,979	0	0	0	0	418,979		
	EEAC Consultants	1,710,300	0	0	0	0	0	1,710,300		
	DOER Assessment	1,186,615	0	0	0	0	0	1,186,615		
	Sponsorships & Subscriptions	582,102	0	0	35,000	0	2,503	619,604		
	GRAND TOTAL	**$27,949,418**	**$11,778,164**	**$181,528,715**	**$44,461,979**	**$10,826,048**	**$17,267,687**	**$293,812,012**	**136%**	**59%**
2011	**Residential (total)**	$8,369,759	$8,901,594	$71,643,969	$21,908,114	$5,289,755	$6,150,807	**$122,263,998**		
	Residential New Construction & Major Renovation	452,244	443,130	2,008,656	769,445	256,726	205,263	4,135,465		
	Residential Cooling & Heating Equipment	545,215	471,646	3,833,686	784,104	173,535	186,952	5,995,139		
	Multi-Family Retrofit	791,884	412,513	10,379,497	2,868,500	509,084	2,906,651	17,868,130		
	MassSAVE	2,155,501	2,206,170	29,392,852	10,610,105	3,048,205	1,609,094	49,021,928		
	O Power	89,769	0	1,291,000	20,000	89,200	86,552	1,576,521		

ENERGY STAR Lighting	1,082,299	2,017,819	11,214,175	2,038,562	731,263	866,089	17,950,207		
ENERGY STAR Appliances	427,724	859,548	3,016,461	1,453,852	216,171	234,752	6,208,508		
Residential Education Program	348,300	595,495	0	1,360,631	8,581	6,077	2,319,083		
Workforce Development	13,939	0	0	342,922	0	2,250	359,111		
Heat Loan Program	137,650	0	8,329,153	1,052,922	0	36,734	9,556,458		
Deep Energy Retrofit	287,044	24,625	1,361,628	181,698	140,066	10,393	2,005,455		
Power Monitor Pilot	0	0	37,500	0	4,167	0	41,667		
Residential New Construction & Major Renovation - Major Renovation statewide pilot	31,500	69,181	457,840	54,002	51,995	0	664,518		
Residential New Construction Multi Family (4-8 story) statewide pilot	34,950	139,400	232,320	127,770	26,795	0	561,235		
Residential New Construction Lighting Design statewide pilot	3,000	0	30,000	20,000	4,522	0	$57,522		
Residential New Construction V3 Energy Star Homes statewide pilot	0	0	17,500	12,500	3,333	0	33,333		
Heat Pump Water Heater Pilot	0	0	2,800	7,200	1,111	0	11,111		
Residential Technical Development	0	0	20,000	0	0	0	20,000		
Hot Roofs	0	0	9,000	0	0	0	9,000		
Home Automation	0	0	9,900	9,900	0	0	19,800		
Community Based Pilot	0	106,000	0	194,000	25,000	0	$325,000		
Statewide Marketing & Education	0	1,556,067	0	0	0	0	1,556,067		
EEAC Consultants	1,262,272	0	0	0	0	0	1,262,272		
DOER Assessment	584,847	0	0	0	0	0	584,847		
Sponsorships & Subscriptions	121,620	0	0	0	0	0	121,620		
Low Income (total)	$3,630,375	$972,360	$32,359,959	$7,192,004	$1,555,307	$1,832,608	**$47,542,613**		
Low-Income Residential New Construction	124,485	12,394	963,876	96,371	65,786	60,711	1,323,621		
Low-Income 1 to 4 Family Retrofit	1,114,258	517,940	17,417,499	3,226,208	582,177	811,030	23,669,112		
Low-Income Multi Family Retrofit	1,329,866	257,714	13,978,584	3,854,425	907,345	960,867	21,288,801		
Statewide Marketing & Education	0	175,312	0	0	0	0	175,312		
Low-Income Energy Affordability Network Funding	837,667	9,000	0	15,000	0	0	861,667		
DOER Assessment	224,098	0	0	0	0	0	224,098		
Commercial & Industrial (total)	$19,503,587	$6,425,899	$182,239,906	$29,989,077	$10,194,330	$13,527,299	**$261,880,096**		
C&I New Construction and Major Renovation	5,040,826	1,509,032	40,245,153	7,989,227	2,646,294	2,927,093	60,357,625		
C&I New Construction and Major Renovation - Government	15,664	4,636	537,613	80,623	49,516	0	688,052		

	C&I Large Retrofit	7,916,621	2,379,282	97,674,646	15,065,903	5,818,933	8,123,046	136,978,431		
	Large C&I Retrofit - Government	15,242	4,512	523,139	78,453	29,074	0	650,419		
	C&I Small Retrofit	2,006,946	741,964	40,814,908	6,127,107	1,530,410	2,473,626	53,694,961		
	C&I Small Retrofit - Government	69,763	20,650	2,394,447	369,984	84,353	0	2,939,197		
	Community Based Pilot	27,500	106,000	50,000	224,000	35,750	0	443,250		
	Statewide Marketing & Education	0	1,659,822	0	0	0	0	1,659,822		
	EEAC Consultants	2,470,586	0	0	0	0	0	2,470,586		
	DOER Assessment	1,190,176	0	0	0	0	0	1,190,176		
	Sponsorships & Subscriptions	750,263	0	0	53,780	0	3,534	807,577		
	GRAND TOTAL	**$31,503,720**	**$16,299,853**	**$286,243,833**	**$59,089,195**	**$17,039,392**	**$21,510,714**	**$431,686,707**	**247%**	**134%**
2012	**Residential (total)**	$9,020,538	$9,596,846	$89,549,981	$25,471,154	$6,679,658	$7,280,599	**$147,598,776**		
	Residential New Construction & Major Renovation	471,460	455,636	2,264,259	853,222	312,800	225,872	4,583,249		
	Residential Cooling & Heating Equipment	630,816	606,376	5,201,723	1,089,293	221,824	246,194	7,996,225		
	Multi-Family Retrofit	874,987	525,744	12,462,900	3,273,412	663,278	3,529,042	21,329,363		
	MassSAVE	2,222,681	2,325,313	36,045,501	12,681,621	3,947,928	1,819,703	59,042,747		
	O Power	99,927	0	2,253,500	20,000	135,100	139,723	2,648,250		
	ENERGY STAR Lighting	1,084,081	2,172,306	14,603,489	2,241,575	871,741	998,506	21,971,698		
	ENERGY STAR Appliances	431,685	878,907	3,545,537	1,559,344	239,860	244,553	6,899,886		
	Residential Education Program	357,813	614,007	0	1,433,020	12,473	8,351	2,425,665		
	Workforce Development	17,160	0	0	380,369	0	2,928	400,457		
	Heat Loan Program	153,296	0	11,338,716	1,323,369	0	51,339	12,866,719		
	Deep Energy Retrofit	331,094	24,833	1,011,732	192,373	162,200	14,388	1,736,621		
	Power Monitor Pilot	0	0	0	0	0	0	0		
	Residential New Construction & Major Renovation - Major Renovation statewide pilot	31,500	70,716	493,420	54,081	55,025	0	704,742		
	Residential New Construction Multi Family (4-8 story) statewide pilot	34,950	143,011	251,506	127,774	26,795	0	584,036		
	Residential New Construction Lighting Design statewide pilot	3,000	0	30,000	20,000	4,522	0	$57,522		
	Residential New Construction V3 Energy Star Homes statewide pilot	0	0	0	0	0	0	0		
	Heat Pump Water Heater Pilot	0	0	2,800	7,200	1,111	0	11,111		
	Residential Technical Development	0	0	20,000	0	0	0	20,000		
	Hot Roofs	0	0	15,000	0	0	0	15,000		

	Home Automation	0	0	9,900	9,900	0	0	19,800		
	Community Based Pilot	0	105,000	0	204,600	25,000	0	$334,600		
	Statewide Marketing & Education	0	1,674,997	0	0	0	0	1,674,997		
	EEAC Consultants	1,559,656	0	0	0	0	0	1,559,656		
	DOER Assessment	589,502	0	0	0	0	0	589,502		
	Sponsorships & Subscriptions	126,930	0	0	0	0	0	126,930		
	Low Income (total)	$4,069,618	$1,107,099	$41,734,319	$9,188,700	$2,001,527	$2,172,619	**$60,273,882**		
	Low-Income Residential New Construction	124,171	15,973	1,247,006	111,581	80,912	89,017	1,668,659		
	Low-Income 1 to 4 Family Retrofit	1,315,010	640,200	24,705,332	4,598,818	793,402	1,086,840	33,139,603		
	Low-Income Multi Family Retrofit	1,367,992	268,541	15,781,981	4,461,426	1,127,213	996,762	24,003,916		
	Statewide Marketing & Education	0	172,260	0	0	0	0	172,260		
	Low-Income Energy Affordability Network Funding	1,036,265	10,125	0	16,875	0	0	1,063,265		
	DOER Assessment	226,180	0	0	0	0	0	226,180		
	Commercial & Industrial (total)	$22,060,606	$9,173,830	$239,974,682	$40,519,420	$12,594,474	$15,822,662	**$340,145,673**		
	C&I New Construction and Major Renovation	5,376,380	2,323,611	48,818,129	12,087,517	3,120,131	3,332,235	75,058,004		
	C&I New Construction and Major Renovation - Government	18,134	6,138	825,627	117,569	76,071	0	1,043,540		
	C&I Large Retrofit	8,771,493	3,634,291	123,676,436	20,553,781	6,751,273	9,154,212	172,541,486		
	Large C&I Retrofit - Government	17,646	5,973	803,398	114,404	44,568	0	985,989		
	C&I Small Retrofit	2,290,400	938,844	62,123,877	6,787,634	2,438,687	3,330,956	77,910,399		
	C&I Small Retrofit - Government	80,768	27,339	3,677,215	538,836	127,994	0	4,452,152		
	Community Based Pilot	27,500	105,000	50,000	234,600	35,750	0	452,850		
	Statewide Marketing & Education	0	2,132,633	0	0	0	0	2,132,633		
	EEAC Consultants	3,354,686	0	0	0	0	0	3,354,686		
	DOER Assessment	1,196,521	0	0	0	0	0	1,196,521		
	Sponsorships & Subscriptions	927,077	0	0	85,077	0	5,259	1,017,413		
	GRAND TOTAL	**$35,150,762**	**$19,877,775**	**$371,258,983**	**$75,179,274**	**$21,275,659**	**$25,275,880**	**$548,018,332**	**341%**	**197%**
THREE YEAR TOTAL: 2010-2012	**Residential (total)**	$25,309,211	$26,650,910	$215,142,253	$65,757,923	$15,605,485	$18,631,360	**$367,097,141**		
	Residential New Construction & Major Renovation	1,430,547	1,331,300	5,954,367	2,342,913	774,683	636,135	12,469,946		
	Residential Cooling & Heating Equipment	1,760,630	1,452,153	11,831,100	2,520,679	550,112	607,342	18,722,016		
	Multi-Family Retrofit	2,376,523	1,264,955	30,307,195	8,311,172	1,575,670	8,296,242	52,131,757		
	MassSAVE	6,482,885	6,533,293	87,878,126	31,622,961	8,900,153	5,000,644	146,418,062		

O Power	261,707	0	3,890,751	60,000	280,100	274,609	4,767,168		
ENERGY STAR Lighting	3,225,172	6,140,874	35,572,992	6,594,086	2,112,357	2,917,108	56,562,589		
ENERGY STAR Appliances	1,296,797	2,498,938	8,948,568	4,284,304	622,097	724,717	18,375,419		
Residential Education Program	1,100,690	1,748,078	0	4,045,401	26,054	19,044	6,939,266		
Workforce Development	41,399	0	0	1,005,991	0	6,953	1,054,343		
Heat Loan Program	384,875	0	24,765,868	3,147,291	0	114,875	28,412,910		
Deep Energy Retrofit	866,273	68,958	3,527,360	535,072	413,313	33,692	5,444,669		
Power Monitor Pilot	0	0	112,500	0	12,500	0	125,000		
Residential New Construction & Major Renovation - Major Renovation statewide pilot	94,500	207,198	1,380,295	162,008	156,925	0	2,000,926		
Residential New Construction Multi Family (4-8 story) statewide pilot	104,850	418,449	699,132	382,044	80,385	0	1,684,860		
Residential New Construction Lighting Design statewide pilot	9,000	0	90,000	60,000	13,567	0	$172,567		
Residential New Construction V3 Energy Star Homes statewide pilot	3,619	0	48,500	26,500	6,195	0	84,814		
Heat Pump Water Heater Pilot	8,000	0	18,800	33,600	6,373	0	66,773		
Residential Technical Development	0	0	60,000	0	0	0	60,000		
Hot Roofs	0	0	27,000	0	0	0	27,000		
Home Automation	0	0	29,700	20,700	0	0	50,400		
Community Based Pilot	0	316,000	0	603,200	75,000	0	$994,200		
Statewide Marketing & Education	0	4,670,714	0	0	0	0	4,670,714		
EEAC Consultants	3,741,342	0	0	0	0	0	3,741,342		
DOER Assessment	1,755,689	0	0	0	0	0	1,755,689		
Sponsorships & Subscriptions	364,712	0	0	0	0	0	364,712		
Low Income (total)	$10,911,596	$2,771,889	$97,853,199	$22,022,242	$4,618,813	$5,675,763	**$143,853,504**		
Low-Income Residential New Construction	413,543	36,958	2,967,168	291,397	198,728	210,295	4,118,089		
Low-Income 1 to 4 Family Retrofit	3,353,131	1,563,314	55,742,179	10,536,456	1,935,376	2,684,224	75,814,681		
Low-Income Multi Family Retrofit	3,958,948	673,952	39,143,852	11,148,764	2,484,709	2,781,244	60,191,470		
Statewide Marketing & Education	0	470,290	0	0	0	0	470,290		
Low-Income Energy Affordability Network Funding	2,512,748	27,375	0	45,625	0	0	2,585,748		
DOER Assessment	673,226	0	0	0	0	0	673,226		
Commercial & Industrial (total)	$58,383,094	$18,532,992	$526,036,079	$90,950,283	$28,916,801	$39,747,158	**$762,566,406**		
C&I New Construction and Major Renovation	14,502,706	4,623,970	113,002,210	25,276,177	7,296,531	8,814,117	173,515,711		

C&I New Construction and Major Renovation - Government	49,454	14,357	1,739,937	260,297	160,376	0	2,224,421		
C&I Large Retrofit	23,723,182	7,107,570	274,712,625	46,445,855	15,913,129	23,283,477	391,185,838		
Large C&I Retrofit - Government	48,123	13,971	1,693,092	253,289	94,019	0	2,102,493		
C&I Small Retrofit	6,388,542	2,181,744	126,988,804	16,653,787	5,085,430	7,638,269	164,936,575		
C&I Small Retrofit - Government	220,261	63,946	7,749,411	1,193,821	272,165	0	9,499,604		
Community Based Pilot	82,500	316,000	150,000	693,200	95,150	0	1,336,850		
Statewide Marketing & Education	0	4,211,435	0	0	0	0	4,211,435		
EEAC Consultants	7,535,573	0	0	0	0	0	7,535,573		
DOER Assessment	3,573,312	0	0	0	0	0	3,573,312		
Sponsorships & Subscriptions	2,259,442	0	0	173,857	0	11,295	2,444,594		
GRAND TOTAL	**$94,603,900**	**$47,955,792**	**$839,031,531**	**$178,730,448**	**$49,141,099**	**$64,054,281**	**$1,273,517,051**		

D. Net Benefits and Cost Effectiveness Analysis

1. *Summary Table*

The Program Administrators present the following tables in accordance with the Plan filing procedures developed by the D.P.U. 08-50 Working Group.

i. By program, B/C Ratio, net benefits, total benefits, total costs, PA costs, customer costs

Total Resource Cost Test, 2010				
Customer Sector	**B/C Ratio**	**Net Benefits**	**Benefits**	**Costs (1)**
Residential	**2.96**	**$223,188,762**	**$336,824,984**	**$113,636,222**
Residential New Construction & Major Renovation	1.80	6,783,546	15,216,156	8,432,610
Residential Cooling & Heating Equipment	1.24	1,163,219	6,016,346	4,853,127
Multi-Family Retrofit	2.48	19,478,921	32,632,207	13,153,285
MassSAVE	4.51	156,451,281	201,008,862	44,557,581
O Power	5.64	2,515,058	3,057,455	542,397
ENERGY STAR Lighting	3.37	46,291,732	65,834,125	19,542,393
ENERGY STAR Appliances	1.87	6,058,884	13,059,834	7,000,950
Residential Education Program	n/a	n/a	n/a	2,194,518
Workforce Development	n/a	n/a	n/a	294,775
Heat Loan Program	n/a	n/a	n/a	5,937,072
Deep Energy Retrofit	n/a	n/a	n/a	1,882,593
Power Monitor Pilot	n/a	n/a	n/a	83,333
Residential New Construction & Major Renovation - Major Renovation statewide pilot	n/a	n/a	n/a	634,480
Residential New Construction Multi Family (4-8 story) statewide pilot	n/a	n/a	n/a	553,589
Residential New Construction Lighting Design statewide pilot	n/a	n/a	n/a	239,522
Residential New Construction V3 Energy Star Homes statewide pilot	n/a	n/a	n/a	262,481
Heat Pump Water Heater Pilot	n/a	n/a	n/a	46,551
Residential Technical Development	n/a	n/a	n/a	20,000
Hot Roofs	n/a	n/a	n/a	3,000
Home Automation	n/a	n/a	n/a	10,800
Community Based Pilot	n/a	n/a	n/a	334,600
Statewide Marketing & Education	n/a	n/a	n/a	1,439,649
EEAC Consultants	n/a	n/a	n/a	919,414
DOER Assessment	n/a	n/a	n/a	581,339
Sponsorships & Subscriptions	n/a	n/a	n/a	116,162
Low Income	**2.68**	**$60,579,169**	**$96,681,180**	**$36,102,011**
Low-Income Residential New Construction	1.96	1,147,055	2,339,067	1,192,012

Low-Income 1 to 4 Family Retrofit	2.78	33,804,594	52,809,358	19,004,765
Low-Income Multi Family Retrofit	2.79	26,634,003	41,532,755	14,898,752
Statewide Marketing & Education	n/a	n/a	n/a	122,718
Low-Income Energy Affordability Network Funding	n/a	n/a	n/a	660,816
DOER Assessment	n/a	n/a	n/a	222,948
Commercial & Industrial	**4.03**	**$589,181,189**	**$783,922,522**	**$194,741,333**
C&I New Construction and Major Renovation	4.46	157,776,934	203,421,433	45,644,500
C&I New Construction and Major Renovation - Government	6.56	2,738,962	3,231,858	492,896
C&I Large Retrofit	4.52	355,232,400	456,086,457	100,854,057
Large C&I Retrofit - Government	4.06	1,426,875	1,893,024	466,149
C&I Small Retrofit	2.79	72,933,796	113,732,736	40,798,940
C&I Small Retrofit - Government	2.64	3,448,472	5,557,013	2,108,542
Community Based Pilot	n/a	n/a	n/a	440,750
Statewide Marketing & Education	n/a	n/a	n/a	418,979
EEAC Consultants	n/a	n/a	n/a	1,710,300
DOER Assessment	n/a	n/a	n/a	1,186,616
Sponsorships & Subscriptions	n/a	n/a	n/a	619,604
GRAND TOTAL	**3.53**	**$872,949,120**	**$1,217,428,687**	**$344,479,566**
Total Resource Cost Test, 2011				
Sector	**B/C Ratio**	**Net Benefits**	**Benefits**	**Costs (1)**
Residential	**3.67**	**$382,298,839**	**$525,689,326**	**$143,390,487**
Residential New Construction & Major Renovation	1.98	9,428,727	19,091,597	9,662,870
Residential Cooling & Heating Equipment	1.40	2,410,663	8,462,579	6,051,916
Multi-Family Retrofit	2.52	27,305,206	45,252,179	17,946,974
MassSAVE	5.92	291,749,134	351,005,408	59,256,274
O Power	4.53	5,503,929	7,062,809	1,558,879
ENERGY STAR Lighting	3.69	56,186,635	77,099,639	20,913,004
ENERGY STAR Appliances	2.07	9,169,446	17,715,115	8,545,669
Residential Education Program	n/a	n/a	n/a	2,293,066
Workforce Development	n/a	n/a	n/a	355,175
Heat Loan Program	n/a	n/a	n/a	9,383,915
Deep Energy Retrofit	n/a	n/a	n/a	2,193,392
Power Monitor Pilot	n/a	n/a	n/a	41,200
Residential New Construction & Major Renovation - Major Renovation statewide pilot	n/a	n/a	n/a	659,867
Residential New Construction Multi Family (4-8 story) statewide pilot	n/a	n/a	n/a	568,802
Residential New Construction Lighting Design statewide pilot	n/a	n/a	n/a	60,586
Residential New Construction V3 Energy Star Homes statewide pilot	n/a	n/a	n/a	32,960
Heat Pump Water Heater Pilot	n/a	n/a	n/a	10,987
Residential Technical Development	n/a	n/a	n/a	19,776
Hot Roofs	n/a	n/a	n/a	8,899
Home Automation	n/a	n/a	n/a	19,578
Community Based Pilot	n/a	n/a	n/a	321,369
Statewide Marketing & Education	n/a	n/a	n/a	1,538,667
EEAC Consultants	n/a	n/a	n/a	1,248,154

DOER Assessment	n/a	n/a	n/a	578,271
Sponsorships & Subscriptions	n/a	n/a	n/a	120,235
Low Income	**2.75**	**$82,434,260**	**$129,516,601**	**$47,082,341**
Low-Income Residential New Construction	2.15	1,589,308	2,970,970	1,381,662
Low-Income 1 to 4 Family Retrofit	2.64	38,463,947	61,866,647	23,402,700
Low-Income Multi Family Retrofit	3.07	43,628,412	64,678,984	21,050,572
Statewide Marketing & Education	n/a	n/a	n/a	173,352
Low-Income Energy Affordability Network Funding	n/a	n/a	n/a	852,464
DOER Assessment	n/a	n/a	n/a	221,591
Commercial & Industrial	**3.10**	**$802,021,456**	**$1,183,119,626**	**$381,098,170**
C&I New Construction and Major Renovation	3.92	208,350,712	279,665,889	71,315,177
C&I New Construction and Major Renovation - Government	6.37	3,651,717	4,332,173	680,456
C&I Large Retrofit	3.02	472,548,790	706,010,782	233,461,992
Large C&I Retrofit - Government	3.95	1,900,424	2,543,662	643,238
C&I Small Retrofit	2.79	117,590,989	183,187,047	65,596,057
C&I Small Retrofit - Government	2.54	4,473,325	7,380,072	2,906,747
Community Based Pilot	n/a	n/a	n/a	438,296
Statewide Marketing & Education	n/a	n/a	n/a	1,641,271
EEAC Consultants	n/a	n/a	n/a	2,442,955
DOER Assessment	n/a	n/a	n/a	1,176,901
Sponsorships & Subscriptions	n/a	n/a	n/a	795,079
GRAND TOTAL	**3.22**	**$1,266,754,555**	**$1,838,325,553**	**$571,570,998**
Total Resource Cost Test, 2012				
Sector	**B/C Ratio**	**Net Benefits**	**Benefits**	**Costs (1)**
Residential	**3.93**	**$498,633,127**	**$668,750,462**	**$170,117,336**
Residential New Construction & Major Renovation	2.11	12,280,498	23,338,177	11,057,679
Residential Cooling & Heating Equipment	1.49	3,902,275	11,798,961	7,896,685
Multi-Family Retrofit	2.77	37,461,090	58,652,902	21,191,812
MassSAVE	6.33	377,487,507	448,255,508	70,768,001
O Power	4.66	9,465,415	12,054,726	2,589,311
ENERGY STAR Lighting	3.86	70,046,724	94,563,288	24,516,563
ENERGY STAR Appliances	2.16	10,808,340	20,086,901	9,278,561
Residential Education Program	n/a	n/a	n/a	2,381,892
Workforce Development	n/a	n/a	n/a	393,432
Heat Loan Program	n/a	n/a	n/a	12,531,786
Deep Energy Retrofit	n/a	n/a	n/a	1,883,355
Power Monitor Pilot	n/a	n/a	n/a	0
Residential New Construction & Major Renovation - Major Renovation statewide pilot	n/a	n/a	n/a	693,254
Residential New Construction Multi Family (4-8 story) statewide pilot	n/a	n/a	n/a	587,933
Residential New Construction Lighting Design statewide pilot	n/a	n/a	n/a	60,019
Residential New Construction V3 Energy Star Homes statewide pilot	n/a	n/a	n/a	9,888
Heat Pump Water Heater Pilot	n/a	n/a	n/a	10,864
Residential Technical Development	n/a	n/a	n/a	19,555

Hot Roofs	n/a	n/a	n/a	14,666
Home Automation	n/a	n/a	n/a	19,359
Community Based Pilot	n/a	n/a	n/a	330,861
Statewide Marketing & Education	n/a	n/a	n/a	1,646,585
EEAC Consultants	n/a	n/a	n/a	1,531,039
DOER Assessment	n/a	n/a	n/a	579,285
Sponsorships & Subscriptions	n/a	n/a	n/a	124,951
Low Income	**2.84**	**$108,430,732**	**$167,510,308**	**$59,079,575**
Low-Income Residential New Construction	2.35	2,378,869	4,136,867	1,757,998
Low-Income 1 to 4 Family Retrofit	2.96	63,599,537	95,990,396	32,390,859
Low-Income Multi Family Retrofit	2.87	43,913,352	67,383,045	23,469,693
Statewide Marketing & Education	n/a	n/a	n/a	194,385
Low-Income Energy Affordability Network Funding	n/a	n/a	n/a	1,044,526
DOER Assessment	n/a	n/a	n/a	222,113
Commercial & Industrial	**2.96**	**$965,405,946**	**$1,456,820,933**	**$491,414,988**
C&I New Construction and Major Renovation	3.67	231,787,068	318,701,759	86,914,691
C&I New Construction and Major Renovation - Government	6.07	5,171,867	6,192,182	1,020,315
C&I Large Retrofit	2.91	561,290,724	855,371,579	294,080,855
Large C&I Retrofit - Government	3.76	2,663,830	3,627,876	964,046
C&I Small Retrofit	2.73	166,444,160	262,508,790	96,064,629
C&I Small Retrofit - Government	2.39	6,065,682	10,418,748	4,353,066
Community Based Pilot	n/a	n/a	n/a	446,479
Statewide Marketing & Education	n/a	n/a	n/a	2,104,120
EEAC Consultants	n/a	n/a	n/a	3,295,042
DOER Assessment	n/a	n/a	n/a	1,175,697
Sponsorships & Subscriptions	n/a	n/a	n/a	996,047
GRAND TOTAL	**3.18**	**$1,572,469,805**	**$2,293,081,703**	**$720,611,898**
Total Resource Cost Test, 2010-2012				
Sector	**B/C Ratio**	**Net Benefits**	**Benefits**	**Costs (1)**
Residential	**3.58**	**$1,104,120,727**	**$1,531,264,772**	**$427,144,045**
Residential New Construction & Major Renovation	1.98	28,492,771	57,645,930	29,153,159
Residential Cooling & Heating Equipment	1.40	7,476,158	26,277,886	18,801,728
Multi-Family Retrofit	2.61	84,245,217	136,537,288	52,292,070
MassSAVE	5.73	825,687,921	1,000,269,778	174,581,856
O Power	4.73	17,484,402	22,174,990	4,690,587
ENERGY STAR Lighting	3.66	172,525,091	237,497,052	64,971,961
ENERGY STAR Appliances	2.05	26,036,670	50,861,849	24,825,180
Residential Education Program	n/a	n/a	n/a	6,869,476
Workforce Development	n/a	n/a	n/a	1,043,382
Heat Loan Program	n/a	n/a	n/a	27,852,773
Deep Energy Retrofit	n/a	n/a	n/a	5,959,341
Power Monitor Pilot	n/a	n/a	n/a	124,534
Residential New Construction & Major Renovation - Major Renovation statewide pilot	n/a	n/a	n/a	1,987,601
Residential New Construction Multi Family (4-8 story) statewide pilot	n/a	n/a	n/a	1,710,324

Residential New Construction Lighting Design statewide pilot	n/a	n/a	n/a	360,128
Residential New Construction V3 Energy Star Homes statewide pilot	n/a	n/a	n/a	305,329
Heat Pump Water Heater Pilot	n/a	n/a	n/a	68,402
Residential Technical Development	n/a	n/a	n/a	59,331
Hot Roofs	n/a	n/a	n/a	26,565
Home Automation	n/a	n/a	n/a	49,738
Community Based Pilot	n/a	n/a	n/a	986,830
Statewide Marketing & Education	n/a	n/a	n/a	4,624,901
EEAC Consultants	n/a	n/a	n/a	3,698,608
DOER Assessment	n/a	n/a	n/a	1,738,895
Sponsorships & Subscriptions	n/a	n/a	n/a	361,347
Low Income	**2.77**	**$251,444,162**	**$393,708,089**	**$142,263,927**
Low-Income Residential New Construction	2.18	5,115,231	9,446,904	4,331,673
Low-Income 1 to 4 Family Retrofit	2.82	135,868,078	210,666,401	74,798,323
Low-Income Multi Family Retrofit	2.92	114,175,767	173,594,784	59,419,017
Statewide Marketing & Education	n/a	n/a	n/a	490,455
Low-Income Energy Affordability Network Funding	n/a	n/a	n/a	2,557,806
DOER Assessment	n/a	n/a	n/a	666,653
Commercial & Industrial	**3.21**	**$2,356,608,591**	**$3,423,863,082**	**$1,067,254,490**
C&I New Construction and Major Renovation	3.93	597,914,714	801,789,082	203,874,368
C&I New Construction and Major Renovation - Government	6.27	11,562,546	13,756,214	2,193,668
C&I Large Retrofit	3.21	1,389,071,914	2,017,468,818	628,396,904
Large C&I Retrofit - Government	3.89	5,991,129	8,064,562	2,073,433
C&I Small Retrofit	2.76	356,968,946	559,428,573	202,459,627
C&I Small Retrofit - Government	2.49	13,987,479	23,355,833	9,368,355
Community Based Pilot	n/a	n/a	n/a	1,325,525
Statewide Marketing & Education	n/a	n/a	n/a	4,164,370
EEAC Consultants	n/a	n/a	n/a	7,448,298
DOER Assessment	n/a	n/a	n/a	3,539,214
Sponsorships & Subscriptions	n/a	n/a	n/a	2,410,730
GRAND TOTAL	**3.27**	**$3,712,173,481**	**$5,348,835,943**	**$1,636,662,463**

2. *Costs Tables*

i. Costs Summary Table

2010				
Programs	**PA Costs**		**Participant Costs**	**Total TRC Test Costs**
	Program Costs (1)	**Performance Incentive (2)**		
Residential (total)	**$92,034,414**	**$5,199,953**	**$16,402,611**	**$113,636,979**
Residential New Construction & Major Renovation	3,546,233	205,000	4,683,343	8,434,575
Residential Cooling & Heating Equipment	4,556,457	174,196	122,911	4,853,564
Multi-Family Retrofit	11,073,716	1,860,549	219,021	13,153,285
MassSAVE	36,781,541	1,571,846	6,146,926	44,500,313
O Power	494,062	48,334	0	542,397
ENERGY STAR Lighting	15,588,171	1,052,513	2,903,580	19,544,264
ENERGY STAR Appliances	5,021,613	245,412	1,735,017	7,002,042
Residential Education Program	2,189,903	4,615	0	2,194,518
Workforce Development	293,000	1,775	0	294,775
Heat Loan Program	5,962,930	26,802	0	5,989,732
Deep Energy Retrofit	1,693,682	8,911	180,000	1,882,593
Power Monitor Pilot	83,333	0	0	83,333
Residential New Construction & Major Renovation - Major Renovation statewide pilot	631,666	0	2,814	634,480
Residential New Construction Multi Family (4-8 story) statewide pilot	539,589	0	14,000	553,589
Residential New Construction Lighting Design statewide pilot	57,522	0	182,000	239,522
Residential New Construction V3 Energy Star Homes statewide pilot	51,481	0	211,000	262,481
Heat Pump Water Heater Pilot	44,551	0	2,000	46,551
Residential Technical Development	20,000	0	0	20,000
Hot Roofs	3,000	0	0	3,000
Home Automation	10,800	0	0	10,800
Community Based Pilot	334,600	0	0	334,600
Statewide Marketing & Education	1,439,649	0	0	1,439,649
EEAC Consultants	919,414	0	0	919,414
DOER Assessment	581,339	0	0	581,339
Sponsorships & Subscriptions	116,162	0	0	116,162
Low Income (total)	**$34,366,472**	**$1,670,537**	**$64,865**	**$36,101,873**
Low-Income Residential New Construction	1,065,240	60,568	64,865	1,190,674
Low-Income 1 to 4 Family Retrofit	18,219,613	786,353	0	19,005,965

Low-Income Multi Family Retrofit	14,075,137	823,616	0	14,898,752
Statewide Marketing & Education	122,718	0	0	122,718
Low-Income Energy Affordability Network Funding	660,816	0	0	660,816
DOER Assessment	222,948	0	0	222,948
Commercial & Industrial (total)	**$150,143,440**	**$10,397,197**	**$34,200,077**	**$194,740,714**
C&I New Construction and Major Renovation	35,545,293	2,554,788	7,529,842	45,629,923
C&I New Construction and Major Renovation - Government	492,829	0	67	492,896
C&I Large Retrofit	75,659,702	6,006,218	19,193,422	100,859,343
Large C&I Retrofit - Government	466,085	0	64	466,149
C&I Small Retrofit	31,497,528	1,833,687	7,476,397	40,807,612
C&I Small Retrofit - Government	2,108,255	0	286	2,108,542
Community Based Pilot	440,750	0	0	440,750
Statewide Marketing & Education	418,979	0	0	418,979
EEAC Consultants	1,710,300	0	0	1,710,300
DOER Assessment	1,186,615	0	0	1,186,616
Sponsorships & Subscriptions	617,102	2,503	0	619,604
GRAND TOTAL	**$276,544,325**	**$17,267,687**	**$50,667,554**	**$344,479,566**

2011

Programs	PA Costs		Participant Costs	Total TRC Test Costs
	Program Costs (1)	Performance Incentive (2)		
Residential (total)	**$115,274,818**	**$6,107,096**	**$22,137,546**	**$143,407,624**
Residential New Construction & Major Renovation	3,903,900	204,090	5,561,045	9,669,035
Residential Cooling & Heating Equipment	5,767,068	186,423	99,627	6,053,118
Multi-Family Retrofit	14,836,857	2,876,931	270,911	17,946,974
MassSAVE	47,076,241	1,603,712	10,514,697	59,194,650
O Power	1,473,296	85,583	0	1,558,879
ENERGY STAR Lighting	16,976,226	861,838	3,078,423	20,916,487
ENERGY STAR Appliances	5,930,657	233,662	2,383,871	8,548,190
Residential Education Program	2,297,531	5,928	0	2,293,066
Workforce Development	354,630	2,306	0	355,259
Heat Loan Program	9,445,407	34,613	0	9,448,555
Deep Energy Retrofit	1,977,492	12,011	208,639	2,193,392
Power Monitor Pilot	41,200	0	0	41,200
Residential New Construction & Major Renovation - Major Renovation statewide pilot	658,429	0	2,783	659,867
Residential New Construction Multi Family (4-8 story) statewide pilot	557,937	0	13,843	568,802
Residential New Construction Lighting Design statewide pilot	56,990	0	3,708	60,586

Residential New Construction V3 Energy Star Homes statewide pilot	32,960	0	0	32,960
Heat Pump Water Heater Pilot	10,987	0	0	10,987
Residential Technical Development	19,776	0	0	19,776
Hot Roofs	8,899	0	0	8,899
Home Automation	19,578	0	0	19,578
Community Based Pilot	325,000	0	0	321,369
Statewide Marketing & Education	1,547,707	0	0	1,539,159
EEAC Consultants	1,253,717	0	0	1,248,242
DOER Assessment	581,285	0	0	578,358
Sponsorships & Subscriptions	121,047	0	0	120,235
Low Income (total)	**$45,397,951**	**$1,822,669**	**$71,821**	**$47,087,574**
Low-Income Residential New Construction	1,258,329	60,549	71,821	1,381,215
Low-Income 1 to 4 Family Retrofit	22,662,973	805,239	0	23,408,379
Low-Income Multi Family Retrofit	20,223,460	956,881	0	21,050,572
Statewide Marketing & Education	174,470	0	0	173,576
Low-Income Energy Affordability Network Funding	856,104	0	0	852,193
DOER Assessment	222,615	0	0	221,639
Commercial & Industrial (total)	**$246,926,267**	**$13,447,779**	**$120,810,286**	**$381,143,862**
C&I New Construction and Major Renovation	57,064,474	2,913,068	11,357,333	71,334,875
C&I New Construction and Major Renovation - Government	680,456	0	0	680,456
C&I Large Retrofit	128,146,520	8,072,343	97,247,054	233,465,917
Large C&I Retrofit - Government	643,238	0	0	643,238
C&I Small Retrofit	50,948,548	2,462,368	12,205,900	65,616,815
C&I Small Retrofit - Government	2,906,747	0	0	2,906,747
Community Based Pilot	441,927	0	0	438,296
Statewide Marketing & Education	1,657,083	0	0	1,642,110
EEAC Consultants	2,453,806	0	0	2,443,191
DOER Assessment	1,182,991	0	0	1,177,137
Sponsorships & Subscriptions	800,477	0	0	795,079
GRAND TOTAL	**$407,599,036**	**$21,377,544**	**$143,019,653**	**$571,639,059**

2012

Programs	PA Costs		Participant Costs	Total TRC Test Costs
	Program Costs (1)	Performance Incentive (2)		
Residential (total)	**$138,274,014**	**$7,173,689**	**$24,917,607**	**$170,165,364**
Residential New Construction & Major Renovation	4,298,674	223,095	6,549,924	11,071,693
Residential Cooling & Heating Equipment	7,645,526	244,838	42,995	7,899,207
Multi-Family Retrofit	17,509,810	3,456,942	319,204	21,191,812
MassSAVE	56,399,266	1,806,284	12,494,301	70,699,851
O Power	2,452,698	136,613	0	2,589,311

ENERGY STAR Lighting	20,707,472	988,467	2,828,157	24,524,097
ENERGY STAR Appliances	6,557,260	242,110	2,484,970	9,284,341
Residential Education Program	2,384,474	7,940	0	2,381,892
Workforce Development	392,242	3,088	0	393,654
Heat Loan Program	12,606,069	47,518	0	12,616,401
Deep Energy Retrofit	1,693,362	16,793	177,949	1,883,355
Power Monitor Pilot	0	0	0	0
Residential New Construction & Major Renovation - Major Renovation statewide pilot	691,959	0	2,751	693,254
Residential New Construction Multi Family (4-8 story) statewide pilot	577,476	0	13,688	587,933
Residential New Construction Lighting Design statewide pilot	56,465	0	3,667	60,019
Residential New Construction V3 Energy Star Homes statewide pilot	0	0	0	9,888
Heat Pump Water Heater Pilot	10,864	0	0	10,864
Residential Technical Development	19,555	0	0	19,555
Hot Roofs	14,666	0	0	14,666
Home Automation	19,359	0	0	19,359
Community Based Pilot	334,600	0	0	330,861
Statewide Marketing & Education	1,656,554	0	0	1,647,615
EEAC Consultants	1,537,416	0	0	1,531,270
DOER Assessment	582,443	0	0	579,516
Sponsorships & Subscriptions	125,803	0	0	124,951
Low Income (total)	**$57,296,040**	**$2,148,696**	**$140,887**	**$59,093,268**
Low-Income Residential New Construction	1,566,910	88,526	140,887	1,774,494
Low-Income 1 to 4 Family Retrofit	31,530,749	1,072,090	0	32,412,845
Low-Income Multi Family Retrofit	22,755,469	988,079	0	23,469,693
Statewide Marketing & Education	170,206	0	0	169,312
Low-Income Energy Affordability Network Funding	1,049,494	0	0	1,044,689
DOER Assessment	223,212	0	0	222,236
Commercial & Industrial (total)	**$320,453,642**	**$15,638,778**	**$155,501,430**	**$491,541,913**
C&I New Construction and Major Renovation	70,844,006	3,300,508	12,812,950	86,957,464
C&I New Construction and Major Renovation - Government	1,020,315	0	0	1,020,315
C&I Large Retrofit	161,620,828	9,047,354	123,449,775	294,117,957
Large C&I Retrofit - Government	964,046	0	0	964,046
C&I Small Retrofit	73,579,036	3,290,916	19,238,706	96,108,658
C&I Small Retrofit - Government	4,353,066	0	0	4,353,066
Community Based Pilot	450,218	0	0	446,479
Statewide Marketing & Education	2,124,896	0	0	2,105,789
EEAC Consultants	3,310,859	0	0	3,295,719
DOER Assessment	1,182,227	0	0	1,176,373
Sponsorships & Subscriptions	1,004,144	0	0	996,047

GRAND TOTAL	$516,023,696	$24,961,163	$180,559,925	$720,800,546
2010-2012				
Programs	PA Costs		Participant Costs	Total TRC Test Costs
	Program Costs (1)	Performance Incentive (2)		
Residential (total)	**$345,583,247**	**$18,480,739**	**$63,457,764**	**$427,209,967**
Residential New Construction & Major Renovation	11,748,807	632,185	16,794,312	29,175,304
Residential Cooling & Heating Equipment	17,969,051	605,456	265,533	18,805,888
Multi-Family Retrofit	43,420,383	8,194,421	809,135	52,292,070
MassSAVE	140,257,047	4,981,842	29,155,924	174,394,814
O Power	4,420,056	270,531	0	4,690,587
ENERGY STAR Lighting	53,271,869	2,902,819	8,810,160	64,984,847
ENERGY STAR Appliances	17,509,531	721,184	6,603,858	24,834,573
Residential Education Program	6,871,909	18,484	0	6,869,476
Workforce Development	1,039,872	7,169	0	1,043,689
Heat Loan Program	28,014,406	108,933	0	28,054,688
Deep Energy Retrofit	5,364,536	37,715	566,588	5,959,341
Power Monitor Pilot	124,534	0	0	124,534
Residential New Construction & Major Renovation - Major Renovation statewide pilot	1,982,054	0	8,348	1,987,601
Residential New Construction Multi Family (4-8 story) statewide pilot	1,675,002	0	41,532	1,710,324
Residential New Construction Lighting Design statewide pilot	170,977	0	189,375	360,128
Residential New Construction V3 Energy Star Homes statewide pilot	84,441	0	211,000	305,329
Heat Pump Water Heater Pilot	66,402	0	2,000	68,402
Residential Technical Development	59,331	0	0	59,331
Hot Roofs	26,565	0	0	26,565
Home Automation	49,738	0	0	49,738
Community Based Pilot	994,200	0	0	986,830
Statewide Marketing & Education	4,643,910	0	0	4,626,423
EEAC Consultants	3,710,547	0	0	3,698,926
DOER Assessment	1,745,067	0	0	1,739,213
Sponsorships & Subscriptions	363,012	0	0	361,347
Low Income (total)	**$137,060,462**	**$5,641,901**	**$277,574**	**$142,282,716**
Low-Income Residential New Construction	3,890,480	209,644	277,574	4,346,383
Low-Income 1 to 4 Family Retrofit	72,413,335	2,663,681	0	74,827,189
Low-Income Multi Family Retrofit	57,054,066	2,768,576	0	59,419,017
Statewide Marketing & Education	467,394	0	0	465,606
Low-Income Energy Affordability Network Funding	2,566,413	0	0	2,557,697
DOER Assessment	668,775	0	0	666,823

Commercial & Industrial (total)	**$717,523,348**	**$39,483,754**	**$310,511,794**	**$1,067,426,489**
C&I New Construction and Major Renovation	163,453,773	8,768,365	31,700,124	203,922,262
C&I New Construction and Major Renovation - Government	2,193,601	0	67	2,193,668
C&I Large Retrofit	365,427,051	23,125,916	239,890,251	628,443,217
Large C&I Retrofit - Government	2,073,369	0	64	2,073,433
C&I Small Retrofit	156,025,112	7,586,971	38,921,002	202,533,085
C&I Small Retrofit - Government	9,368,069	0	286	9,368,355
Community Based Pilot	1,332,895	0	0	1,325,525
Statewide Marketing & Education	4,200,958	0	0	4,166,878
EEAC Consultants	7,474,965	0	0	7,449,210
DOER Assessment	3,551,833	0	0	3,540,126
Sponsorships & Subscriptions	2,421,722	2,503	0	2,410,730
GRAND TOTAL	**$1,200,167,057**	**$63,606,394**	**$374,247,132**	**$1,636,919,171**

3. *Benefits/Savings Tables*

i. Benefits Summary Table by program: disaggregation of total benefits into benefits components

Program	Electric Benefits, 2010 ($)											Non-Electric Benefits, 2010 ($)									TOTAL BENEFITS
	Capacity						Energy					Resource Benefits							Non- Resource Benefits (1)	TOTAL	
	Generation		Trans.	Distrib.	DRIPE	TOTAL	Winter		Summer		DRIPE	TOTAL	Avoided Natural Gas	No. 2 Distillate	No. 4 Fuel Oil	Propane	Wood	Water	Kerosene			
	Summer	Winter					Peak	Off Peak	Peak	Off Peak												
Residential (total)	$11,949,227	$0	$4,502,193	$14,415,036	$2,757,805	$33,624,262	$26,278,208	$31,618,838	$19,965,304	$17,027,782	$31,334,447	$126,224,579	$25,987,820	$127,911,636	$0	$11,765,357	$6,524	$3,376,296	$0	$6,906,531	$174,976,163	$336,824,984
Residential New Construction & Major Renovation	1,144,255	0	433,919	1,515,133	151,396	3,244,693	649,972	753,696	987,006	572,817	687,563	3,651,056	322,382	1,416,240	0	6,470,985	$21	12,456	0	98,321	8,320,406	15,216,156
Residential Cooling & Heating Equipment	781,723	0	301,029	1,311,934	221,193	2,595,878	1,612,387	457,646	971,196	307,774	577,593	4,026,601	-774,414	0	0	0	$414	0	0	67,667	-706,133	6,016,346
Multi-Family Retrofit	566,782	0	130,391	334,620	125,219	1,159,013	4,972,606	5,917,160	2,493,721	2,840,131	3,515,612	19,740,452	4,076,260	4,962,260	0	303,273	$1,343	2,052,240	0	335,358	11,732,742	32,632,207
MassSAVE	6,899,518	0	3,000,879	9,394,807	1,120,050	20,415,255	4,942,809	5,755,100	7,336,459	4,307,099	6,890,032	29,231,498	22,361,592	121,533,136	0	5,011,099	$1,980	1,311,589	0	1,142,714	151,362,109	201,008,862
O Power	110,437	0	10,026	20,116	0	140,579	575,048	635,573	287,915	312,846	1,105,041	2,916,723	0	0	0	0	$153	0	0	0	153	3,057,455
ENERGY STAR Lighting	1,966,503	0	287,361	991,776	911,847	4,157,488	13,052,155	15,214,917	6,460,976	7,250,971	15,432,519	57,411,538	0	0	0	0	$828	0	0	4,264,271	4,265,099	65,834,125
ENERGY STAR Appliances	478,010	0	258,566	846,650	228,110	1,811,357	2,473,229	2,884,422	1,428,029	1,436,124	3,024,886	11,246,692	0	0	0	0	$1,785	0	0	0	1,785	13,059,834
Low Income (total)	$1,163,908	$0	$426,786	$1,393,063	$267,060	$3,250,799	$7,594,263	$9,014,490	$3,805,036	$4,322,570	$5,541,389	$30,277,750	$199,531	$20,182,970	$0	$549,541	$5,187	$1,787,022	$0	$40,428,380	$63,152,631	$96,681,180
Low-Income Residential New Construction	196,591	0	69,184	275,149	28,030	568,954	119,963	140,765	59,952	67,564	105,422	493,667	223,811	331,441	0	549,541	$819	1,124	0	169,712	1,276,447	2,339,067
Low-Income 1 to 4 Family Retrofit	397,667	0	171,395	644,444	122,237	1,335,742	2,802,222	3,311,212	1,400,154	1,585,154	2,303,009	11,401,751	-24,280	13,074,514	0	0	$2,331	604,756	0	26,414,543	40,071,864	52,809,358
Low-Income MultiFamily Retrofit	569,651	0	186,190	473,470	116,793	1,346,103	4,672,078	5,562,512	2,344,933	2,669,852	3,132,958	18,382,333	0	6,777,015	0	0	$2,037	1,181,142	0	13,844,125	21,804,319	41,532,755
C&I (total)	$28,872,554	$0	$18,978,852	$59,618,961	$9,868,453	$117,338,830	$198,315,543	$78,515,524	$188,250,511	$57,468,202	$130,940,701	$651,490,481	-$13,708,460	$2,587,089	$0	$158,811	$2,415	$52,126	$0	$16,001,230	$5,093,212	$783,922,523
C&I New Construction and Major Renovation	8,765,852	0	5,563,164	17,215,723	2,474,434	34,018,972	42,759,231	16,606,804	62,350,630	15,610,613	30,823,305	168,168,584	210,306	0	0	0	$1,099	0	0	1,022,473	1,233,877	203,421,433
C&I New Construction and Major Renovation - Government	157,055	0	82,782	410,630	62,571	713,039	923,902	228,951	647,896	148,318	500,693	2,449,760	0	0	0	0	$0	0	0	69,059	69,059	3,231,858
C&I Large Retrofit	14,616,986	0	10,137,871	30,966,837	5,177,754	60,921,448	117,094,822	51,117,782	104,548,434	36,058,212	86,073,869	394,993,119	-7,516,716	2,396,643	0	0	$1,149	52,126	0	5,230,588	171,890	466,096,457
Large C&I Retrofit - Government	101,275	0	54,695	271,308	46,582	475,860	485,412	172,266	329,731	109,851	323,011	1,420,290	-8,869	0	0	0	$0	0	0	5,894	-3,125	1,893,024
C&I Small Retrofit	4,970,535	0	2,999,491	10,033,802	1,960,247	19,964,074	35,469,259	9,766,241	19,412,331	5,213,034	20,186,902	90,047,767	-5,970,997	125,523	0	104,672	$167	0	0	9,441,530	3,700,895	113,732,736
C&I Small Retrofit - Government	261,061	0	140,849	696,662	124,865	1,225,437	1,572,918	623,460	853,469	328,174	1,032,920	4,410,960	-422,233	84,924	0	54,139	$0	0	0	223,787	-79,384	5,557,013
GRAND TOTAL	$41,985,699	$0	$23,907,813	$75,427,061	$12,893,318	$154,213,891	$234,188,014	$119,148,852	$212,020,853	$78,818,534	$175,816,537	$819,992,790	$12,478,891	$150,681,695	$0	$12,493,709	$14,126	$5,215,443	$0	$62,336,141	$243,222,006	$1,217,428,687

Program	Electric Benefits, 2011 ($)											Non-Electric Benefits, 2011 ($)									TOTAL BENEFITS
	Capacity						Energy					Resource Benefits							Non- Resource Benefits (1)	TOTAL	
	Generation		Trans.	Distrib.	DRIPE	TOTAL	Winter		Summer		DRIPE	TOTAL	Avoided Natural Gas	No. 2 Distillate	No. 4 Fuel Oil	Propane	Wood	Water	Kerosene			
	Summer	Winter					Peak	Off Peak	Peak	Off Peak												
Residential (total)	$17,735,041	$0	$7,417,490	$22,414,564	$7,775,853	$55,343,067	$36,832,091	$41,823,743	$28,569,438	$23,146,656	$39,999,154	$169,171,083	$46,503,850	$227,735,895	$0	$16,765,050	$6,524	$4,611,825	$0	$8,562,041	$301,175,176	$526,689,326
Residential New Construction & Major Renovation	1,419,996	0	526,389	1,877,761	359,150	4,183,297	795,550	944,034	1,216,926	712,920	757,169	4,436,598	417,419	1,936,308	0	7,996,788	$21	13,770	0	117,405	10,471,712	19,091,597
Residential Cooling & Heating Equipment	1,015,957	0	510,291	1,808,564	599,904	3,935,015	2,068,810	609,146	1,449,427	460,582	827,910	5,416,177	-996,873	0	0	0	$414	0	0	109,648	-886,811	8,462,581
Multi-Family Retrofit	788,604	0	185,240	469,002	402,900	1,845,947	7,053,634	8,443,367	3,544,661	4,053,952	4,935,364	27,730,977	5,501,152	6,918,215	0	395,174	$1,343	2,312,239	0	447,131	15,575,254	45,252,178
MassSAVE	11,960,416	0	5,407,058	15,467,894	3,725,012	36,560,380	6,967,772	8,228,494	12,150,195	6,599,528	8,873,156	42,939,145	40,464,152	218,881,361	0	8,373,069	$1,980	2,285,816	0	1,479,486	271,505,864	351,005,409
O Power	173,923	0	20,553	41,239	0	235,715	1,257,183	1,409,836	623,911	669,111	2,866,898	6,826,941	0	0	0	0	$153	0	0	0	153	7,062,809
ENERGY STAR Lighting	1,853,362	0	437,377	1,535,256	2,068,785	5,994,781	15,305,164	18,034,159	7,592,589	8,571,095	17,192,851	66,695,858	0	0	0	0	$828	0	0	4,408,172	4,409,000	77,099,639
ENERGY STAR Appliances	522,594	0	330,560	1,114,667	620,102	2,587,942	3,363,979	3,954,704	1,991,728	1,979,169	3,835,806	15,125,387	0	0	0	0	$1,785	0	0	0	1,785	17,715,115
Low Income (total)	$1,504,870	$0	$561,844	$1,890,393	$765,912	$4,723,020	$10,590,012	$12,541,192	$5,313,765	$6,058,100	$7,156,509	$41,759,578	$261,900	$28,543,547	$0	$663,535	$5,187	$2,109,334	$0	$51,460,379	$83,033,882	$129,516,501
Low-Income Residential New Construction	243,940	0	84,370	336,694	62,201	729,204	150,069	177,602	75,135	85,082	118,660	606,549	279,460	478,976	0	663,535	$819	24,326	0	188,103	1,635,219	2,970,972
Low-Income 1 to 4 Family Retrofit	499,618	0	229,895	884,817	321,944	1,936,274	3,773,314	4,469,479	1,888,851	2,146,773	2,781,833	15,060,250	-17,560	17,022,917	0	0	$2,331	762,098	0	27,080,336	44,850,121	61,886,645
Low-Income MultiFamily Retrofit	761,312	0	247,580	668,882	381,767	2,057,543	6,666,629	7,974,111	3,349,799	3,826,244	4,256,117	26,072,900	0	11,041,654	0	0	$2,037	1,322,911	0	24,181,940	36,548,542	64,678,984
C&I (total)	$36,982,602	$0	$28,352,446	$88,894,310	$29,958,646	$186,188,004	$304,185,934	$122,181,340	$284,415,054	$89,099,325	$191,817,117	$990,698,771	-$23,283,862	$4,205,877	$0	$236,969	$2,415	$82,456	$0	$24,398,265	$5,642,140	$1,182,528,915
C&I New Construction and Major Renovation	11,532,366	0	7,801,051	23,486,258	6,822,170	49,441,843	58,832,377	23,485,324	86,086,424	21,808,226	37,780,070	227,941,420	396,970	0	0	0	$1,099	0	0	1,291,847	1,691,916	279,075,179
C&I New Construction and Major Renovation - Government	193,440	0	110,652	548,873	132,898	985,863	1,275,177	313,349	892,286	202,997	563,939	3,247,748	0	0	0	0	$0	0	0	98,562	98,562	4,332,173
C&I Large Retrofit	19,765,357	0	15,585,656	47,707,505	16,762,661	99,841,278	183,306,829	81,186,777	164,246,041	57,053,939	122,687,018	608,482,603	-13,625,382	3,911,990	0	0	$1,149	82,456	0	7,316,689	-2,313,098	706,010,783
Large C&I Retrofit - Government	119,073	0	73,285	363,518	103,317	659,193	678,950	235,964	457,412	150,222	387,684	1,888,232	-11,868	0	0	0	$0	0	0	8,126	-3,742	2,543,682
C&I Small Retrofit	7,048,805	0	4,794,492	15,856,929	5,873,723	33,575,949	57,954,596	16,134,563	31,571,334	8,434,393	29,280,196	143,375,074	-9,476,418	192,991	0	155,826	$167	0	0	15,363,656	6,236,023	183,187,046
C&I Small Retrofit - Government	303,561	0	187,311	929,130	263,878	1,683,880	2,138,015	855,363	1,162,557	449,549	1,158,209	5,763,693	-569,144	100,897	0	81,362	$0	0	0	319,385	-67,501	7,380,072
GRAND TOTAL	$56,222,514	$0	$36,331,780	$113,199,367	$38,500,411	$246,254,091	$351,608,037	$176,446,276	$318,298,277	$117,304,083	$237,972,880	$1,201,629,553	$22,481,889	$260,485,319	$0	$17,665,574	$14,126	$6,803,615	$0	$82,410,685	$389,851,199	$1,837,734,842

Program	Electric Benefits, 2012 ($)											Non-Electric Benefits, 2012 ($)									TOTAL BENEFITS
	Capacity						Energy					Resource Benefits							Non- Resource Benefits (1)	TOTAL	
	Generation		Trans.	Distrib.	DRIPE	TOTAL	Winter		Summer		DRIPE	TOTAL	Avoided Natural Gas	No. 2 Distillate	No. 4 Fuel Oil	Propane	Wood	Water	Kerosene			
	Summer	Winter					Peak	Off Peak	Peak	Off Peak												
Residential (total)	$22,663,396	$0	$9,507,031	$28,754,616	$9,975,905	$70,900,948	$47,220,498	$52,931,253	$38,060,472	$30,350,248	$42,556,385	$211,118,857	$59,656,670	$292,243,897	$0	$21,367,940	$6,524	$5,462,400	$0	$7,991,227	$386,730,658	$668,750,464
Residential New Construction & Major Renovation	1,774,900	0	640,331	2,292,791	436,992	5,147,014	986,247	1,177,772	1,509,462	669,064	765,030	5,327,615	505,330	2,586,123	0	9,615,960	21	16,847	0	139,248	12,863,548	23,338,176
Residential Cooling & Heating Equipment	1,449,556	0	706,821	2,544,306	909,905	5,610,392	2,723,798	817,774	2,143,739	684,785	906,134	7,276,230	-1,274,654	0	0	0	414	0	0	184,580	-1,089,661	11,796,961
Multi-Family Retrofit	1,024,532	0	235,067	800,672	539,972	2,400,242	9,150,538	11,011,183	4,608,976	5,299,499	4,792,631	34,862,830	7,763,060	9,837,676	0	650,957	1,343	2,576,839	0	559,955	21,389,830	58,652,903
MassSAVE	15,670,591	0	6,921,840	19,607,051	4,763,923	47,163,405	8,849,566	10,503,942	15,757,862	8,666,012	9,043,757	52,821,141	52,664,934	279,820,098	0	11,101,004	1,980	2,868,714	0	1,814,233	348,270,963	448,255,509
O Power	167,241	0	28,091	56,362	0	251,694	2,006,509	1,506,460	1,977,446	1,404,382	4,907,982	11,802,879	0	0	0	0	153	0	0	0	153	12,054,726
ENERGY STAR Lighting	2,056,609	0	590,133	2,175,011	2,555,896	7,377,649	19,531,724	23,199,672	9,698,009	11,046,326	18,415,871	81,891,600	0	0	0	0	828	0	0	5,293,212	5,294,040	94,563,289
ENERGY STAR Appliances	519,995	0	364,949	1,276,422	767,218	2,950,554	3,972,014	4,714,451	2,364,956	2,360,162	3,722,979	17,134,562	0	0	0	0	1,765	0	0	0	1,765	20,086,901
Low Income (total)	$2,004,718	$0	$744,739	$2,539,136	$1,022,164	$6,310,756	$13,729,992	$16,482,022	$8,906,855	$7,916,460	$7,327,580	$52,362,909	$341,180	$40,080,409	$0			$2,242,388	$0	$65,245,192	$107,909,250	$166,582,915
Low-Income Residential New Construction	344,264	0	119,650	453,866	86,759	1,004,577	208,696	248,553	104,651	119,295	134,819	816,014	350,172	742,016	0	922,206	819	30,257	0	270,807	2,316,276	4,136,867
Low-Income 1 to 4 Family Retrofit	733,805	0	330,706	1,312,935	461,592	2,839,040	5,509,832	6,597,071	2,766,454	3,162,356	3,155,150	21,190,863	-8,992	25,449,885	0	0	2,331	1,013,834	0	46,503,433	71,960,492	95,990,395
Low-Income MultiFamily Retrofit	926,649	0	294,373	772,335	473,782	2,467,139	8,011,464	9,636,398	4,035,751	4,634,809	4,037,610	30,356,032	0	13,888,508	0	0	2,037	1,196,297	0	18,470,952	34,559,874	67,383,045
C&I (total)	$46,063,515	$0	$35,680,379	$112,379,813	$38,054,710	$232,178,417	$368,795,688	$152,309,069	$366,754,060	$112,202,593	$196,909,289	$1,216,970,698	-$29,521,539	$4,985,005	$0	$333,648	$2,415	$85,486	$0	$31,786,802	$7,671,817	$1,456,620,932
C&I New Construction and Major Renovation	13,364,904	0	8,566,145	27,057,594	7,837,117	56,845,760	68,219,866	27,082,568	102,776,755	25,860,149	35,947,179	259,906,516	452,188	0	0	0	1,099	0	0	1,496,166	1,949,453	318,701,759
C&I New Construction and Major Renovation - Government	274,745	0	159,230	789,838	193,392	1,417,204	1,890,853	459,928	1,321,030	298,678	653,112	4,623,599	0	0	0	0	0	0	0	151,380	151,380	6,192,182
C&I Large Retrofit	22,361,342	0	18,775,649	59,662,992	20,736,604	121,756,587	228,096,554	100,696,700	213,496,396	73,428,921	123,673,802	739,392,373	-16,317,845	4,558,554	0	0	1,149	85,486	0	7,896,274	-5,777,382	855,371,578
Large C&I Retrofit - Government	158,415	0	105,733	524,473	150,552	939,173	1,014,792	346,392	682,795	220,878	428,569	2,693,425	-17,201	0	0	0	0	0	0	12,479	-4,722	3,627,876
C&I Small Retrofit	9,507,467	0	7,765,579	22,795,315	8,755,158	48,823,517	66,450,452	22,466,668	46,774,716	11,712,297	34,872,980	202,277,311	-10,815,124	259,150	0	202,754	167	0	0	21,741,014	11,387,961	262,508,759
C&I Small Retrofit - Government	396,642	0	268,048	1,329,601	361,888	2,376,176	3,123,171	1,256,595	1,702,358	661,671	1,333,647	8,077,443	-823,557	167,302	0	130,894	0	0	0	490,490	-34,871	10,418,748
GRAND TOTAL	$70,731,629	$0	$45,932,149	$143,673,565	$49,052,779	$309,390,122	$449,746,178	$221,722,344	$411,721,388	$150,469,301	$246,793,253	$1,480,452,464	$30,476,310	$337,309,392	$0	$21,701,588	$8,939	$7,790,275	$0	$105,023,220	$502,311,725	$2,292,154,311

Program	Electric Benefits, 2010-2012 ($)											Non-Electric Benefits, 2010-2012 ($)									TOTAL BENEFITS
	Capacity						Energy					Resource Benefits							Non- Resource Benefits (1)	TOTAL	
	Generation		Trans.	Distrib.	DRIPE	TOTAL	Winter		Summer		DRIPE	TOTAL	Avoided Natural Gas	No. 2 Distillate	No. 4 Fuel Oil	Propane	Wood	Water	Kerosene			
	Summer	Winter					Peak	Off Peak	Peak	Off Peak												
Residential (total)	$52,347,664	$0	$21,426,714	$65,584,338	$20,509,563	$159,868,278	$112,330,797	$125,173,835	$86,595,214	$70,524,668	$112,889,986	$506,514,499	$131,150,340	$647,891,418	$0	$49,908,347	$19,572	$13,450,520	$0	$20,461,799	$862,881,997	$1,531,264,774
Residential New Construction & Major Renovation	4,339,142	0	1,600,839	5,685,685	949,528	12,574,993	2,431,769	2,875,504	3,713,414	2,174,820	2,219,762	13,415,269	1,245,132	5,938,671	0	24,073,753	$63	43,075	0	354,974	31,655,667	57,645,929
Residential Cooling & Heating Equipment	3,247,237	0	1,597,941	5,685,106	1,731,001	12,241,286	6,404,996	1,884,570	4,564,364	1,483,441	2,413,637	16,721,007	-3,047,941	0	0	0	$1,242	0	0	362,294	-2,684,405	26,277,888
Multi-Family Retrofit	2,382,117	0	550,700	1,404,294	1,068,091	5,405,201	21,176,780	25,371,730	10,647,360	12,193,582	12,944,807	82,334,259	17,442,473	21,718,152	0	1,349,403	$4,029	6,941,326	0	1,342,443	48,797,827	136,537,287
MassSAVE	34,530,524	0	15,329,777	44,669,753	9,606,996	104,139,049	20,780,148	24,467,535	35,244,516	19,572,640	24,606,945	124,991,784	115,510,677	620,234,596	0	24,485,191	$5,940	6,466,119	0	4,436,433	771,138,956	1,000,269,789
O Power	451,600	0	58,670	117,717	0	627,988	3,838,840	3,552,171	2,689,272	2,366,338	8,879,922	21,546,543	0	0	0	0	$459	0	0	0	459	22,174,990
ENERGY STAR Lighting	5,876,473	0	1,314,872	4,802,044	5,536,528	17,529,917	47,589,042	56,448,747	23,751,574	26,868,391	51,041,241	205,698,995	0	0	0	0	$2,484	0	0	13,966,656	13,966,139	237,487,051
ENERGY STAR Appliances	1,520,569	0	974,115	3,239,739	1,615,429	7,349,853	9,809,222	11,553,578	5,784,713	5,775,456	10,583,673	43,506,641	0	0	0	0	$5,355	0	0	0	5,355	50,861,849
Low Income (total)	$4,673,496	$0	$1,733,352	$5,822,592	$2,055,136	$14,284,576	$31,914,268	$38,137,704	$18,025,679	$18,297,130	$20,025,578	$124,400,359	$802,611	$88,807,006	$0	$2,135,262	$15,561	$6,136,744	$0	$157,123,951	$255,023,155	$393,708,090
Low-Income Residential New Construction	784,795	0	273,211	1,067,709	177,020	2,302,735	478,729	566,920	239,737	271,942	358,901	1,916,230	853,442	1,552,433	0	2,135,262	$2,457	55,707	0	628,821	5,227,942	9,446,907
Low-Income 1 to 4 Family Retrofit	1,531,090	0	731,996	2,842,196	905,773	6,111,056	12,085,368	14,397,763	6,065,459	6,894,283	8,239,992	47,672,865	-50,831	55,547,316	0	0	$6,993	2,360,568	0	98,998,312	156,862,477	210,666,396
Low-Income MultiFamily Retrofit	2,257,612	0	728,143	1,912,686	972,342	5,870,785	19,350,171	23,173,021	9,730,483	11,130,904	11,426,685	74,811,264	0	31,707,257	0	0	$6,111	3,702,349	0	57,497,018	92,912,736	173,594,784
C&I (total)	$113,918,691	$0	$83,011,677	$260,893,084	$77,881,809	$535,705,251	$891,297,164	$353,005,933	$839,419,625	$257,770,120	$527,887,106	$2,869,159,949	-$66,513,861	$11,777,972	$0	$729,448	$7,245	$220,068	$0	$72,186,297	$18,407,169	$3,423,272,369
C&I New Construction and Major Renovation	33,662,922	0	21,750,360	67,759,572	17,133,720	140,306,574	169,821,474	67,144,715	251,220,818	63,298,968	104,530,553	656,016,550	1,061,464	0	0	0	$3,297	0	0	3,810,485	4,875,246	801,198,371
C&I New Construction and Major Renovation - Government	625,240	0	352,664	1,749,340	388,862	3,116,105	4,089,932	1,002,228	2,861,212	649,992	1,717,744	10,321,108	0	0	0	0	$0	0	0	319,001	319,001	13,756,214
C&I Large Retrofit	56,763,695	0	44,499,175	138,579,434	42,577,019	282,519,313	526,500,204	233,001,259	482,390,870	166,541,072	332,434,690	1,742,868,095	-39,459,944	10,867,186	0	0	$3,447	220,068	0	20,460,852	-7,918,391	2,017,469,818
Large C&I Retrofit - Government	378,763	0	233,712	1,159,299	302,451	2,074,225	2,177,153	754,542	1,469,939	480,951	1,119,263	6,001,847	-37,908	0	0	0	$0	0	0	26,296	-11,610	8,064,562
C&I Small Retrofit	21,526,807	0	15,579,561	46,666,045	16,609,127	102,403,540	179,874,297	46,367,670	97,758,361	25,359,723	84,340,061	435,700,152	-26,262,539	577,664	0	463,053	$501	0	0	46,546,200	21,324,878	559,428,571
C&I Small Retrofit - Government	961,265	0	596,205	2,957,393	770,631	5,285,493	6,834,105	2,735,417	3,718,404	1,439,394	3,524,776	18,252,096	-1,814,934	333,122	0	266,395	$0	0	0	1,033,661	-181,756	23,355,833
GRAND TOTAL	$170,939,841	$0	$106,171,743	$332,300,013	$100,446,508	$709,858,105	$1,035,542,229	$517,317,472	$942,040,518	$346,591,918	$660,582,669	$3,502,074,806	$65,439,090	$748,476,396	$0	$52,773,077	$42,378	$19,809,333	$0	$249,772,047	$1,136,312,321	$5,348,245,232

ii. Savings Summary Table by program: annual savings over life of measures installed during program year

Program	# of Participants	Electric Savings, 2010									Non Electric Resources, 2010						
		Capacity (kW)			Energy (MWh)						MMBTU						Gallons
		Annual		Lifetime	Summer (Annual)		Winter (Annual)		Total Annual MWh	Lifetime	Avoided Natural Gas	No. 2 Distillate	No. 4 Fuel Oil	Propane	Wood	Kerosene	Water
		Summer	Winter		Peak	Off Peak	Peak	Off Peak									
Residential (total)	475,438	22,838	30,944	297,183	41,173	60,996	19,824	30,498	152,491	1,175,961	91,259	291,675	0	17,344	0	0	41,539,105
Residential New Construction & Major Renovation	1,324	1,090	695	24,494	628	799	527	779	2,734	33,907	1,347	2,637	0	8,075	0	0	152,993
Residential Cooling & Heating Equipment	5,938	1,766	308	23,610	594	468	730	379	2,172	36,442	-2,164	0	0	0	0	0	0
Multi-Family Retrofit	14,377	1,155	3,314	15,217	2,429	3,674	3,311	4,936	14,350	194,603	13,427	9,747	0	990	0	0	18,755,711
MassSAVE	27,493	8,517	4,887	161,747	6,630	8,284	5,475	8,198	28,587	262,976	78,649	279,291	0	8,279	0	0	22,630,401
O Power	100,000	1,480	5,900	1,480	3,380	5,200	7,020	10,400	26,000	26,000	0	0	0	0	0	0	0
ENERGY STAR Lighting	272,494	7,078	14,290	56,026	11,820	17,835	14,734	21,997	66,385	520,868	0	0	0	0	0	0	0
ENERGY STAR Appliances	53,812	1,751	1,551	14,609	2,524	3,631	2,444	3,664	12,263	101,165	0	0	0	0	0	0	0
Low Income (total)	23,112	2,262	4,791	31,912	5,883	8,715	2,832	4,358	21,788	294,942	1,204	52,585	0	679	0	0	20,391,416
Low-Income Residential New Construction	702	188	87	4,229	86	129	85	128	429	4,619	958	598	0	679	0	0	13,318
Low-Income 1 to 4 Family Retrofit	9,187	963	1,965	11,830	1,601	2,418	2,042	3,047	9,108	108,689	246	32,803	0	0	0	0	10,434,576
Low-Income Multi Family Retrofit	13,223	1,110	2,739	15,853	2,174	3,282	2,726	4,070	12,251	181,634	0	19,185	0	0	0	0	9,943,522
Commercial & Industrial (total)	5,987	75,178	43,945	998,598	134,870	62,939	184,323	67,435	449,568	5,936,274	-34,630	14,157	0	578	0	0	864,801
C&I New Construction and Major Renovation	1,125	18,908	8,737	296,597	27,703	12,648	39,191	17,265	96,806	1,528,519	750	0	0	0	0	0	0
C&I New Construction and Major Renovation - Government	25	374	267	5,530	431	135	679	208	1,452	21,591	0	0	0	0	0	0	0
C&I Large Retrofit	1,168	40,786	27,419	508,410	73,406	37,125	117,731	55,554	283,817	3,546,841	-21,549	13,000	0	0	0	0	864,801
Large C&I Retrofit - Government	12	291	182	3,605	270	120	401	176	966	12,452	-62	0	0	0	0	0	0
C&I Small Retrofit	3,489	14,072	6,942	175,169	18,045	7,110	28,905	9,304	63,365	788,135	-10,789	762	0	381	0	0	0
C&I Small Retrofit - Government	168	747	399	9,287	724	399	1,336	702	3,161	38,736	-2,980	394	0	197	0	0	0
GRAND TOTAL	504,537	100,277	79,680	1,327,693	181,926	132,651	206,979	102,291	623,847	7,407,176	57,833	358,417	0	18,600	0	0	62,795,322

Program	# of Participants	Electric Savings, 2011									Non Electric Resources, 2011						
		Capacity (kW)			Energy (MWh)						MMBTU						Gallons
		Annual		Lifetime	Summer (Annual)		Winter (Annual)		Total Annual MWh	Lifetime	Avoided Natural Gas	No. 2 Distillate	No. 4 Fuel Oil	Propane	Wood	Kerosene	Water
		Summer	Winter		Peak	Off Peak	Peak	Off Peak									
Residential (total)	742,139	31,792	41,543	433,088	55,637	82,425	26,788	41,212	206,062	1,491,424	153,085	488,220	0	24,391	0	0	59,607,083
Residential New Construction & Major Renovation	1,572	1,295	813	29,228	742	958	607	910	3,219	39,853	1,645	3,413	0	9,714	0	0	164,980
Residential Cooling & Heating Equipment	7,647	2,336	398	31,109	807	635	908	496	2,846	47,529	-2,716	0	0	0	0	0	0
Multi-Family Retrofit	18,505	1,555	4,426	21,102	3,175	4,808	4,421	6,587	18,992	263,160	17,793	12,833	0	1,230	0	0	20,945,724
MassSAVE	33,876	13,515	6,098	268,602	9,225	10,777	7,299	10,915	38,216	377,382	136,363	471,973	0	13,447	0	0	38,496,379
O Power	200,000	2,960	11,800	2,960	6,760	10,400	14,040	20,800	52,000	52,000	0	0	0	0	0	0	0
ENERGY STAR Lighting	405,003	7,809	15,811	61,219	13,584	20,468	16,151	24,134	74,337	580,374	0	0	0	0	0	0	0
ENERGY STAR Appliances	75,536	2,322	2,199	18,868	3,463	4,956	3,213	4,821	16,453	131,126	0	0	0	0	0	0	0
Low Income (total)	31,342	2,928	6,099	41,338	7,816	11,580	3,763	5,790	28,950	390,966	1,479	71,812	521	800	0	0	23,884,316
Low-Income Residential New Construction	839	224	104	5,055	103	154	100	150	508	5,497	1,138	325	521	800	0	0	267,253
Low-Income 1 to 4 Family Retrofit	12,278	1,214	2,423	15,264	2,027	3,058	2,537	3,788	11,410	139,058	341	40,867	0	0	0	0	12,856,104
Low-Income Multi Family Retrofit	18,225	1,490	3,572	21,019	3,176	4,781	3,636	5,438	17,032	246,410	0	30,620	0	0	0	0	10,760,959
Commercial & Industrial (total)	8,434	110,377	64,548	1,458,277	198,110	92,451	270,750	99,055	660,367	8,678,595	-46,934	21,250	0	819	0	0	1,334,624
C&I New Construction and Major Renovation	1,489	25,233	11,451	396,663	35,584	16,696	51,871	23,212	127,363	2,022,878	1,572	0	0	0	0	0	0
C&I New Construction and Major Renovation - Government	33	488	351	7,212	564	175	892	270	1,902	28,276	0	0	0	0	0	0	0
C&I Large Retrofit	1,656	61,282	41,181	763,660	110,142	55,873	176,765	83,722	426,502	5,327,309	-31,144	19,612	0	0	0	0	1,334,624
Large C&I Retrofit - Government	16	379	239	4,713	356	155	531	229	1,271	16,413	-81	0	0	0	0	0	0
C&I Small Retrofit	5,022	22,026	10,808	273,980	28,266	11,077	45,232	14,520	99,229	1,233,462	-13,415	1,076	0	538	0	0	0
C&I Small Retrofit - Government	218	969	517	12,050	939	517	1,733	911	4,101	50,257	-3,866	563	0	281	0	0	0
GRAND TOTAL	781,915	145,098	112,190	1,932,703	261,563	186,456	301,302	146,057	895,379	10,560,985	107,630	581,282	521	26,010	0	0	84,826,023

Program	# of Participants	Electric Savings, 2012									Non Electric Resources, 2012						
		Capacity (kW)			Energy (MWh)						MMBTU						Gallons
		Annual		Lifetime	Summer (Annual)		Winter (Annual)		Total Annual MWh	Lifetime	Avoided Natural Gas	No. 2 Distillate	No. 4 Fuel Oil	Propane	Wood	Kerosene	Water
		Summer	Winter		Peak	Off Peak	Peak	Off Peak									
Residential (total)	1,011,547	39,527	51,693	538,248	70,574	104,554	33,980	52,277	261,385	1,831,887	194,840	592,058	0	30,805	0	0	71,009,705
Residential New Construction & Major Renovation	1,856	1,537	961	34,682	878	1,131	722	1,082	3,814	47,189	1,924	4,325	0	11,423	0	0	101,536

Residential Cooling & Heating Equipment	9,624	3,198	557	42,591	1,114	875	1,147	652	3,788	62,973	-3,378	0	0	0	0	0	0
Multi-Family Retrofit	21,790	1,917	5,408	26,317	3,942	5,967	5,453	8,126	23,488	326,349	23,797	17,456	0	1,936	0	0	23,740,760
MassSAVE	45,653	16,762	7,223	335,248	11,107	12,780	8,785	13,129	45,801	461,131	172,497	570,277	0	17,447	0	0	47,167,409
O Power	300,000	3,930	15,600	3,930	18,630	18,630	18,630	18,630	74,520	74,520	0	0	0	0	0	0	0
ENERGY STAR Lighting	532,552	9,485	19,203	74,116	16,103	24,301	20,207	30,164	90,775	711,476	0	0	0	0	0	0	0
ENERGY STAR Appliances	100,072	2,698	2,741	21,365	3,913	5,596	3,879	5,811	19,199	148,249	0	0	0	0	0	0	0
Low Income (total)	40,967	3,660	7,408	52,512	9,581	14,194	4,613	7,097	35,485	484,460	1,938	97,243	0	1,083	0	0	26,775,485
Low-Income Residential New Construction	1,120	303	138	6,766	128	193	149	222	693	7,348	1,484	1,279	0	1,083	0	0	324,608
Low-Income 1 to 4 Family Retrofit	19,065	1,646	3,161	21,451	2,880	4,333	3,255	4,870	15,338	193,507	454	58,621	0	0	0	0	16,732,083
Low-Income Multi Family Retrofit	20,782	1,711	4,109	24,295	3,493	5,268	4,288	6,404	19,454	283,604	0	37,342	0	0	0	0	9,718,793
Commercial & Industrial (total)	10,181	135,953	78,719	1,785,346	242,851	113,331	331,897	121,426	809,505	10,599,588	-65,016	23,466	0	1,101	0	0	1,349,921
C&I New Construction and Major Renovation	1,839	28,142	12,761	442,688	40,817	19,002	58,407	25,982	143,653	2,279,915	1,613	0	0	0	0	0	0
C&I New Construction and Major Renovation - Government	45	685	495	10,124	797	244	1,264	378	2,682	39,882	0	0	0	0	0	0	0
C&I Large Retrofit	2,150	73,633	48,666	918,902	135,690	67,786	213,423	98,592	515,491	6,456,260	-43,725	21,264	0	0	0	0	1,349,921
Large C&I Retrofit - Government	22	533	340	6,634	505	217	759	319	1,801	23,308	-113	0	0	0	0	0	0
C&I Small Retrofit	5,821	31,607	15,734	390,174	39,434	14,239	66,492	19,988	140,153	1,730,058	-17,394	1,338	0	669	0	0	0
C&I Small Retrofit - Government	304	1,353	722	16,823	1,311	722	2,420	1,272	5,725	70,165	-5,397	864	0	432	0	0	0
GRAND TOTAL	1,062,695	179,139	137,820	2,376,105	323,006	232,079	370,490	180,800	1,106,375	12,915,935	131,762	712,766	0	32,989	0	0	99,135,110

Program	# of Participants	Electric Savings, 2010-2012									Non Electric Resources, 2010-2012						
		Capacity (kW)			Energy (MWh)						MMBTU						Gallons
		Annual		Lifetime	Summer (Annual)		Winter (Annual)		Total Annual MWh	Lifetime	Avoided Natural Gas	No. 2 Distillate	No. 4 Fuel Oil	Propane	Wood	Kerosene	Water
		Summer	Winter		Peak	Off Peak	Peak	Off Peak									
Residential (total)	2,229,124	94,156	124,179	1,268,518	121,450	162,172	139,704	196,609	619,939	4,499,271	439,183	1,371,953	0	72,540	0	0	172,155,893
Residential New Construction & Major Renovation	4,752	3,922	2,468	88,405	2,248	2,887	1,855	2,772	9,767	120,949	4,916	10,375	0	29,211	0	0	419,509
Residential Cooling & Heating Equipment	23,209	7,300	1,263	97,310	2,516	1,978	2,786	1,526	8,805	146,944	-8,258	0	0	0	0	0	0
Multi-Family Retrofit	54,672	4,627	13,147	62,635	9,546	14,449	13,186	19,649	56,830	784,113	55,017	40,036	0	4,156	0	0	63,442,196
MassSAVE	107,022	38,794	18,208	765,597	26,962	31,841	21,559	32,242	112,603	1,101,489	387,509	1,321,541	0	39,173	0	0	108,294,189
O Power	600,000	8,370	33,300	8,370	28,770	34,230	39,690	49,830	152,520	152,520	0	0	0	0	0	0	0
ENERGY STAR Lighting	1,210,049	24,372	49,303	191,361	41,507	62,604	51,091	76,294	231,497	1,812,719	0	0	0	0	0	0	0
ENERGY STAR Appliances	229,420	6,771	6,490	54,841	9,901	14,183	9,536	14,295	47,915	380,539	0	0	0	0	0	0	0

Low Income (total)	95,421	8,850	18,298	125,762	15,669	23,617	18,819	28,118	86,222	1,170,367	4,622	221,640	521	2,561	0	0	71,051,216
Low-Income Residential New Construction	2,661	715	329	16,050	317	477	334	501	1,629	17,464	3,580	2,202	521	2,561	0	0	605,179
Low-Income 1 to 4 Family Retrofit	40,530	3,823	7,549	48,545	6,508	9,809	7,835	11,705	35,856	441,255	1,041	132,291	0	0	0	0	40,022,763
Low-Income Multi Family Retrofit	52,230	4,311	10,420	61,167	8,844	13,331	10,650	15,912	48,737	711,648	0	87,147	0	0	0	0	30,423,274
Commercial & Industrial (total)	24,602	321,507	187,212	4,242,221	514,984	244,240	808,032	352,606	1,919,439	25,214,457	-146,580	58,873	0	2,498	0	0	3,549,346
C&I New Construction and Major Renovation	4,453	72,282	32,950	1,135,948	104,104	48,346	149,469	66,459	367,822	5,831,313	3,935	0	0	0	0	0	0
C&I New Construction and Major Renovation - Government	103	1,547	1,113	22,866	1,792	554	2,835	856	6,037	89,749	0	0	0	0	0	0	0
C&I Large Retrofit	4,974	175,701	117,266	2,190,971	319,237	160,785	507,920	237,868	1,225,810	15,330,410	-96,418	53,876	0	0	0	0	3,549,346
Large C&I Retrofit - Government	50	1,203	761	14,952	1,131	492	1,691	725	4,038	52,173	-256	0	0	0	0	0	0
C&I Small Retrofit	14,332	67,706	33,484	839,323	85,745	32,425	140,629	43,812	302,747	3,751,655	-41,598	3,176	0	1,588	0	0	0
C&I Small Retrofit - Government	690	3,068	1,638	38,160	2,974	1,638	5,489	2,885	12,986	159,158	-12,243	1,821	0	910	0	0	0
GRAND TOTAL	2,349,147	424,514	329,690	5,636,501	652,103	430,028	966,555	577,332	2,625,600	30,884,096	297,225	1,652,465	521	77,600	0	0	246,756,455

4. *Avoided Cost Factors*

Avoided cost factors were used in the determination of cost-effectiveness of the programs proposed in this Plan. The accompanying section, below, describes the source and application of these factors.

5. *Avoided Costs, Description of Program Benefits, and Demand Reduction Induced Price Effects ("DRIPE")*

The TRC test is the benefit-cost test approved by the Department in D.P.U. 98-100 and, more recently, reaffirmed in D.P.U. 08-50-A, for use in examining the overall economics of the energy efficiency programs. It compares the present value of future electric system and other customer savings to the total of the expenditures and customer costs necessary to implement the programs. The benefit of a measure is the net present value of the avoided costs (*i.e.*, value of the savings) associated with the net savings of a measure over the life of that measure. The net savings reflect findings from evaluation studies. The measure life is based on the technical life of the measure modified to reflect expected measure persistence.

The avoided costs used to determine program cost effectiveness in this Plan were developed in the "Avoided Energy Supply Costs in New England: 2009 Report" August 21, 2009 (the "AESC Study"), prepared by Synapse Energy Economics, Inc. for the New England Avoided-Energy-Supply-Component ("AESC") Study Group.[12] In addition to the biennial updating of avoided electric generation capacity and energy values, the report developed recommendations for the inclusion of the DRIPE as additional capacity and energy benefits, which were adopted by all Massachusetts Program Administrators and used in the benefit/cost analysis in this Plan.

[12] The Study Group which oversaw the study consisted of gas and electric program administrators in all six New England states, who sponsored the study, as well as other interested stakeholders.

Avoided electric energy and capacity values used by Massachusetts Program Administrators for this Plan are from ”Appendix B: MA” of the final version of the AESC Study. Appendix B: MA presents avoided electric energy and capacity values for Massachusetts in 2009 dollars. These values were escalated to 2010 dollars for this Plan. The avoided costs in Appendix B: MA incorporate a reserve margin (applied to capacity only), pool transmission losses incurred from the generator to the point of delivery to the distribution companies, and a retail adder as recommended by the AESC Study consultant. An ISO-NE reserve margin is incorporated since energy efficiency avoids the back-up reserves for that generation as well as the generation itself. The avoided costs from the AESC study do not include non-pool transmission losses or distribution losses. They also do not include Program Administrator-specific avoided T&D capacity values.

Appendix B: MA also provides capacity and energy DRIPE and Avoided Externality Values (for $CO_{2)}$. The Program Administrators included capacity DRIPE in the calculation of the BCR in this Plan, similar to their inclusion in the analyses of their Energy Efficiency Plans in 2006 through 2009. The value associated with energy DRIPE is also included in the calculation of BCR within this Plan. While the Department’s Order in D.P.U. 08-50 directs that the definition of DRIPE benefits in calculating each Program Administrator’s energy efficiency plan is consistent with the Green Communities Act, the Department also directed that only those DRIPE benefits that accrue to customers within Massachusetts should be used in each Program

Administrator's cost-benefit analysis. D.P.U. 08-50-A at 39. The Massachusetts DRIPE values developed in the 2009 AESC Study are consistent with that guidance.[13]

Avoided Externality Values (for $CO_{2)}$ were provided for informational purposes but are not included in the BCR calculation in this Plan.

Avoided natural gas cost values used by all Massachusetts Program Administrators for this Plan are taken from Appendix D-4 of the final version of the AESC Study. This exhibit presents avoided natural gas values for northern and central New England in 2009 dollars. These values were escalated to 2010 dollars for this Plan.

Avoided other fuel values used by all Massachusetts Program Administrators for this Plan are taken from Appendix E-1 of the final version of the AESC Study. This exhibit presents avoided other fuel values for New England in 2009 dollars. These values were escalated to 2010 dollars for this Plan.

To escalate the avoided costs into 2010 constant dollars, an inflation rate of 2.5 percent per year was applied. This rate was provided to Program Administrators by the DOER for use in 2009 Plans and is approximately the difference in yield between 20 year Treasuries and 20 year Treasury Inflation Protected Securities ("TIPS") and thus reflects market expectations of future inflation. Other than the last two years, it is approximately the long run historical average since the 1990s. The avoided cost value components from the 2009 AESC Study, thus escalated, were used in the cost-effectiveness analyses in this Plan.

Avoided water and sewer values used in the analysis are from a survey of public water and sewer rates in Massachusetts cities and towns. The survey was conducted in 2004 by Tighe

[13] The Department's Order specifies that only the value of DRIPE associated with Massachusetts energy efficiency should be included in Massachusetts cost-effectiveness analyses. See D.P.U. 08-50-A at 39. We note however, that the bill impact analysis uses the full regional DRIPE values since, due to the regional power market, customer bills in Massachusetts will be impacted by demand reduction in other states.

and Bond. The data in the survey report were weighted by population to determine single water and sewer values for all of Massachusetts. These values were escalated to 2010 dollars yielding values of $0.0036 per gallon for water and $0.0050/gallon for sewerage. They are assumed to be constant throughout the forecast period.

Avoided T&D capacity values used in the analysis are utility specific. Demand and energy losses account for local T&D losses from the point of delivery to the distribution company's system to the ultimate customer's facility. Since they are a function of the individual utility's system, losses are also calculated on a utility-specific basis.

The dollar value of the program's benefits is calculated by multiplying the expected savings by the appropriate avoided value component. The avoided value component for each benefit (fuel, non-fuel, or non-resource) is the cumulative net present value (2010 dollars) of lifetime avoided costs for each year of the planning horizon from the base year. For example, the avoided value component in Year 10 for any given benefit is the sum of the net present value of the annual avoided costs for the resource for Year 1, Year 2, Year 3, etc. through Year 10, in 2010 dollars. This value is applied to the annual savings for a measure with a ten year life to generate the lifetime avoided benefit for that measure. Since all of the future year values are in constant 2010 dollars, lifetime benefits thus calculated are discounted back to 2010 using a real discount rate equal to [(1 + Nominal Discount Rate) / (1 + Inflation)] - 1. The nominal discount rate of 3.66 percent was provided by the DOER for use in this Plan, per the guidelines established in D.P.U. 08-50-A.

6. *Avoided Benefits Calculations*

Avoided Electric Energy Benefits. The AESC Study identified four electric energy costing periods consistent with ISO-NE definitions. Energy prices are divided into the following four time periods:

- Winter Peak: October – May; 6:00 a.m. – 10:00 p.m., weekdays excluding holidays.
- Winter Off-Peak: October – May; 10:00 p.m. – 6:00 a.m., weekdays. Also including all weekends and ISO defined holidays.
- Summer Peak: June – September; 6:00 a.m. – 10:00 p.m., weekdays excluding holidays.
- Summer Off-Peak: June – September; 10:00 p.m. – 6:00 a.m., weekdays. Also including all weekends and ISO defined holidays.

Net energy savings for a program (or measures aggregated within a program) are allocated to each one of these time periods and multiplied by the appropriate avoided energy value. The dollar benefits are then grossed up using the appropriate loss factors.

- Summer Peak Energy Benefit ($) = kWhNet * $Energy\%_{SumPk}$ * $SumPk\$/kWh_{(@Life)}$ * (1 + $\%Losses_{SumPk\text{-}kWh}$)
- Summer OffPeak Energy Benefit ($) = kWhNet * $Energy\%_{SumOffPk}$ * $SumOffPk\$/kWh_{(@Life)}$ * (1 + $\%Losses_{SumOffPk\text{-}kWh}$)
- Winter Peak Energy Benefit ($) = kWhNet * $Energy\%_{WinPk}$ * $WinPk\$/kWh_{(@Life)}$ * (1 + $\%Losses_{WinPk\text{-}kWh}$)
- Winter OffPeak Energy Benefit ($) = kWhNet * $Energy\%_{WinOffPk}$ * $WinOffPk\$/kWh_{(@Life)}$ * (1 + $\%Losses_{WinOffPk\text{-}kWh}$)

Avoided Generation Capacity Benefits. Net peak demand savings are multiplied by avoided generating capacity values from the AESC Study and capacity losses downstream of the ISO-delivery point. ISO-NE offers three different definitions of coincident peak demand reduction:

- On-Peak Hours – demand reduction during pre-determined, fixed set of on-peak hours (*e.g.*, 1:00 to 5:00 p.m. non-holiday weekdays during the summer months of June, July, and August or 5 to 7 pm on non-holiday winter weekdays in December and January).
- Seasonal Peak Hours – demand reduction in hours in which Real-Time load ≥ 90% of the projected seasonal coincident peak demand.

- Critical Peak Hours – demand reduction in Shortage Hours and hours in which Day-Ahead forecasted load ≥ 95% of the projected seasonal coincident peak demand.

The capacity values from the AESC Study may be used with demand reduction determined using any of these three definitions. The equation for winter generation benefit is shown even though the winter generation value is $0/kW.

- Summer Generation Benefit ($) = kWSumNet * $SumGen\$/kW_{(@Life)}$ * (1 + $\%Losses_{SumkW}$)
- Winter Generation Benefit ($) = kWWinNet * $WinGen\$/kW_{(@Life)}$ * (1 + $\%Losses_{WinkW}$)

Avoided T&D Capacity Benefits. These values are calculated similarly to the avoided generation capacity values, using the PA-specific T&D capacity values. In theory, the benefit could be allocated to summer and winter periods, depending on the relation between summer and winter peaks on the local system. If the local system is summer peaking, then the T&D benefits will be exclusively associated with summer demand reduction.

- Transmission Benefit ($) = [(kWSumNet * $Trans\$/kW_{(@Life)}$ * $T\&D\%_{Sum}$) + (kWWin * $Trans\$/kW_{(@Life)}$ * $T\&D\%_{Win)}$] * [1 + (($Losses_{SumkW}$ + $Losses_{WinkW}$)/2)]
- Distribution Benefit ($) = [(kWSumNet * $Dist\$/kWLife_{(@Life)}$ * $T\&D\%_{Sum}$) + (kWWin * $Dist\$/kW_{(@Life)}$ * $T\&D\%_{Win}$)] * [1 + (($Losses_{SumkW}$ + $Losses_{WinkW}$)/2)]

Where $T\&D\%_{Sum}$ is the portion of the year T&D costs are calculated based on the summer kW (*i.e.*, 50%) and $T\&D\%_{Win}$ is the portion of the year T&D costs are calculated based on the winter kW (*i.e.*, 50%).

Non-Electric Benefits. These benefits derive from the fact that some energy efficiency projects affect the use of other resources (such as fuels and water) or affect non-resource costs such as labor, materials, productivity, etc. Non-electric benefits are counted for all projects, with the

exception of C&I custom projects. Research has not yet produced acceptably stable values of custom non-electric benefits that may be used in program planning.

- Natural Gas Benefits ($) = MMBTU_NetGas * Gas$/MMBTU$_{(@Life)}$
- Oil Benefits ($) = MMBTU_NetOil * Oil$/MMBTU$_{(@Life)}$
- Propane Benefits ($) = MMBTU_NetPropane * Propane$/MMBTU$_{(Life)}$
- Water and Sewerage Benefits ($) = NetWater and/or Sewerage * Water and/or Sewer $/Gal$_{(@Life)}$
- Other Fuels benefits from biofuels, kerosene and wood are similarly calculated
- Non-Resource Benefits = Annual value of non-resource savings in $ * present worth factor$_{(@Life)}$

Demand Reduction Induced Price Effects (DRIPE). The AESC Study also quantified a price reduction benefit associated with energy efficiency. This benefit is referred to as the DRIPE. DRIPE are the reductions of wholesale energy and capacity market prices that result from reductions in demand as a result of energy efficiency efforts. The AESC study recommended that both capacity and energy DRIPE be included in benefit-cost screening.

- Capacity-related DRIPE Benefits ($) = kWSumNet * DRIPE$/kW$_{(@Life)}$ * (1 + Losses$_{SumkW}$)
- Summer Peak Energy-related DRIPE Benefit ($) = kWhNet * Energy%$_{SumPk}$ * SumPkDRIPE$/kWh$_{(@Life)}$ * (1 + %Losses$_{SumPk\text{-}kWh}$)
- Summer OffPeak Energy-related DRIPE Benefit ($) = kWhNet * Energy%$_{SumOffPk}$ * SumOffPkDRIPE$/kWh$_{(@Life)}$ * (1 + %Losses$_{SumOffPk\text{-}kWh}$)
- Winter Peak Energy-related DRIPE Benefit ($) = kWhNet * Energy%$_{WinPk}$ * WinPkDRIPE$/kWh$_{(@Life)}$ * (1 + %Losses$_{WinPk\text{-}kWh}$)
- Winter OffPeak Energy-related DRIPE Benefit ($) = kWhNet * Energy%$_{WinOffPk}$ * WinOffPkDRIPE$/kWh$_{(@Life)}$ * (1 + %Losses$_{WinOffPk\text{-}kWh}$)

Further details on the derivation of capacity- and energy-related DRIPE may be found in Chapter 6 of the 2009 AESC Study. As mentioned above, only DRIPE that accrues to consumers in Massachusetts are used in the benefit-cost analysis.

E. Bill Impacts

1. *Overview*

Consistent with the goal of the three-year Plan to provide for the acquisition of all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply, the Program Administrators sought to develop a statewide Plan that provides for this acquisition with the lowest reasonable customer contribution. G.L. c. 25, § 21(b). Relatedly, consistent with the requirements of the Act and of the Department's Order in D.P.U. 08-50-A, the Program Administrators worked diligently and collaboratively to review and analyze the rate and bill impacts associated with the implementation of the Plan in order to ensure that such impacts are equitable. More specifically, the Program Administrators have worked with the D.P.U. 08-50 Rate and Bill Impact Working Group to develop a common analytic model that can be used by all Program Administrators (as well as by interested parties) to review the rate and bill impacts associated with the implementation of the Plan—for participants, non-participants and average customers—in each rate class, for each Program Administrator. This sophisticated model is the result of ten full meetings of the D.P.U. 08-50 Rate and Bill Impact Working Group (and numerous follow-up conferences) and reflects valuable input and ideas from diverse interested parties, including the DOER, the Department, the Attorney General's Office, Council members and the Consultants.[14] The Program Administrators acknowledge and thank the participants in this diverse Working Group for their efforts in developing the models reflected in Appendix G. In developing this model, Program Administrators have been guided by the following core provisions of the Department's Order in

[14] The Program Administrators note that these efforts do not indicate that any such party has reviewed or approved the bill impacts resulting from this Plan at this date.

D.P.U. 08-50-A, which make clear that not only the costs of energy efficiency efforts, but also the benefits of such efforts must be reflected in the final billing analyses to be submitted today:

- Rate and average bill impact analysis should be performed on a portfolio basis, as opposed to a program-by-program basis, because it is the entire portfolio of programs that will affect customer rates and bills.

- Rate and average bill impact estimates should account for the impacts over the long term (e.g., for the average life of efficiency measures), in order to capture the full effect of energy efficiency savings and costs.

- Rate and average bill impact analyses should compare the estimated rates and bills with the energy efficiency programs in place to the estimated rates and bills that would be in place in the absence of the energy efficiency programs.

- Rate and average bill impact estimates should be conducted for each customer class, as well as for all customers on average.

- Rate and average bill impact estimates should present not only the absolute dollar increase in distribution rates and bills but also the percentage increase in distribution rates and bills.

- Rate and average bill impact estimates should present the percentage impact on total rates and bills, as well as the percentage impact on distribution rates and bills.

- Rate and average bill impact estimates should include ratepayer costs associated with the mandatory charge of 2.5 mills per kWh, as well as any other funds generated from the forward capacity market or the funds generated by RGGI, as these funds are not directly recovered from the Program Administrator's electricity customers.

- Rate and average bill impact estimates should account for the revenues that are collected through a revenue decoupling mechanism or through an interim lost base revenue adjustment mechanism.

D.P.U. 08-50-A at 57-58.

Further, as required by the Department's Order in D.P.U. 08-50-A, the model developed in the Working Group allows for:

- Estimates of both absolute and percentage impacts on total customer bills. *Id*. at 58.
- Factors in the effects of DRIPE. *Id*. at 59.
- The comparison of effects among programs participants and non-participants. *Id*. at 59.

The Program Administrators have integrated this common analysis model into their program planning efforts and would be pleased to offer a technical session to interested Council members on its development and operation. The Program Administrators will also be confirming the model in accordance with the Order in D.P.U. 08-50-B.

Appendix G contains a rate and bill impact analysis for an illustrative residential customer utilizing actual PA-specific savings goals and budgets contained within this Plan. In order to provide comprehensive analytic tools, this analysis shows rate and bill impacts both with and without outside financing at the levels contemplated in this Plan, and with and without LBR, as required by D.P.U. 08-50-B. Further, each Program Administrator has prepared and submitted a rate and bill impact analysis for residential, low-income, small C&I, and large C&I rate classes using this model in a supplement to this Plan that is also being filed with the Council today.

The Program Administrators emphasize that the actual rate and bill impact that will be realized by a customer will depend on several variables, including the cost of service in a particular Program Administrator's service territory, the customer's actual individual usage, the level and quality of measure installation, and the availability of public or private funds other than those collected through the SBC for application towards energy efficiency expenditures, such as

proceeds realized from the FCM or from cap-and-trade programs (*e.g.*, the RGGI). Utilizing the model described, each individual Program Administrator will include a detailed, PA-specific rate and bill impact analysis for each of the four sectors noted above in its individual filing to be made at the Department on October 30, 2009.

F. Program Descriptions

1. *Strategic Overview of Residential, Low-Income, and C&I Programs*

The Commonwealth of Massachusetts faces an unprecedented opportunity to build upon the past twenty years of effective energy efficiency delivery strategies for residential, low-income, C&I, and municipal customers. Indeed, the passage of the Green Communities Act establishes the direction that Program Administrators will adopt going forward to comply with the requirement to meet future energy needs through cost-effective energy and demand reduction resources. The strategies to promote greater energy savings and peak demand reductions will build upon existing programs to date, with the intent to move to larger scale delivery of renewable, peak demand and energy efficiency solutions.

The depth of existing programs will significantly expand over the next three years as new initiatives are introduced to increase participation and savings. Existing programs that address potential energy and demand savings in both existing buildings and new construction, which have a history of producing significant savings, will be ramped up and new initiatives will be developed and introduced. The platform for increasing savings cost-effectively is based upon pursuing the following principles: (1) integrating gas and electric programs into a portfolio of fuel-neutral programs to the extent reasonable; (2) striving for seamless delivery from the customer's perspective; (3) deeper penetration of energy efficiency and automated load management measures in existing programs combined with the introduction of innovative and

targeted approaches and options; (4) developing an expanded, trained workforce capable of providing consistent program messaging and services, while maintaining high quality levels; (5) collaborating with community-based organizations that have long-standing relationships with homeowners, tenants and small businesses in economically marginalized communities, to develop community-based pilot initiatives that implement a neighborhood approach to energy efficiency service; and (6) developing on-bill and other financing solutions to overcome cost barriers for residential and C&I customers.

2. *Consistent Messaging*

A critical component of integration and seamless delivery is consistent messaging. A statewide website (marketing portal) and marketing approach to make customers aware of program offerings will minimize the market confusion that can result from any competing advertising campaigns that may overlap in the mass media. In addition, individual Program Administrators will continue to implement their own complementary marketing initiatives to reinforce and support the overall statewide marketing strategy, as well as address unique local conditions and/or sub-markets in their service areas. These individual activities will be undertaken in consultation with all other Program Administrators in order to avoid inadvertent inconsistent messaging.

3. *Increased Savings Targets*

Meeting targeted 2010 through 2012 savings goals will require expanding existing programs and strategies to achieve deeper, more comprehensive savings; introducing and promoting new initiatives and technologies; and increasing marketing for all program offerings. Initiatives and approaches that will be expanded in 2010 include, but are not limited to: municipal initiatives; whole-house and whole-building assessment; advanced lighting solutions;

and initiatives targeting specific markets, such as the residential "deep retrofit" pilot, and the "Office of the Future" approach which targets commercial buildings, as well as an emphasis on increased automation of loads to provide customers with flexible supply opportunities. The Program Administrators will also work with community-based organizations to evaluate the potential for community mobilization initiatives to be conducted in the form of pilots. Each of these initiatives is described in more detail in the program descriptions.

4. *Review of New Technologies*

There is a steady flow of new technologies being developed and offered to increase the efficiency of energy use for residential and C&I customers. Before incorporating new or unfamiliar technologies in their program offerings, the Program Administrators are responsible for performing a thorough review to ensure that such products or device will provide cost-effective energy savings for their customers. To address the need for these reviews, the Program Administrators have established a Standing Technical Committee ("STC").

The STC consists of key technical staff from each Program Administrator as well as from the Consultants. The STC reviews technical issues of statewide interest. It provides documented technical interpretations and technology assessments to the program implementers and is the authority for consistent program interpretation of technical matters for all of the participating Program Administrators. The STC has developed a set of protocols for the content of their review and procedures for documenting and disseminating their conclusions and technical interpretations.

Requests for program consideration of a new or unfamiliar technology that come from a vendor or customer are forwarded to the technical committee by the receiving Program Administrator. This group can undertake or direct such tasks as:

- Research and analysis of specific measures that are candidates for inclusion in the programs.

- When appropriate and agreed to by the respective Program Administrators, development of common program implementation materials or procedures including: technical specifications, technical study/commissioning protocols; equipment baseline reference sheets; inspection forms; and other technical and administrative support material, for use by the respective Program Administrator staff and contractors.

- Recommendation of new items or changes to existing items on prescriptive offering lists, adjustments to savings estimations, and additions or modifications to the list of acceptable measures on an annual or cycle basis.

- As-needed assignments to collect data and/or to produce recommendations which would allow the Program Administrators to address unanticipated program implementation issues.

5. *Community-Based Efforts*

When thoughtfully designed and executed, community-based efforts can be a key tool in effecting deep, comprehensive penetration of energy efficiency in a neighborhood, city, or town. The Program Administrators seek to harness the power of communities to achieve broad-based participation in the Commonwealth's programs.

Over the years, both here in Massachusetts and elsewhere, much has been learned about why some community efforts succeed and others fail. The guiding principles of a successful community-based marketing initiative must include at a minimum the following attributes:

- **Community Engagement**

Successful community-based partnerships fully connect communities and Program Administrators; they focus on grassroots community outreach by providing focused energy education and resources linked to local motivation and empowerment to manage and reduce energy consumption. These partnerships develop and deliver comprehensive, individualized

initiatives. The keys to success are understanding and addressing the unique needs of partner communities to achieve all cost-effective energy savings- including both gas and electric opportunities- and to reduce greenhouse gas emission. Successful partnerships involve all sectors within the community and may include such activities as:

- Facilitating collaboration among students, teachers, parents, Program Administrators and the greater community to provide energy education fostering long-term energy savings.
- Assisting school systems in developing comprehensive, standards-based curricula, resources, materials and professional development for educators, school facility audits, and special events.
- Connecting local businesses with their serving Program Administrators to address the specific challenges each business faces in reducing energy usage, lowering utility bills, cutting greenhouse gas emissions, and educating their tenants, management and facility operations personnel.
- Partnering with community-based organizations to develop effective outreach and program delivery strategies.
- Partnering with local businesses (builders, contractors, electricians, plumbers, HVAC service providers, equipment suppliers, etc.) to familiarize them with program opportunities, energy efficiency practices and implementation requirements and to utilize them, where appropriate, as one of the program's service delivery channels.

In successful programs, the Program Administrator promotes a portfolio of opportunities that addresses all of the community's expressed needs, such as services for new construction, home energy services, and ENERGY STAR products for existing buildings, as well as information and facilitation of renewable energy, including information about CHP, net metering, and interconnection of generators. The Program Administrator provides energy saving tips on everything from heating and air conditioning to water heating and lighting, from cooking

to refrigeration, and through partnering efforts, the Program Administrator provides support for local economic development.

- **Community Commitment**

Community marketing achieves deeper penetration by adding a "pull" component to the traditional "push" of energy efficiency programs. Successful efforts are truly driven by the community and its recognized leaders, with the Program Administrator providing program project management and technical support in addition to guidance on overall energy savings goals. Without full community commitment, a particular program will achieve no more success than one driven by a traditional marketing effort.

With this in mind, Program Administrators will seek significant commitment from local community leaders both inside and outside of government. The Program Administrators recognize the potential for community-based programs to enhance the goals of the Green Communities Act both in terms of meeting energy savings targets and contributing to the non-energy goals of the Act, such as job growth. As with all programs to be implemented, however, the Program Administrators recognize the need for both the benefits and costs of this approach to be quantified to determine their overall cost-effectiveness.

The Program Administrators will select the communities with the greatest opportunities for success, based on an assessment of the proposals submitted. Because community-based efforts require a substantial and focused effort by both the Program Administrator and the community, the Program Administrators must focus their energies by limiting their initiatives to a few communities at any given time. This graduated strategy will allow for mid-course corrections which will enhance the likelihood of success and minimize risk. These pilots will be

evaluated to assess the effectiveness of the proposed strategies with respect to both direct energy and non-energy benefits.

NSTAR and National Grid are currently in discussions with the Green Justice Coalition ("GJC") regarding a particular program model which they call "Community Mobilization Initiatives" ("CMI"). The GJC defines CMI as

> "… a new term for energy efficiency outreach campaigns where community-based organizations that have long-standing relationships with homeowners, tenants and small businesses in economically marginalized communities and other groups that have a strong record of clean energy education and outreach, develop a 'community mobilization outreach model' that implements a large-scale 'bundled' neighborhood approach to energy efficiency retrofitting."

The GJC further states that this model has the potential to promote higher energy savings through deeper retrofits, as well as cost-savings through economies of scale. In addition, such an approach may prove to be particularly fruitful in the state's lower/moderate income communities, which have been traditionally harder to reach (including the service territories of Fitchburg Gas and Electric and Fall River Gas).

Through the productive discussions that have taken place to date, the Program Administrators have been able to educate the community-based organizations on the energy efficiency services delivery process and at the same time begin to learn about the interests and skill sets of the community-based groups with respect to potentially delivering agreed-upon program components in selected communities. Further discussion with respect to the number of potential pilots, and the size and scope of each pilot, will take place once NSTAR and National Grid have received and reviewed the proposal(s) from the GJC. It is incumbent on the Program Administrators to fully assess proposed plans for expenditures of SBC funds for CMI or any other program pilot before any funds are committed.

6. *Workforce Development*

Additional staffing resources, both internal and external, will be needed to achieve mandated saving levels. Expanding outreach to customers will be an important factor in increasing participation and the number of completed projects. As the number of participants and projects increase, additional services from the local vendor and equipment supplier community will be required. It will also be critical to develop an expanded, diverse, and well-trained workforce capable of providing consistent program services, while maintaining high quality levels and safety standards.

The Program Administrators are committed to statewide efforts to expand training opportunities including the following:

- Working with colleges and universities to educate them on industry needs and develop appropriate coursework
- Supporting co-op programs
- Working with local vendors and equipment suppliers on cross-training initiatives
- Operating training facilities (including the Fitchburg training facility)
- Partnering with union-supported training programs to ensure that both the experience of training provider and associated curriculum will allow for meeting the safety and quality standards currently being met through the delivery of existing programs.

As indicated above, certain of the Program Administrators are also evaluating the potential for pilot programs geared toward enlisting community-based groups to perform outreach and expanding the use of local contractors in program delivery. These pilot programs are designed to promote workforce development while encouraging participation by a broad

range of market actors. The Program Administrators will provide regular updates to the Council and its Consultants on progress made in the area of workforce development.

7. *Long-term Goals*

The long-term goal is to provide, as appropriate, a consistent set of statewide programs and strategies that can be delivered to customers in a seamless fashion, regardless of whether the customer is served by a combined gas/electric Program Administrator, by different gas and electric Program Administrator, or has facilities or projects in multiple utility service areas. Program Administrators will explore ways to accommodate this goal, potentially including providing services under contract to other Program Administrators (particularly in unique circumstances).

Achieving the multiple goals set forth in the Act will take time. In 2010 however, Program Administrators expect to see markedly increased consistency in participation requirements; available core services and measures; conditions, exclusions and limits on program capabilities; and incentive amounts associated with individual program measures.

8. *Residential and Low-Income Program Descriptions*

Residential New Construction

Primary Objective	To capture lost opportunities, encourage the construction of energy-efficient homes, and drive the market to one in which new homes are moving towards net-zero energy.
Program Inception	The program was initially offered in 1998.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Joint vs. Program Administrator-Specific Offering	Joint
Program Design	The Program Administrators continue their strong commitment to a comprehensive whole-house approach for the Massachusetts New Homes with ENERGY STAR® Program. The Massachusetts program is a proud participant of the national ENERGY STAR Homes program and benefits from the regional, as well as national, advertising efforts that ENERGY STAR Homes implements. The program is committed to achieving both a broader market penetration of energy-efficient homes from 2010 to 2012 as well as moving builders toward deeper energy savings where possible. The Program Administrators strive to retain 75 percent of the participating builders and recruit additional homebuilders and contractors working in the major renovations

Program Design (cont.)	market. Homebuilders must target ENERGY STAR certification for all homes considered for the program. However, the program will also provide incentives for an enhanced CODE Plus (a level above Massachusetts State Code but shy of the ENERGY STAR certification standards) as an avenue for broader reach as an entrée to ENERGY STAR. Direct installation of quality ENERGY STAR-qualified compact fluorescent lights ("CFLs") in appropriate hard wired sockets, on-site training, and a final verification inspection is required for all homes participating in the program. The list of available lighting products has been expanded to include almost every type of bulb including candelabra based lighting. The Joint Management Committee ("JMC") will also cross-promote with the lighting program to introduce solid state lighting ("SSL") into this program. All projects consisting of four units or fewer will be designated as single family, and all projects five units or more will be classified as multi-family. Buildings that are five stories or fewer that are permitted under the residential use class are eligible to participate in the program and to be certified as an ENERGY STAR-qualified Home. Mixed-use (residential/C&I) buildings may participate if they are permitted in the commercial use class as long as: (1) the entire structure is five stories or fewer; and (2) each residential unit has its own heating, cooling, and hot water systems separate from the other units. Homes that exceed these requirements will be treated under the Multi-Family program because of their mixed use nature. The Mid-Rise New Construction Program will encompass more than three stories for those that cannot be treated under the Massachusetts New Homes with ENERGY STAR Program. Additional qualifications for program participation are: **ENERGY STAR Certification:** • ENERGY STAR compliance with a Home Energy Rating System ("HERS") Index of 85 or less for ENERGY STAR Tier I and a minimum modeled improvement over the current Massachusetts Baseline Home/User Defined Reference Home ("UDRH") of at least 30 percent and 60 percent respectively for ENERGY STAR Tiers II and III. Three tiers of ENERGY STAR certification will be offered in the 2010 program. The criteria for each tier are listed in the Financial Incentives section. • Meeting the envelope leakage and duct leakage criteria. • Successful completion of a Thermal Bypass Inspection Checklist and potentially five additional checklists as introduced by the EPA for Version III of the national ENERGY HOMES standard in 2010 with potential Version III adoption.

Program Design (cont.)	• Meeting the EPA's ENERGY STAR Homes qualifications and/or the most rigorous standard available at the time (*see* www.energystar.gov/index.cfm?c=new_homes.hm_index). • Program required percentage of CFL installations, and increased emphasis of direct installation of all available hard-wired sockets. **Code Plus Certification:** • Meeting envelope leakage and duct leakage criteria • Program required percentage of CFL installations
Target Market	• Homebuilders • Contractors • Architects/Designers • Trade allies • HERS raters • Homebuyers • Realtors • Developers • Low income and affordable housing developers • Code Officials • Consumers (in the market for new homes and or major renovations)
Marketing Approach	The program will continue to educate homebuilders, consumers, and trade partners regarding the energy-saving benefits and value of ENERGY STAR-qualified homes. Marketing efforts will focus on: homebuilder recruitment, continued training and support, public relations and the implementation of large scale multi-media advertising campaigns geared toward homebuilders, consumers, and trade ally groups. The program will continue to support development of leads through building permit lists in cities and towns throughout the Commonwealth. These lists will be provided to market-based raters to use as prospecting tools. Hosting, sponsoring, and attending various trade show exhibitions and homebuilder conferences remain crucial to marketing the program. The program's multi-media advertising campaign will include vehicles such as: strategic television partnerships with local affiliate or cable programming providers, radio live reads and on-air interviews, print advertising in builder and trade publications, direct marketing via email/fax lists, and a very heavy online advertising presence

Marketing Approach (cont.)	which includes comprehensive social media outlets. The program will participate in the new statewide consolidated website that will further promote the program and aid in cross-program promotion. There will continue to be heavy emphasis on "earned media" and editorial PR involvement to ensure market penetration and an increased program capture rate. In addition, individual Program Administrators will use targeted marketing as needed to meet program participation and spending goals.
Target End Uses	• Energy-efficient building shell • Proper duct and air sealing techniques • Quality Installation of HVAC equipment • Increased use of energy-efficient lighting • Energy efficient water and heating upgrades • Increased indoor air quality
Recommended Technologies	• ENERGY STAR-qualified heating and cooling systems, lighting, appliances and windows • Increased levels of insulation using better materials, *i.e.*, blown in and/or foam board • Improved construction techniques to minimize air leakage, duct leakage, infiltration, and heat loss • Improved HVAC installation techniques and guidelines • Incorporate mechanical ventilation • Renewable ready Photovoltaic/Solar Thermal. Solar Thermal will likely be needed in order to achieve Tier 3 described below.
Financial Incentives	Incentive levels may be adjusted to respond to market conditions. Current levels are shown in the table below. In addition, free ENERGY STAR-qualified CFL products are provided for each home. Participating homes are currently eligible for the following incentives which the program processes in addition to base incentives. Program Administrators will offer the same level of incentives in municipalities that adopt the stretch code. This program will coordinate with other programs such as lighting and products to ensure that the program offers all available incentives that encourage deeper energy savings.

2010 Incentives

Package	Requirements	Single-Family Incentive[1]	Multi-Family Incentive[2]		
			5-99 units	100-199 units	200+ units
CODE Plus	6 ACH CFM 50, 8 percent duct leakage	$325	$225	$225	$225
ENERGY STAR I	ENERGY STAR compliance with a HERS Index of 85 or less	$750	$650	$500	$350
ENERGY STAR II	ENERGY STAR compliance with a HERS Index of 85 or less and 30% improvement or better over the Massachusetts Baseline Home	$1,250	$1,150	$850	$550
ENERGY STAR III	ENERGY STAR compliance with a HERS Index of 85 or less and 60% improvement or better over the Massachusetts Baseline Home	$8,000	$4,000 [3]	$3,000 [3]	$2,000 [3]

[1] Starting in 2010 the program will define a single-family home as a structure that contains one to four units.

[2] Starting in 2010 the program will define a multi-family home as a structure that contains five or more units.

[3] ENERGY STAR III Multi-family projects will be reviewed for final fee structure; listed are the maximum incentives paid by Program Administrators.

2010-2012 Statewide Forecasted Program Activity

MA New Homes with ENERGY STAR Participation Levels			
	2010	**2011**	**2012**
Total Estimated Program Participants	2,138	2,396	2,956
Estimated Annual Growth Rate	2%	9%	21%
Total Estimated Housing Starts	6628	7224	8742
Estimated Market Penetration	32%	33%	34%

*Growth rate estimated by Reed Construction Data, June 2009 Edition
*The forecasted annual program activity referenced above represents all program participants statewide including units completing in municipal electric territories where a Gas Program Administrator also exists

Delivery Mechanism	The program is administered by the Program Administrator in each service territory and coordinated regionally through the JMC. The JMC, through a competitive bid process, chose an implementation contractor to oversee the day-to-day operations of the program statewide. The contractor is responsible for tracking and reporting program activity to the respective JMC Program Administrator. The contractor will also conduct quality assurance/quality control of field activities and advise the JMC on necessary program changes and enhancements. Throughout the planned timeframe, the JMC plans to continuously strive towards a market-based network of trained contractors who offer energy-efficiency and rating services to homebuilders for a fee. The Program Administrator may consider continuing to support rater fees for low income projects in their service territories. The program recognizes the new emphasis on training necessary to make this program successful, as well as to support workforce development efforts through the Green Jobs Act. The program will support training of increased frequency and greater depth in the fundamentals of building science and the latest available technologies, including those for air sealing and insulation. The program vendor will be a HERS provider of last

Delivery Mechanism (cont.)	resort to help new raters become established as part of the open market structure. The program will also provide trainings (by raters or the vendor) as well as potential classroom trainings. Through this effort, we can commit to training more than 50 percent of the builders in the Program.
Joint Program Administrator Enhancements Planned for 2010-2012	• With the advent of a new version ("Version III") of the ENERGY STAR Homes Program, the JMC will consider adoption of that program, which may require changes in 2011. • There are ongoing discussions on Version III with regard to the verification process of quality HVAC installations. The discussions center on the testing requirements and the seasonal limitations in Massachusetts; the program will make every effort to work with the ENERGY STAR Homes Program and CoolSmart to increase quality installation and provide achievable, verifiable savings to the Program. • The Program Administrators are currently working together to identify a way to provide complete support to multi-family structures of five stories or fewer. Allowing master metered electric buildings to participate in the program is being considered, as they are ineligible currently. As stated earlier, there will be a new multi-family new construction pilot for 4-8 story buildings. • The 2009 major renovation pilot projects being conducted by the Program Administrators will provide further understanding for the JMC to garner greater savings by administering a major renovation program during 2010-2012. • Support code amendments that add to energy efficiency and explore with all entities the possibility of offering incentives to municipalities that adopt "stretch code" revisions in their communities. The JMC will provide stretch code training support to towns and builders participating in the program where it has been adopted. Further details will be provided in the section on codes and standards. • The program will promote building science technologies which help interested homebuilders construct zero energy homes. • Support workforce development efforts through Green Jobs Act by encouraging new raters to enter into the marketplace.

Program Administrator-Specific Elements	Please see PA-specific filings.
Three-Year Deployment/Road Map	For new construction, the efforts to achieve both deeper savings and gain broader market penetration will continue through multiple tiers of participation, one of which continues to push homes closer to net zero energy. These goals will be daunting in the recognition of the downturn in the economy and the resultant slow down of the building market. However, the program will have significant resources dedicated to "putting feet on the ground" to promote the program and support participating builders and other key stakeholders in the residential new construction market. For the three-year deployment, the Program Administrators will focus on: • Expansion of the current HERS rater network of ten competing companies • Moving closer to a fully market-based program where Program Administrators reduce and ultimately phase out subsidies to raters, shifting those monies directly to builders who in turn will negotiate directly with raters for associated fees to rate homes • Expansion of the base of participating builders • Continued expansion of existing and new market allies • Training the market effectively in order to stay ahead of the introduction of more stringent building codes as well as new versions of the national ENERGY STAR Homes which will be significantly harder to achieve • Collaboration with Green Communities through technical support • Continued ramp up of consumer awareness The Program Administrators, in conjunction with the Consultants and LEAN, where appropriate, will be performing an assessment of the multi-family programs in Massachusetts. Because the target market for this program includes multi-family customers, the results of the statewide assessment may apply here. Please refer to the multi-family section for an update on the programs.

Three-Year Deployment/Road Map (cont.)	The Program Administrators plan to implement the Statewide Multi-Family New Construction Pilot Program during the course of 2010. Coordination between this program and the ENERGY STAR Homes program will occur in order to provide a seamless delivery of new construction services to all eligible customers.
Special Notes	The preceding program description is designed to support the successful attainment of the Green Communities Act energy efficiency investment goals and environmental benefits. Further, it is the intent of the Program Administrators to support the Council and its Consultants through a recognized ongoing iterative planning process to develop and implement plans that meet the objectives of the Council's Priorities Resolution document. This program design is intended to address a number of applicable Council priorities including: • Providing program consistency through this program. • Maximizing incentive values and minimizing overhead costs in this program. • Providing customers/builders with an opportunity to lower utility bills through the purchase of energy efficient products. • Providing seamless delivery of this program to customers. • Providing user-friendly program by offering multiple paths/opportunities for participation • Coordinating with other programs for outreach communication and marketing strategy. • Obtaining deeper savings by addressing elements such as additions that have not been addressed before. Based on findings from 2009, the Program Administrators will amend the program to address deeper savings. • Providing comprehensive program delivery through JMC integrating gas and electric Program Administrators in a fuel blind nature • Coordinating with other programs to develop an integrated website • Market based HERS Rater Model, Trainings and Technical Assistance • Performance based incentive structure, Third Tier • Through tier development and refinement informed by the 2008-2009 Zero Energy Challenge, the JMC

Special Notes (cont.)	will look towards deeper energy savings to promote near zero energy homes In order to provide context for the Program Administrators proposal, please refer to Appendix H, containing the document "Massachusetts New Homes with ENERGY STAR®: Program Theory 2010-2012, Final Report." Also, the Program Administrators are working on an integrated gas and electric initiative (across customer classes) to support progressive building and appliance efficiency standards. The Program Administrators are reviewing a very recent draft proposed description of these efforts that they are working on collaboratively with the Consultants. The Program Administrators will share this description with the Council when it is finalized. In anticipation of Version 3 of the ENERGY STAR Homes specification going into effect in 2011, the Program Administrators anticipate adopting many of the new specifications during the course of the 2010 program year in order to remain early adopters of more stringent energy efficiency requirements nationwide. The Program Administrators plan to conduct ENERGY STAR Homes Version 3 and Advanced Lighting Design pilots during the course of the 2010 program year. Electric Sponsors, as a pilot, will work with lighting designers and build/design teams to identify creative ways to approach energy savings through proper lighting design on a portfolio level. The Program Administrators also plan to implement the Statewide Multi-Family New Construction 4-8 Story Pilot during the course of the 2010 program year. Please see the Website for the description of the "Massachusetts New Homes with ENERGY STAR QIV Performance Metric", which is incorporated herein by reference.

Residential Major Renovation Pilot

Primary Objective	To capture lost opportunities and encourage energy-efficient additions and renovations to existing homes.
Program Inception	This pilot was originally offered in 2009.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Program Budget	Please see PA-specific filings.
Program Design	This pilot program is designed to help customers who want to build an addition on their existing home. Because of the unique nature of major renovations (those affecting over 500 square feet of the existing home), this pilot combines elements of the Residential New Construction Program (for the addition) and RCS program (for the existing portion) to provide a comprehensive whole-house approach.
Target Market	• Builders • Architects • Designers • Trade allies • Homeowners • Home improvement specialists • Others involved in the addition to and renovation of existing single-family homes or three-story or fewer multi-family buildings
Marketing Approach	Marketing strategies include direct builder and customer outreach, website information and meeting presentations, home and trade show exhibits, participation in builders' conferences, and other public relations activities. Energy-efficiency outreach and training to educate builders, architects, and industry players also are planned. In addition, individual Program Administrators will use targeted marketing as needed to meet program participation and spending goals.

Target End Uses	• Energy-efficient building shell measures • Proper duct and air sealing techniques • HVAC quality installation • Mechanical ventilation to both the new-construction components and the existing home
Recommended Technologies	• ENERGY STAR qualified heating and cooling systems, lighting, appliances, and windows • Increased levels of insulation • Improved construction techniques to minimize air leakage, duct leakage, infiltration, and heat loss • Improved HVAC installation techniques • In partnership with the Massachusetts Renewable Energy Trust, renewable technologies including solar water heating and photovoltaics, where practical
Financial Incentives	All participants will be eligible to receive weatherization incentives up to $2,000 for both the new and existing portions of the home. Additional incentives are available for heating systems and other rebates are offered in coordination with other programs. Incentive levels may be adjusted to respond to market conditions.
Delivery Mechanism	The Program Administrators plan to include this pilot as an offering under the Massachusetts New Homes with ENERGY STAR Program, which is administered by the Program Administrator in each service territory and coordinated regionally through the JMC. Each home in the program will have a HERS analysis performed in order to better understand the existing structure. Recommendations will be provided to the homeowner for the existing portion (under a MassSAVE model) and also to increase the energy efficiency of the new addition by the market-based rater in the program. In sum, there will be a HERS analysis performed on the entire structure to better understand the usage in the total structure.
Joint PA Enhancements Planned for 2010-2012	None planned at this time due to the pilot nature of this program.

Program Administrator-Specific Elements	Please see PA-specific filings.
Three-Year Deployment/Road Map	Lessons learned though the 2009 pilot program will ultimately help to shape the direction of the program. Efforts will be made to discover the best way to capture savings of both the existing and new portions of the structure. Program Administrators will continue to leverage the new construction builder market as builders look to uncover new types of projects in this economy. For the three-year deployment, the Program Administrators will focus on: • Expansion of the base of participating builders • Continued expansion of existing and new market allies • Establishment of best avenues to capture savings of both the existing and new portions of the structure • Continued ramp up of consumer awareness The Program Administrators, in conjunction with the Consultants and LEAN, will be performing an assessment of the multi-family programs in Massachusetts. Because the target market for this program includes multi-family customers, the results of the statewide assessment may apply here. For low-income multi-family projects, the assessment will include the evaluation of strategies to serve low-income multi-family buildings in a manner that is fuel-blind, meter-blind, and integrates low-income, residential, and commercial programs, as appropriate, with minimal or no co-payment (pending a review of the budget impacts by each Program Administrator).
Special Notes	The preceding program description is designed to support the successful attainment of the Green Communities Act's energy efficiency investment goals and environmental benefits. Further, it is the intent of the Program Administrators to support the Council and its Consultants through a recognized ongoing iterative planning process to develop and implement plans that meet the objectives of the Council's Priorities Resolution document. This program design is intended to address a number of applicable Council priorities including: • Coordinating with other programs for outreach communication and marketing strategy

Special Notes (cont.)	• Deeper savings as a result of addressing elements such as additions that have not been addressed before. Based on findings from 2009, the Program Administrators will amend the program to address deeper savings. • Comprehensive program delivery through JMC by integrating gas and electric Program Administrators in a fuel blind nature • Coordinating with other programs on an integrated website • Market based HERS Rater Model, Trainings and Technical Assistance

Residential ENERGY STAR® HVAC

Primary Objective	To raise residential consumer awareness and market share of properly installed high-efficiency cooling equipment and systems, and to similarly increase the market share of ENERGY STAR-labeled warm-air furnaces equipped with an electronically commutated motor ("ECM") or equivalent advanced furnace fan system. In addition, the program will place increased emphasis on cost effective savings opportunities from duct sealing, digital tune-ups, improved installation practices, maintenance, and specification of HVAC systems in coordination with gas Heating, Ventilation, and Air Conditioning (HVAC) programs. Where appropriate the COOL SMART program will work with GasNetworks on joint program offerings, marketing, and trade ally outreach and training.
Program Inception	The Program Administrators introduced their rebate program for ENERGY STAR-labeled central air conditioning units, which is now called COOL SMART, on April 1, 2004. The heating component of the program, a joint electric and gas offering, was initially offered in 2003.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Program Budget	Please see PA-specific filings.
Joint vs. Program Administrator-Specific Offering	During the period 2010-2012, the COOL SMART Program will be offered by all Program Administrators. (Please note that Western Massachusetts Electric, Unitil, and Cape Light Compact did not offer the program in 2007 though mid 2009.) The heating component of the program will also be offered jointly in 2010-2012 by the Program Administrators.

Program Design	The ENERGY STAR HVAC Program is an initiative designed to increase consumer awareness and the market share of ENERGY STAR-labeled furnaces, central air conditioning units, and air source heat pumps and to promote quality cooling installations by HVAC technicians and contractors.
Target Market	There are several target markets: • New systems in existing and new homes (new systems) • Replacement systems in existing homes (new equipment/old systems), including the early retirement of existing equipment. • Improvements in operational systems in existing homes (new equipment/old systems) The program also targets the following market actors: • Residential customers in the market to purchase HVAC equipment • HVAC contractors and technicians • Suppliers of HVAC equipment • Manufacturers and distributors of HVAC equipment • New-home builders and remodeling contractors • Big-box stores
Marketing Approach	Program marketing, highlighted by the regional program's COOL SMART initiative, is designed to promote the purchase and proper installation of ENERGY STAR residential central air conditioning and heat pump systems at multiple levels. In addition, it will increasingly emphasize the importance of proper installation and sizing practices as well as the promotion of duct sealing and enhanced air distribution system efficiency. The COOL SMART initiative will work with the GasNetworks' High Efficiency Heating and Hot Water program to develop and implement joint marketing activities. The marketing effort will include:

Marketing Approach (cont.)	• Full-time circuit rider visits and calls to distributors and contractors. The circuit rider also provides technical outreach services to follow up on training events in the field and by phone with recently trained technicians. At the end of current contract terms, the COOL Smart and Gas Networks' High Efficiency Heating and Hot Water program sponsors will work to procure a single, joint circuit rider to support both programs in the field. • Development of cooperative ("upstream") promotions with the HVAC industry • Sponsorship of contractor competitions and awards programs for rebates and Quality Installation and Verification ("QIV") services, and an annual recognition celebration for contractors in a venue that helps recruit more contractors • Periodic COOL Talk meetings with QIV-listed HVAC contractors and distributors • Targeted outreach to large HVAC contractors previously inactive in the program. • Development of Consumer Testimonials affirming the benefits of program measures. • Customer certificates when a quality installation is performed • Print and media advertising targeting consumers, contractors, and distributors (including bill inserts, information on the website, participation at trades shows, articles in trade publications, mailings to distributors, contractor, and non participants). These will be in conjunction with gas programs, where possible. • Promote program education and awareness utilizing manufacturer/distributor level marketing and training infrastructure as a platform to educate contractors and wholesalers at a regional level. These will be in conjunction with gas programs, where possible. • Further, the Program Administrators will market and leverage all available federal tax credits where applicable as well as all supplemental consumer incentives (*e.g.*, equipment manufacturers) as a means to increase consumer adoption of purchases of high efficiency central air conditioning and heat pump systems. In addition, Program Administrators will work with the following industry partners to promote best installation practices, awareness, education, and training for HVAC contractors: • ENERGY STAR HVAC Quality Installation Program team and Best Practices Working Group • Consortium for Energy Efficiency ("CEE") • North American Technician Excellence ("NATE")

Marketing Approach (cont.)	• Air Conditioning Contractors of America ("ACCA") • Northeast Energy Efficiency Partnerships ("NEEP") • Air Conditioning, Heating, and Refrigeration Institute ("AHRI")
Target End Uses	Residential central cooling and heating equipment.
Recommended Technologies	The primary recommended cooling technology is high-efficiency residential central air conditioner equipment, including air source heat pump condensers that meet or exceed the prevailing ENERGY STAR qualifications. The recommended minimum heating technology is a natural gas furnace with an AFUE of 92 percent or greater, equipped with an advanced ECM or equivalent energy-saving furnace fan (blower) motor. The COOL Smart Program has conducted a pilot installation project to determine if furnace fan retrofits with Brushless Fan Motors ("BFM") will produce sufficient savings to justify full implementation in 2010. The pilot proved that there are enough savings to justify full implementation of a measure. The electric efficiency program does not directly address boilers. Further, Program Administrators will integrate new technologies such as heat pump water heaters and will further explore solar hot water opportunities into program offerings and incentives
Financial Incentives	The text below indicates anticipated 2010 incentive levels for all currently available program offerings. The program aims to simplify the rebate offering while ensuring that consumer installed equipment is achieving the high efficiency rating and performance that the consumer expects they will receive. Energy savings can be diminished with high efficiency equipment if it is not installed and commissioned properly. The Program Administrators will attempt to address these issues by enacting the following changes. In 2010, Program Administrators will propose to reward a contractor for following high quality installation practices. A program will be implemented to train and educate contractors who currently lack the skills to install equipment at these high standards. The Program Administrators will monitor the contractor base progression in adopting these skills during 2011, and may our intention to possibly require a "CS Tier 1" or "CS Tier 2" installation for all installations starting in 2012 for a customer to qualify for a rebate. Contractors who choose not to participate in

Financial Incentives (cont.)

"The Tier" program will be able to continue to receive incentives but at a much lower level during 2010-2011.

The electric Program Administrators will work with their GasNetworks' counterparts to ensure that quality installation practices, particularly proper sizing and duct design and sealing, are pursued in a fully coordinated manner.

See schedule below for specifics:

Contractor Incentives:

CS Tier 1 (Early Replacement of 9 or 10 SEER equipment with replacement equipment of ENERGY STAR 14.5 SEER and 12.0 EER or greater):

Required to qualify for CS Tier 1

QIV Pre and Post Installation – Must pass QIV and airflow	$ 225.00
Manual J	$ 300.00
Early Replacement	$ 450.00
Total Incentive for required components	**$ 1000.00**

Optional Incentives for CS Tier 1

Downsizing per ½ ton reduction	$ 250.00
ESQI with CO detector	$ 125.00
Duct modifications to pass QIV or ESQI	Up to $ 400.00
Duct sealing in attic spaces that have air conditioning and heat in connected ductwork.	$ 2 per CFM of duct leakage reduction up to $ 600.00 max

CS Tier 2 (Standard Replacement of existing equipment with replacement equipment of ENERGY

Financial Incentives (cont.)

STAR 14.5 SEER and 12.0 EER or greater)

Required to qualify for CS Tier 2

QIV Post Installation – System must pass QIV charge and airflow – If duct modifications are claimed, require pre and post QIV of ductwork	$ 225.00
Manual J	$ 300.00
Total Incentive for required components	**$ 525.00**

Optional Incentives for CS Tier 2

Downsizing per ½ ton reduction	$ 250.00
ESQI with CO detector	$ 125.00
Duct modification to pass QIV or ESQI	Up to $ 400.00
Duct sealing in attic spaces that have air conditioning and heat in connected ductwork	$2 per CFM of duct leakage reduction up to $ 600.00 max

Contractor individual incentive for 2010 and 2011 (No Tier Participation):

Non – Participation in Tier – Contractor Incentives

Manual J	$ 100.00
QIV	$ 175.00
ESQI w/ CO detector (QIV Included)	$ 300.00
Downsizing ½ ton reduction	$ 250.00
Early Replacement	$ 100.00
Duct Sealing in attic	$2/CFM up to $ 600.00 max
Duct modifications to pass QIV or ESQI airflow requirements	Up to $ 400.00 max

No contractor incentives will be paid on the quality installation of Ductless Mini Splits due to the

Financial Incentives (cont.)	inability of the Program Administrators to have a quantifiable savings estimate for this measure of performance for the equipment. **Customer Incentives**: • A customer incentive of $300.00 for eligible equipment meeting the ENERGY STAR minimum SEER of 14.5 and an Energy Efficiency Rating (EER) of 12.0. • A customer incentive of $400.00 for higher CEE-Tier 2 equipment (SEER of 15, EER of 12.5 or higher) • A $500.00 incentive for a SEER of 14.5 or greater, EER of 12.0 or greater and HSPF of 8.2 for split ductless air conditioning or air-to-air heat pumps with inverter technology. • BFM (Brushless Fan Motor) installation which has a fairly high kWh savings is being evaluated and has shown in our pilot study to achieve savings of 25-70% depending on the application. The program will fund the installation and provision of the motor for the consumer. • $ 100.00 instant credit for a digital check-up (QIV) performed by a Cool Smart qualified participating contractor • ENERGY STAR QIV for replacement systems (including systems replaced within the past three years) will receive an EPA certificate and $100 customer incentive through participating contractors. The EPA requires sizing, duct sealing, and airflow and charge adjustments to specific American National Standards Institute/ACCA standards The Program Administrators will carefully monitor the future availability of tax credit-eligible equipment in Massachusetts and adjust program promotion of tax credits and incentive levels accordingly. In addition, the program offers a $400 mail-in rebate on a natural gas furnace with an AFUE of 92 percent or greater, equipped with an ECM or equivalent energy-saving furnace fan (blower) motor. (Through a partnership arrangement, GasNetworks funds $200 of the rebate; the remainder is funded through the customer's electric provider.) It also offers a NATE certification incentive — tuition reimbursement of up to $250 for HVAC technicians who successfully pass the NATE certification examination in air conditioning or

Financial Incentives (cont.)	heat pump service and/or installation. A Cool Card program has been established to offer financial incentives for distributors to participate in increasing rebate participation.
Delivery Mechanism	The program will be administered by the Program Administrator in each service territory. Delivery is through a common vendor selected through a common RFP. Whenever possible, there is coordination with the related gas Program Administrator's initiatives and energy-efficiency service providers. To this end, the COOL Smart and Gas Networks' High Efficiency Heating and Hot Water programs will work to procure a single, joint circuit rider to support both programs in the field. Program initiatives are also piggybacked onto the residential new construction and MassSAVE programs: • Participating residential new construction program builders and their HVAC contractors are referred to the COOL SMART Program for training and QIV. Whenever appropriate, these training will be jointly provided with GasNetworks • MassSAVE participants are referred to COOL SMART for HVAC measures using COOL SMART literature, which is part of the standard MassSAVE information package. Quality control/follow-up inspections are performed by independent inspectors on up to 10 percent of installations to verify equipment installation and performance. The program continues to use equipment distributors to process rebates, sell high-efficiency and QIV-related technology, and to provide indoor training labs for HVAC contractors. Program Administrator will integrate with MassSAVE air-sealing and duct sealing services through an existing network of contractors who currently provide these services.

Joint Program Administrator Enhancements Planned for 2010-2012	Anticipated changes for the three-year planning period include: a) Work with GasNetworks to further coordinate implementation, marketing and training activities and to develop and implement joint program offerings whenever feasible and cost-effective; b) Significantly increased equipment rebates to a level closer to full incremental costs of high efficiency equipment; c) Program simplification to minimize the complexity of program offerings and enhanced customer transactions such as online rebate fulfillment and "packaged" incentive offerings to drive customer participation and adoption of new technologies and quality installation services; d) Aggressive emphasis on achieving program savings from improved equipment specification, checkups for existing equipment, and installation of conditioned air distribution systems; e) Expanded training programs to greatly increase contractor capabilities related to HVAC system efficiencies and increase market adoption of the newly developed ENERGY STAR Quality Installation ("ESQI") standards, which will yield sizeable kW and kWh savings; f) Introduction of new pilots, such as consumer duct sealing, and expansion of pilots such as the retrofit of existing low efficiency air distribution fan motors with newly developed high efficiency BFMs; g) Expanded negotiated cooperative promotion opportunities in cooperation with NEEP and other interested Program Administrators; and h) Expansion of joint attic duct sealing promotions and training in cooperation with gas utilities. The Program Administrators also plan to support workforce development and contractor training efforts that provide increased educational opportunities as a means to ensure that new and existing contractors acquire the necessary skill sets and install high efficiency HVAC systems. Training will be oriented to raising the bar for quality installations and development of certification standards (*e.g.*, Building Performance Institute ("BPI")) and licensing where appropriate. The Program Administrators plan to utilize all publicly available institutional resources such as community colleges, vocational schools, and state licensing boards as well as independent and national organizations dedicated to quality installation standards and practices.

Program Administrator-Specific Elements	The Cool Smart administrators will be conducting a Heat Pump Water Heater pilot on major OEM water heaters. We will conduct a thorough evaluation and monitoring of the system using meters to calculate energy usage as well as flow meters. This test will also confirm the reliability of the water heaters for use in our area.
Three-Year Deployment/ Road Map	The Program Administrators believe that a significant increase in equipment incentive levels may be required to address market barriers and achieve higher levels of participation and savings goals during 2010-2012 based on market data. Rebate levels approaching full system incremental cost may be required to address two fundamental market barriers in the state. • In Massachusetts, a low dollar savings compared to incremental costs associated with high efficiency air conditioning investments represents a significant program barrier to increasing the market share of high SEER/EER equipment. The depressed economy is dramatically reducing consumer spending on replacing functional HVAC heating equipment and negatively impacting spending on cooling equipment. • In Massachusetts, another barrier to improved efficiency is the common practice in which HVAC contractors install "efficient" outdoor condensing equipment but fail to replace the pre-existing indoor equipment with any indoor evaporator coil. Additionally many other cases involve use of non matched non-AHRI rated indoor coils and then many other cases involve matched coils which do not reach the ENERGY STAR standards. At each stage, customers are not well informed of the consequences and also do not benefit directly from the demand savings that are important to the program and the region. In consultation with contractors, distributors and field staff, Program Administrators estimate that approximately 50 percent of all sales of high SEER outdoor condensers do not include replacement of the indoor coil. The Program Administrators have simplified or collapsed many of the individual 2009 program offerings for 2010. The decision was made to allow a gradual transition to the new incentive measures until the Program Administrators are comfortable that the contractors are able to grasp the needed skill set. Contractors will have the opportunity to continue working under the 2009 incentive level until they transition to the Tier System. Complete transition to the Tier System should occur in 2011 or 2012 at the latest, and is dependent on

Three-Year Deployment/ Road Map (cont.)	contractor adaptation to the new system. In addition, the Program Administrators plan to: • Progressively expand attic duct sealing offerings, jointly with gas utilities; • Work with regional groups to support research on and adoption of building codes and equipment standards; • Host strategic discussions to promote the expanded HVAC program which may include a significant number of new and emerging technologies and quality installation practices. Further, the gas Program Administrators will also strive to identify and support gas and electric program integration opportunities where appropriate as a means to increase consumer participation, gain economies of scale, create consumer-focused transparency across programs, and achieve broader and deeper energy savings. The programs will work with the gas HVAC programs to work together on an integrated technical circuit rider that promote both programs jointly. Also, the Program Administrators are working on an integrated gas and electric initiative (across customer classes) to support progressive building codes and appliance efficiency standards. The Program Administrators are reviewing a very recent draft proposed description of these efforts that they are working on collaboratively with the Consultants. The Program Administrators will share this description with the Council when it is finalized.
Special Notes	Program Administrators are currently exploring alternative charge and air flow verification measurement standards that would encourage improved installation practices and allow this modified QIV testing to become a required component for equipment rebates perhaps by 2011. In 2009, the COOL SMART Program is the first central air conditioning program east of the Mississippi to include the new EPA ENERGY STAR Quality Installation component.

Residential Conservation Services / MassSAVE

Primary Objective	To provide residential customers with energy efficiency recommendations that enable them to identify and initiate the process of installing cost-effective energy efficiency upgrades. The Residential Conservation Services (RCS)/MassSAVE Program makes it easy, clear, and compelling for customers to participate in all comprehensive energy efficiency programs by providing information through bold outreach mechanisms, incentives, and multiple financing options. The program exemplifies a program-as-a-system approach where all components work together to support the success of achieving deeper energy savings per customer. The Program Administrators plan to increase the number of energy efficiency vendors and contractors while raising the level of quality control.
Program Inception	During the period 1980-2000, the RCS/MassSAVE program was an educational program encouraging customers to upgrade the efficiency of their homes. Beginning in 2001, the RCS/MassSAVE program began to change its emphasis from education only to education and measure implementation. Customers are now offered incentives to implement energy saving measures in their homes. The program has continued to increase cost effective incentive packages each year leading to greater energy savings and increased implementation.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Program Budget	Please see PA-specific filings.
Joint vs. Program Administrator-Specific Offering	Joint
Program Design	The program is committed to a comprehensive whole-house approach and seeks to maximize both electric and gas energy savings (including fuel neutral incentives). The program plans to fully integrate the

Program Design (cont.)	RCS/MassSAVE and Gas weatherization programs, so that customers experience "one program" as opposed to multiple offerings. Through the intake process, the customer's primary heat source will be identified. The purpose of the screening is to steer customers using natural gas for space heating to the gas Program Administrators and customers using electric, oil or propane for space heating to the electric Program Administrators. Exceptions to this guideline may occur (*e.g.*, specialized high bill complaints, community outreach programs, and/or prior mutual agreements), and in these cases, the electric Program Administrators will seek to negotiate in good faith with the gas Program Administrators to achieve a resolution that serves the best interest of the consumer, maximizes savings opportunities on a fuel-neutral basis, and allows the overseeing Program Administrator to claim savings. The program is committed to achieving maximum program success and deeper energy savings. This is a significant leap forward, making distinctions between programs indiscernible to consumers. The program clearly defines the process and expectations of the customers up front and identifies those customers interested in investing in controlling their future energy costs. The level of service is intended to be flexible, providing information to a broad group of customers, with information regarding deeper retrofit services and renewable opportunities supplied to interested parties. All customers who call the MassSAVE toll-free number to learn about the program are asked several questions to determine their need for and general interest in making energy-efficient improvements. The Program Administrators are dedicated to providing prompt customer service; the goal is to limit the response time between the initial customer call and the first visit of 30 days or less. The Program Administrators wish to provide an even quicker response time and will strive to achieve that outcome while recognizing factors outside of the Program Administrators control that create a demand for services. Customers are guided to appropriate program services provided by energy efficiency vendors including targeted energy efficiency information, advanced diagnostics, efficiency rebates, and deep energy retrofit support. (Low-income customers are referred to appropriate low-income programs.) When appropriate, a series of home visits are offered to further engage the customer and proceed in a logical and methodical process of identifying and informing customers of all available energy savings opportunities.

Program Design (cont.)	The home visits include: • The first visit, referred to as the Screening Visit, is scheduled by a PA-approved vendor promptly after the initial customer phone call and is available at a variety of times to encourage maximum customer participation. This is an in-home visit designed to provide general information and education about energy efficiency and identify opportunities and challenges for energy saving installations. Identification of opportunities may include estimating time and labor needs for subsequent direct installation measures and a solar site assessment during the second or Diagnostic Visit. The Screening Visit will identify customers' specific needs and direct them to other energy-efficiency resources as appropriate. Should a customer choose not to proceed with the Diagnostic Visit, the initial assessment allows Program Administrators to collect customer data for future targeted marketing efforts. Instant energy savings are realized during the Screening Visit. With the customer's permission, CFLs and, when applicable, Light Emitting Diodes ("LEDs") are installed for free in all appropriate locations, as are low-flow shower heads and faucet aerators. The instant savings measures installed during the Screening Visit are intended, on average, to exceed the expected average cost to deliver this initial visit. Wherever appropriate, the Screening Visit may be bypassed (*e.g.*, due to a previous audit information for a residence is already documented) and the audit process for the customer will proceed with a Diagnostic Visit. • The Diagnostic Visit includes a comprehensive energy assessment including a variety of diagnostic techniques such as blower door tests, infrared scanning, and duct leakage testing (based on vendor determination). In all cases where the customer elects the comprehensive air sealing offer, a blower door test will be performed to maximize air leakage reduction and maintain combustion safety standards. Wherever feasible, full installation of air sealing, duct sealing, and programmable thermostats are provided at no cost to the customer. The savings derived from the direct install measures are designed to cover the cost of the visit. This visit will also identify and recommend specific energy-efficient upgrades that require professional contractors, as well as, a customer contribution. The energy advisor explains the contractor services required to install recommended measures, as well as all available energy efficiency financial incentives. • The Quality Assurance Visit allows all work to be inspected through a combination of methods

Program Design (cont.)	including phone survey, postcard, e-mail or actual site visit by a third-party PA-approved vendor to ensure that contractor-installed measures are accurate, professional, and safely installed based on program standards and to ensure program savings. Program Administrators strive to maximize energy savings by promoting and supporting contractor training and education in an effort to establish a broader workforce knowledgeable of proper installation techniques. The goal is to have a sustainable and experienced workforce that is focused on achievable maximum energy savings ready and able to meet customer demand. As the Program Administrators continue to focus on program integration with the gas programs, the Program Administrators will work with GasNetworks and others to develop an installation protocol that will including the "right sizing" of systems, ensuring that customers are having the correct size and most efficient heating system installed.
Target Market	All non-low-income residential customers living in single-family houses or one- to four-unit multi-family buildings, regardless of heating fuel, who are committed to making their homes more energy efficient. Program Administrators plan to shift more attention toward targeting trades that influence homeowners' decisions. The Program Administrators are currently discussing and addressing the major program design modifications needed to bring in new contractors and plan to have a structure in place for bringing new contractors into the program by January 1, 2010. Program Administrators are also exploring ways to identify and reach landlords to make them aware of the program benefits that increase property value and provide energy savings to tenants.
Marketing Approach	The Program Administrators will collaborate to proactively drive the demand needed to support the 2010 – 2012 increase savings goals. Marketing efforts will focus on single-family homeowners, developing leads for identifying owners of 2-4 family homes (decision makers) and recruiting and training contractors. Efforts will include: • Designing a comprehensive education package to get customers thinking about ways to optimize their home's energy performance with a consistent statewide marketing message. • Creating a tool that informs customers how far they could go over the long-term that could put them on the path to Zero Net Energy. The tool will lay out steps customers can take this year, next year and

Marketing Approach (cont.)	over the years as they make home improvements. • Providing a statewide audit package that ensures customers are given consistent energy efficiency data and recommendations. Outreach and marketing efforts will be expanded to include building relationships with realtors, home improvement contractors, architects and others involved in renovations of one-to-four family homes. Marketing efforts will be designed to meet the objectives of reaching more customers (going broader into the customer base) and maximizing energy savings opportunities (going deeper into each home to find ways to save energy). The program's multi-media outreach campaign will focus on strategic television partnerships with local affiliate or cable programming providers, radio, print advertising, web-based marketing through various social media sites, and through part of a new consolidated website planned for the first quarter of 2010 that integrates all the Massachusetts energy efficiency programs and websites into a single portal. Current forms of multi-media outreach include: • MassSAVE website (enhanced via the Statewide Integrated Energy Efficiency Website) • Bill inserts • Radio, print and visual media advertising • New media advertising (advanced online options) • Targeted marketing through community outreach initiatives such as Cambridge Energy Alliance, Marshfield Energy Challenge, and the Energy Smack-Down program. • Targeted marketing through the use of data collected during the screening visits Individual Program Administrators may conduct additional marketing and may ramp their marketing up or down as needed to meet participation and budget goals.
Target End Uses	The program targets any cost-effective energy-saving improvement using a comprehensive whole house approach including but not limited to: • Building Envelope

Target End Uses (cont.)	• HVAC/Mechanical systems • Water heating • Energy saving appliances and lighting • Deeper retrofit measures • New technologies and renewable
Recommended Technologies	Recommended technologies include air sealing, duct sealing, insulation, refrigerators, thermostats, ventilation, and heating/cooling systems. The program also provides general information about energy efficiency and solar domestic hot water systems ("DHW") to consumers on request. Other measures may include heating system controls, super-insulation, CHP technologies, solar DHW systems and opportunities for piloting "deep energy retrofit" enhancements of major renovation projects. Customers will see these offerings as an integrated program.
Financial Incentives	The RCS/MassSAVE program provides on site customer-specific information at no cost to the customer, free installation of instant savings measures, as well as an educational experience including information regarding all statewide program incentives, financing options, and where to find information about Federal and State tax credits. The Program currently offers free direct installation measures; and incentives of 75 percent of the installed cost of contractor-installed measures, up to $2,000. The Program Administrators are exploring the possibility of increasing or eliminating the $2,000 cap. The Technical Evaluation Working Group is in the process of conducting a cost-effectiveness evaluation of new measures, measures packages, and a 'pay for savings' rebate approach to go after deeper savings per house. This program will coordinate with other programs such as GasNetworks and Cool Smart by educating customers about rebates and financial incentives available to them through the Comprehensive Education Package and marketing materials providing a roadmap to achieving whole-house energy savings. Consistent with the Green Communities Act, the HEAT Loan program provides qualified customers with 0 percent interest loans up to $15,000 with terms up to seven years and can be applied towards the following energy efficiency upgrades: • Insulation

Financial Incentives (cont.)	• Duct System Improvements • High-efficiency heating systems • High-efficiency DHW systems • Solar DHW systems (standardized incentive amount across all Program Administrators.) • ENERGY STAR-labeled thermostats • ENERGY STAR-labeled windows • ENERGY STAR-labeled water heaters • Other renewable technologies on a pre-approved basis A portion of the HEAT Loan may be used to finance the mitigation of barriers preventing the installation of energy efficient measures. In the past, safety barriers have been a significant obstacle in maximizing energy savings. Using HEAT Loan funds to manage safety issues will allow Program Administrators to access a broader spectrum of efficiency in the future. To address renewables, Program Administrators may look towards possibly expanding the HEAT Loan to allow for installation of renewables. Additional customer financing options like the "Pay & Save Pilot" are also being explored and their effectiveness will be evaluated at the end of the pilot for possible inclusion as a program financing option. A long term financing option that might also be explored is to work with all stakeholders to potentially include the cost of upgrades on property tax bills. The Program Administrators will continually look to address "new" financing options that would allow customers the ability to go deeper.
Delivery Mechanism	The program is administered within each service territory by its Program Administrator and is coordinated statewide through the Residential Management Committee ("RMC") that actively manages and steers the statewide MassSAVE program. The program is delivered by program vendors selected through a competitive bidding process. The Program Administrators are discussing how the structure and relationships will work as new vendors are brought into the Program. The Program Administrators will explore developing a comprehensive "Scope of Work" to be included in the RFP used statewide to ensure vendors adhere to: • Consistent statewide training • Data reporting

Delivery Mechanism (cont.)	• Achieving aggressive savings • Customer satisfaction • Quality Control standards • Scheduling requirements • Technical Assistance • Maintain and report health and safety information Vendors capable of serving large numbers of customers and that have appropriate resources and experience will be included in the bidders list. Work completed by MassSAVE energy service providers and their subcontractors must meet Building Performance Institute standards or similar standards set by the individual Program Administrators. These standards require a systematic approach to home improvement that addresses all aspects of building systems. In order to increase the number of energy efficiency contractors, the program offers an incentive/rebate to contractors who are installing retrofit weatherization measures such as insulation and air sealing. Once approval/certification criteria are determined, a statewide marketing campaign to recruit contractors will begin and a central database of authorized (certified) contractors will be established. Customers are required to have an RCS Site Visit through the Program Administrator's vendor to identify and prioritize all cost effective energy efficiency upgrades in order to receive an incentives or program rebate. All insulation work, whether performed by an authorized independent contractor or a vendor's subcontractor, will have a quality control inspection performed by the Program Administrator vendor when the work is complete. This will ensure that, either through an authorized installer or the Program Administrator's RCS vendor, installations meet BPI standards or similar standards set by the Program Administrators. The RMC members are working together toward a "best practices" approach and to provide a more coordinated statewide training as a means to ensure correct installation techniques for the RCS/MassSAVE Program. It is expected that training requirements will increase over time in order for contractors to retain their status as an authorized program contractor. Contractors must maintain a high level of customer satisfaction to continue in the program.

Delivery Mechanism (cont.)	RMC will apply a "best practices" approach and work together to make quality control an integral part of the RCS/MassSAVE Program. The Program Administrators plan to issue an RFP for a third-party Quality Control ("QC") vendor responsible for performing QC inspections of program implementation vendors, subcontractors, and contractors. The QC vendor will provide valuable information and feedback to the RMC on the program successes and areas that can be improved upon.
Joint Program Administrator Enhancements Planned for 2010-2012	In an effort to further penetrate the residential market, the RCS/MassSAVE program will evaluate the success of pilot programs such as the Marshfield Energy Challenge, the Cambridge Energy Alliance and the Energy Smack-Down and will explore offering similar initiatives within other communities. Also, the Program Administrators, in their efforts to enhance the current services provided, will look to incorporate infrared and blower door testing where applicable.
Program Administrator-Specific Elements	Please see PA-specific filings.

Three-Year Deployment /Road Map	The RCS/MassSAVE program design is undergoing an effort to significantly increase the number of properties serviced by the program, which will also lead to higher energy savings potential. The design will also allow Program Administrators to better capture and utilize property data for the purpose of identifying all available energy efficient measures, as well as targeting marketing efforts. Program Administrators will continue to explore new technologies in conjunction with significantly increasing the implementation of known cost effective measures. Program Administrators intend to increase the number of qualified major measure installers through establishing qualification/training guidelines using the BPI or its equivalent as a benchmark. The RCS/MassSAVE program will undergo an evolutionary redesign with emphasis being placed on reaching more customers while achieving deeper energy savings. Program design issues that are currently being addressed: • The Marketing Evaluation working group is collecting and reviewing marketing data to further promote the program effectively. • The Technical Evaluation working group is determining the cost-effectiveness of new MassSAVE measures, and is screening packages that strategically group measures that leverage customer interest and provide deeper energy savings per home and potentially offer higher incentives. • Developing a Home Energy Use Index that shows in a single number or grade, how the home is performing relative to comparable homes. This is a 2009 metric (Existing Homes Rating) and the Program Administrators are partnering with NEEP to research and develop a rating system for potential incorporation into the MassSAVE program as a pilot in 2010. • Investigate custom incentive approach based on projected savings for the individual home ($ per MMBtu, $ per Kwh) • Identify alternative/new technologies and approaches (*e.g.*, spray foam in attics) as eligible for program rebates • Work to connect additional complementary contractors with the program, find ways to address contractors' "What's in it for us?" concerns • The program is currently funding training that addresses the program workforce needs and will continue to explore how specific technical training requirements can be introduced to training programs across the state

Three-Year Deployment /Road Map (cont.)	• Evaluate other financing options such as on-bill financing and work with all stakeholders to potentially include cost of upgrades on property tax bills • Consider increasing or eliminating the $2,000 incentive/rebate • Evaluate a higher incentive/rebate for landlords • Investigate funding sources to help eliminate health and safety barriers (*e.g.*, knob & tube wiring and other construction related repairs, subject to acceptable cost-effective levels, to increase the installation of energy efficient measures)
Special Notes	The preceding program description is designed to support the successful attainment of the Green Communities Act's energy efficiency investment goals and environmental benefits. Further, it is the intent of the Program Administrators to support the Council and its Consultants through a recognized ongoing iterative planning process to develop and implement plans that meet the objectives of the Council's Priorities Resolution document. This program design is intended to address a number of applicable Council priorities including: • Coordinating with other programs for outreach communication and marketing strategy • Reducing program differences across the Program Administrators • Engaging in open, transparent and competitive solicitation and maintaining high standards of performance and accountability. • Developing an iterative process where learning and improvement is achieved over time. Phasing in new programs, with ongoing re-evaluation and improvement throughout the three-year plan • Ensuring new service providers are trained, achieving quality control, and creating benefits for the

Special Notes (cont.)	Commonwealth from associated job creation and economic growth • Striving to provide customer rebate/incentives that encourage deeper energy savings by modifying customer incentives/rebate levels and incentive caps to encourage the best energy savings. Consider performance-based incentives structure. Add customer incentives for low-tech solutions such as air sealing that result in energy savings. • Striving to maximize seamless delivery to the customer. • Exploring a single number or grade for how the home is performing relative to comparable homes. • Through development of a marketing tool that informs the customer of how far they go over the long-term, putting them on the path to Zero Net Energy, the RCS/MassSAVE will look to further promote near zero energy homes • Coordinating with other programs on integrated website • Continued coordination of trainings to support a sufficient workforce.

Deep Retrofit Single and Multi-Family Pilot

Primary Objective	To investigate the potential for energy savings of at least 50 percent of total on-site energy use through deep retrofits of existing residential buildings and to identify how to reduce the costs and challenges associated with deep retrofits.
Program Inception	This pilot was originally offered as a pilot in the electric Program Administrators' 2009 plans.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Joint vs. Program Administrator-specific offering	Jointly offered program integrated gas and electric including single family and multi-family by 2010. Incentive levels and outreach and program support vendors may vary by program administrator.
Program Design	The "deep energy efficiency" pilot will be consistent with the Governor's Zero Energy Task Force recommendations and will at a minimum explore 1) a new Deep Energy Retrofit Pilot Program of existing buildings achieving 50% energy reductions or more as compared to baseline energy usage and 2) a Zero Energy Pilot Program that encourages diverse paths to Zero Energy, including Passive House or similar programs. This will include a wide range of projects such as single family homes, affordable housing, mid to large multi-family and include a substantial amount of square footage. The design includes a plan to support deep retrofits and to gather information on customer satisfaction, behavior modification, and energy savings. The pilot will help the Commonwealth continue to develop information on appropriate measures for deep retrofits, the correct way to model potential energy savings for deep retrofits, approaches for different housing types, training energy-retrofit contractors, customer education and marketing materials, and financing and incentive levels. Budget permitting, gas utilities will pay incentives for eligible project if primary source of heat is gas. For 1-4 unit homes the electric program administrators will pay incentives for eligible project for non gas-heated homes, and for multi-family (5+ unit) buildings as well, if primary source of heat is electric. There is currently exploration

Program Design (cont.)	by DOER into the possibility of the electric Program Administrators paying incentives for multi-family (5+ unit) projects whose primary heating fuel is oil or propane. Based on the results of this exploration, the electric Program Administrators will consider paying incentives for multi-family projects on a fuel blind basis. In order to achieve the targeted depth of energy savings in these projects it will be necessary to carefully consider the projects' HVAC systems with regard to size, efficiency, air intake and venting mechanisms, overall health and safety issues, and other 'house as a system' considerations. In some cases, in order to reach the highest efficiency levels a complete redesign out of the project's HVAC system may be necessary. On-going program evaluation and case study review of the homes treated will substantially inform the expanded effort in subsequent years. The Program Administrators will coordinate with the RCS/MassSAVE working group on making Deep Energy Retrofit information, including energy and other benefits, available through RCS/MassSAVE educational materials, statewide web content, and through home energy assessments.
Target market	• Home owners, property owners, and property managers considering renovations and willing to invest in extensive carbon reductions • Advanced Remodelers and Builder Remodelers • Architects • Designers • Trade allies • Others involved in renovation or restoration of residential buildings
Marketing Approach	Outreach and marketing to identify and interest potential pilot candidates will be performed through internet research, targeted media outreach, contractor outreach through new homes program, multi-family audit program and potentially through home energy raters and other professionals with appropriate skills. Successful outreach and marketing are essential to the success of the pilot, and so a marketing strategy will be developed to ensure that customers who have the greatest likelihood of pursing a Deep Energy Retrofit are systematically identified and approached about pilot participation. Project selection will be by the sponsoring Program Administrator, based on property owner proposals to

Marketing Approach (cont.)	participate utilizing a qualified project team with a design that meets program defined criteria for optimal energy performance, health, safety and durability, and other criteria. A listing of contractors and designers with appropriate pre-requisite deep energy retrofit related experience as per criteria defined by the Program Administrator working group will be maintained to assist building owners in forming project teams to propose projects. Homes and apartment buildings on which renovations are planned (*e.g.*, siding and/or window replacements) will be targeted. Homeowner investments will be leveraged to maximize the effectiveness of the deep energy retrofits.
Target end uses	To dramatically reduce the amount of energy used in existing residences
Recommended technologies	• Exterior wall super-insulation build-outs • Attic insulation enhancements • Foundation wall/slab insulation • Extensive whole-house air sealing • High-performance windows and storm windows • High-performance lighting, including the use of CFL and light-emitting diode ("LED") technologies • High-efficiency heating and cooling systems • Advanced thermostatic controls • High-efficiency appliances and products • Advanced energy use feedback and monitoring technology • Mechanical ventilation • Solar photovoltaic systems • Solar thermal systems

Financial incentives	High levels of incentives will be offered to ensure that deep retrofits are completed on the targeted number of existing homes and to achieve the desired mix of multi-family and single family demonstrations. Incentives may be tiered based on the number of units in a building. Basic incentives to move the market, based on pilot experience to date, will be a maximum of $42,000 per unit. A higher tier of incentive levels up to an additional $10,000 may be offered for deep energy retrofit projects that approach the highest energy performance standards, for example Net Zero energy, Passive House or Thousand Home Challenge standards. Staged and partial projects will be considered for inclusion in the pilot, and incentives will be scaled accordingly. A 'staged' project is one in which the participant plans to pursue deep energy retrofit levels (over 50% energy use reduction) in stages over a period of time. A 'partial' project is one in which the participant will pursue a substantial energy retrofit but which will fall below the 50% savings target. The HEAT Loan will be made available to pilot participants as an added tool to assist in bringing projects to fruition.
Delivery mechanism	Pilot program services will consist of outreach through a variety of channels to customers including through the existing RCS network to homeowner and to contractors through the residential new construction program. Project design details and assistance to the DER contractors doing the work will be handled through technical specialist organizations under contract and/or utilizing American Recovery and Reinvestment Act ("ARRA") funds. In order for these projects to succeed it will be essential to have extensive technical support and training, since the challenges of retrofitting a building to this degree in a manner that enhances rather than degrades the durability of the structure and the health and safety of the occupants, exceeds to a considerable degree what is involved in RCS or new home construction.
Joint program administrator enhancements planned for 2010 – 2012	Program Administrators will explore creating a second tier of incentives for households participating in the pilot program Thousand Home Challenge and/or approaching near Net Zero energy. This element and each project will be carefully reviewed to identify lessons learned and best practices, as well as to identify and fill gaps in the portfolio of housing types treated to date. Depending upon outcomes of cost-benefit analysis, the pilot may be expanded into a more full scale statewide program.

Program Administrator Specific Elements	Please see PA-specific filings.
Three-Year Deployment/Road Map	• Publicity from completed projects will build interest for more homes, as will training of additional deep energy retrofit contractors. • There are a number of other points of entry that can be explored for timely leads including basement remediation, fire restoration and siding contractors if and when the pilot expands to a wider scale. Identifying how best to enable those contractors to partner with DER experienced contractors and make this work for their business plans is another tactic the pilot will explore. • Identifying lower cost HVAC and mechanical ventilation as well as super-insulated build-out approaches is vital to reducing total project costs. HVAC change-outs are often necessary since sealed combustion or forced draft is a requirement for combustion devices. • There are a number of products including advanced windows, integrated light HVAC, ventilation and water heating products that are ideal for very low energy load homes which are not yet available in the United States market. Through deep energy retrofit projects across New England and California, in particular, the market may grow and more of these technologies may emerge in the United States and can be tested and adopted in the program. • The full value proposition in DER work is not yet accounted for in the BCR models or well known, or in a form that helps to move this market including: far longer measure life than the 28 or 30 year max in current models and enhanced building durability and lower maintenance and insurance costs due to the addition of a rain screen with super insulated wall build out, not to mention improved IAQ and the impact on health costs. Opportunities to quantify and share information on this to better inform BCR analysis and market actor decisions can further the effort to reach pilot goals and climate change goals in the existing homes sector. However this is a large undertaking in some ways beyond the scope of the pilot, perhaps best done in a regional or national context.

Special Notes	In the 2009 pilot, many customers who were passionate about climate change withdrew from consideration, even though forewarned that their costs would likely be equal to or greater than the incentives ($42,000) due to worries about the economy and not being able to recoup their investment in energy savings over time or at time of resale of the property. Financing which is extensive, long term and replicable or is transferable to the next owner is seen by many involved in this market as essential to increase participation, including those who withdrew. Given the economy and scale of total investment for building owners, the pilot goals may only be achieved if considerable additional financing options become available through a wider group effort. The Deep Energy Retrofit working group will coordinate with the Financing and On-bill Repayment working group which is currently exploring financing options. Lifestyle education will be used to reduce appliance use and will be used to leverage selection of desired project (including housing style) types and maximum household energy reductions. If customers who express interest turn out not to be good candidates or opt out the pilot, the customer will be referred to the appropriate energy efficiency program.

ENERGY STAR Lighting

Primary Objective	The ENERGY STAR Lighting and ENERGY STAR Appliances and Products programs are administered jointly in order to streamline processes, maximize retailer and manufacturer relationships, and minimize vendor costs. To increase consumer awareness of the importance and benefits of purchasing ENERGY STAR-qualified lighting products and expand the availability, consumer acceptance, and use of high-quality energy-efficient lighting technologies and controls.
Program Inception	The program was initially offered in 1998. Initially, the Program Administrators focused on retail sales of energy efficient lighting through in-store coupons as well as the mail order channel. Over the years, the program has evolved to utilize upstream incentives, which dramatically increased sales and lowered costs of products for the customer. Additionally, lighting technology has extended past basic compact fluorescent spirals to more specialty products and SSL.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Joint vs. Program Administrator-Specific Offering	Joint
Program Design	The residential ENERGY STAR Lighting Program includes interaction with all the key market players in the residential lighting market, from manufacturers to retail sales staff, with the emphasis on involving upstream

Program Design (cont.)	market players to leverage program resources. The ongoing collection of data on overall market conditions, product availability, market share, and pricing keeps Program Administrators up-to-date on changes in the residential lighting market. That awareness, in turn, enables Program Administrators to adapt program offerings as needed to maintain momentum in increasing the market share of energy-efficient lighting products. The program also supports independent, third-party testing to track, monitor, and ensure high-quality products in the marketplace. This third-party data will also be used in the coordination of lighting with other programs administered by Program Administrators. Additionally, the Program Administrators will continue to work with national and state organizations to collaboratively work on increasingly efficient codes and standards. Historically, the ENERGY STAR Lighting Program has accounted for approximately 65% of the residential sector. In the past several years, with the introduction of the Negotiated Cooperative Program, the influx and sales of CFLs in Massachusetts have grown such that 75% of homes have at least 1 CFL and approximately 20% of the sockets have a CFL. A recent multi-state evaluation study of the current program design also suggests a high level of market transformation for the plain bare spiral CFLs in MA as well as other states across the county. While these new results are preliminary, the Program Administrators are planning the following for the Residential Lighting Program: 1) assume net-to-gross (NTG) ratios of .3 for the bare spirals in 2010 and 0 in 2011 and 2012, and .8, .8, and .65 for specialty bulbs respectively for the 3 years; 2) re-design the program in such a way to maximize savings from specialty bulbs and hard to reach customers. The NTG ratios for hard to reach customers is planned to be .7 for all three years. Currently, 90% of the bulb sales are from the bare spirals. Any program design which limits the sales of these products will have a large impact on our historical performance. Additionally, the Program Administrators are cognizant of the start up in 2012 of the Energy Independence Securities Act (EISA), requiring higher wattage incandescent lighting to have a maximum wattage per lumen. The Program Administrators acknowledge the potential further decrease in the base savings with the implementation of this act beyond 2012. To counteract the drop in savings from CFLs, the Program Administrators are hopeful that solid state lighting products will become more mainstream in the next several years.

Program Design (cont.)	The ENERGY STAR Lighting Program has included several components designed to educate consumers about the benefits of ENERGY STAR-qualified lighting products and to make these products more affordable: • The Internet/mail-order sales channel offers education, rebates, and introductions to new products that may not be available at most retailers, and access to a variety of the sometimes-hard-to-find replacement bulbs. Internet sales account for a high percentage of this component's sales. Recognizing the importance of Internet sales, the Program Administrators are working to improve the Internet/mail-order website as an educational tool for consumers. • The program provides consumer education through the Internet/mail-order sales channel and a separate consumer awareness and education website, point-of-purchase displays in retail stores, and training retail sales staff to provide accurate information to customers and help them select the right products for their specific needs. • The Program Administrators will continue to support mercury awareness efforts and promote a CFL bulb recycling infrastructure at retail stores for consumers. The Program Administrators will work with the Department of Environmental Protection in helping them with recycling efforts and educating customers. The Program Administrators will continue to encourage manufacturers and retailers to promote recycling and provide disposal sites of CFL products at retail stores through our upstream incentive process. Allowing consumers to drop off spent bulbs at retail locations increases consumer awareness provides easy access for consumers and increases the likelihood that these bulbs will be disposed of properly. The Program Administrators will educate customers on the on-line resources available to show customers where and how to recycle at retail locations. Additionally, the Program Administrators will continue to provide increased incentives for low mercury products sold in the marketplace. • A number of incentives make products more affordable for consumers. NCPs include manufacturer and retailer markdowns and buydowns. Program Administrators offer higher financial incentives for the markdown model than for the buydown model because payments are based on actual sales; buydown

Program Design (cont.)	data and payments are based primarily on shipping and receiving documentation. NCPs continue to account for the large majority of products moved through the program — 90 percent in 2009. Another type of incentive, instant rebate coupons, allows retail outlets that are not able or willing to share sales data to participate in the program. These incentive types will be reconsidered along with other new rebate and market models in the redesign of the Residential Lighting Program. • ENERGY STAR-qualified SSL also will be eligible under the program with an emphasis on third-party testing, education, and new avenues for implementation in this market.
Target Market	All residential customers
Marketing Approach	Multiple marketing approaches are being used to increase general awareness among consumers of the benefits of using ENERGY STAR lighting products, to help consumers identify qualifying products in stores, and to provide access to new products. In addition to direct advertising targeting consumers, these approaches include supporting national ENERGY STAR marketing campaigns, like the Department of Energy's and EPA's "Change the World, Start with ENERGY STAR" campaign, and working with industry partners at all levels of the retail supply chain. Specific marketing activities targeting consumers include the following: • Retail marketing and point-of-purchase displays • Print and radio advertising • School/educational fundraising outreach efforts • The Internet/mail-order sales channel • The integrated Massachusetts website • Public relations Work with industry partners at all levels of the retail supply chain, which includes the following: • Leveraging marketing budgets through cooperative promotions with retailers, distributors, and manufacturers, including marketing promotions, cooperative advertising, and special events at retail stores and in communities

Marketing Approach (cont.)	• Training and supporting retail sales staff so they are able to tell consumers about the benefits of using ENERGY STAR-qualified lighting products and to help them choose the best products to meet their particular needs. Promote lighting for hard to reach customers and communities such as ethnic and aging populations. The Program Administrators will work to identify potential hard to reach customers and establish profiles of these population segments in order to maximize outreach and influence with them. There may be language and cultural differences that need to be addressed. The Program Administrators propose to use direct mail marketing to senior centers and retirement communities, develop targeted NCPs towards ethnic retailers, and pilot organized community distribution of ENERGY STAR CFL's and or marketing materials such as door hangers. Other marketing activities that are identified through research and work with the different communities will be explored.
Target End Uses	Residential lighting
Recommended Technologies	Recommended ENERGY STAR-qualified lighting products include: • CFL bulbs and fixtures (and other applicable technologies under the prevailing ENERGY STAR specification). Given a significant increase in specialty bulb promotions, the Program Administrators will monitor the development of the "super lamp" specification being developed by the California Program Administrators. • SSL products • Controls The ENERGY STAR-qualified SSL product was introduced in 2009. These new technologies may necessitate working with new partners and identifying innovative incentive structures and mechanisms.
Financial Incentives	Specific incentive levels are subject to screening and are currently not known. Customer incentives are delivered via rebate or discount pricing through one of four mechanisms: (1) the Internet/mail-order sales channel;

Financial Incentives (cont.)	(2) Joint-sponsored instant rebates regularly available at retailers; (3) Special promotions; (4) NCPs with lighting manufacturers, distributors, and retailers
Delivery Mechanism	A manufacturer/retailer outreach contractor will recruit and train retailers to participate in the program; place point-of-purchase materials and rebate coupons in participating retail stores; oversee the NCP process; and act as a liaison for Program Administrators, manufacturers, and retailers. A rebate fulfillment contractor will collect data and payment requests from manufacturers, retailers, and consumers; process rebate coupons and NCPs; and provide documentation to the Program Administrators for program tracking and evaluation purposes. An Internet/mail-order sales channel contractor will develop and distribute the catalog; purchase and stock products offered through the catalog and the www.estarlights.com website; staff a toll-free line for customers; and process catalog and website purchases.
Joint Program Administrator Enhancements Planned for 2010-2012	As described more specifically in the "Three-Year Deployment" section, the Program Administrators are dedicated to broadening the awareness of the program and also concentrating on a further penetration of the market.
Program Administrator Specific Elements	Please see PA-specific filings.
Three-Year Deployment/Road Map	The direction for the ENERGY STAR Lighting Program faces some unknowns in the upcoming three-year period. First, the per-unit savings may experience a decrease due to net to gross ratios and how to evaluate lighting program savings. Second, federal lighting efficiency standards will begin to phase in starting in 2012. At this time, it is unclear how industry will respond to this federal mandate. The standard may accelerate the

Three-Year Deployment/Road Map (cont.)	adoption of CFLs for many applications, or industry may promote a less efficient technology such as infrared halogen. Finally, the proposed lighting program also assumes limited savings from SSL based on estimates of future product availability and price. However, this technology is evolving very rapidly and cost competitive screw-in replacement lamps may become readily available within the three-year implementation timeframe. For the three-year deployment, the Program Administrators will focus on: • Expansion of the mix of product available in retail • Increased focus on specialty products to reach "deeper" savings for each customer with more options for each socket • Expansion of retailers and other channels for the sale and distribution of efficient lighting • Continuous program offerings over longer horizon periods at retail to assure year-round product availability to consumers. • Innovative approaches to community and corporate events (including hard-to-reach communities) • Phasing-in of qualified products for new technologies that require new entrants and implementation strategies.
Special Notes	The preceding program description is designed to support the successful attainment of the Green Communities Act is energy efficiency investment goals and environmental benefits. Further, it is the intent of the Program Administrators to support the Council and its Consultants through a recognized ongoing iterative planning process to develop and implement plans that meet the objectives of the Council's Priorities Resolution document. This program design is intended to address a number of applicable Council priorities by: • Providing program consistency through this program. • Focusing on maximizing incentive value for consumers and minimizing overhead costs in this program. • Striving to provide all customers with an opportunity to lower utility bills through the purchase of energy efficient lighting products. • Providing greenhouse gas reduction information for consumers. • Striving to produce a variety of lighting rebate offerings for consumers to encourage depth in their purchase of lighting products for their homes. • Striving to provide seamless delivery of this program to customers.

Special Notes (cont.)

- Providing user-friendly program by offering multiple paths/opportunities for participation.

For 2010 planning purposes, the Program Administrators and the Council have agreed to NTGs of .3 (spirals), .8 (specialties) and .7 (hard to reach). For 2010, EM&V results will used in measuring savings for performance incentives, subject to a program level "collar" on the results of 15% up/down. A cap on the upside of the lighting component of 2010 performance incentives in saving and value components of 115%, which does not reduce target or overall pool. This customized approach is transitional and reflects the unique, unexpected results from the current interim draft evaluation and unique issues of the Lighting Program that is in transition

Additionally, for 2010, the Program Administrators have agreed to production goals as follows:

	NStar	National Grid	WMECO	CLC	Unitil	**PA**
Spiral CFLs	122,400	206,800	35,200	31,800	3,800	**400,000**
Specialty CFLs	348,000	475,000	88,000	88,000	1,000	**1,000,000**
Hard to Reach CFLs	153,000	258,500	44,000	39,500	5,000	**500,000**
LED fixtures	1,530	2,585	440	385	60	**5,000**
Indoor Fixture	30,600	51,700	8,800	7,700	1,200	**100,000**
Outdoor Fixture	765	1,293	220	193	30	**2,500**
Torchiere	61	103	18	15	2	**200**
LED lamps	306	517	88	77	12	**1,000**
Screw-in Bulbs - School Fundraiser	50,000	20,000	5,380	4,620	0	**80,000**

These production goals cause alignment of the Program Administrators' production to be more uniformly specific to customer counts. Additionally, the Program Administrators retain reasonable flexibility to adjust costs based on experience.

As the market place for lighting evolves, so too will the design of the lighting program as the Program

Special Notes (cont.)	Administrators attempt to reflect this evolution and to develop some elasticity in the design. The Program Administrators plan on developing this new lighting program, including a proposal addressing standard CFLs, in 2010 and look to file this new design with the Department on or before the 2010 due date for mid-course modifications of October 31, 2010.

ENERGY STAR Appliances & Products

Primary Objective	The ENERGY STAR Lighting and ENERGY STAR Appliances and Products Programs are administered jointly in order to streamline processes, maximize retailer and manufacturer relationships, and minimize vendor costs. To raise consumer awareness of the benefits of energy-efficient ENERGY STAR-qualified consumer products, encourage consumers to purchase qualified appliances and consumer electronics, promote higher efficiency standards for products, and to help customers reduce energy bills by replacing or recycling inefficient products. Historically, the program has focused on the major appliances—such as refrigerators, clothes washers, room air conditioners, and dishwashers—working with local retailers on cooperative promotions, and providing mail-in rebates for consumer purchases. In recent years, electronic devices, additional appliances and other ancillary equipment have become increasingly significant portions of a consumer's energy bill, requiring additional program focus.
Program Inception	The program began in 1998.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Joint vs. Program Administrator-Specific Offering	Joint
Program Design	The ENERGY STAR Appliances & Products Program educates consumers about the benefits of ENERGY STAR-qualified products to increase consumer acceptance of those appliances and consumer electronics and to encourage them to look for and purchase ENERGY STAR-qualified models when they shop. The Program Administrators plan to negotiate with interested manufacturers and retailers to leverage rebate

Program Design (cont.)	and/or marketing funding. The program promotes all high-efficiency ENERGY STAR-qualified appliances at the point of sale by providing promotional literature and displays to retailers, working with sales staffs to ensure they understand and can accurately market the benefits of ENERGY STAR-qualified appliances, and providing labels to identify models that meet ENERGY STAR standards. Select electronics also will be included in these activities. The program supports raising federal and ENERGY STAR standards for appliances by promoting ENERGY STAR-qualified products. As particular ENERGY STAR-qualified products achieve a high share of market sales, the Program Administrators and other interested parties are in a good position to advocate for higher minimum federal and ENERGY STAR energy-efficiency codes and standards. Currently, the Program Administrators, in concert with the DOER, are developing a rebate strategy that will best utilize federal stimulus money earmarked for the purchase of new energy efficiency appliances. This rebate program should be in place by February 2010, and, upon approval, will allow for $6.2 million of stimulus funds to be rebated to consumers who purchase qualifying ENERGY STAR appliances. As of now, rebates for high efficiency clothes washers, dishwashers and refrigerators are the appliances this program targets. The program actively participates in national ENERGY STAR awareness campaigns developed by ENERGY STAR and in efforts to keep ENERGY STAR specifications up to date and relevant. Similarly, the Program Administrators will also work with CEE to develop efficiency tiers above ENERGY STAR for many products. As appropriate, the Program Administrators will support these tiers with higher incentives. This provides greater per unit and customer savings and developing and supporting these tiers also helps accelerate future ENERGY STAR specification revisions. The program will focus on assessing existing appliances as well as screening and implementing new appliances and electronic devices that can reduce the overall energy usage for a consumer.
Target Market	All residential customers

Marketing Strategy/ Approach	With a growing array of consumer products impacting a higher percentage of residential energy costs, the Program Administrators will be providing longer duration rebate promotions of eligible products and will work to introduce new technologies, partnering with manufacturers and other parties to educate consumers and implement programs successfully. A number of approaches will increase general consumer awareness of the benefits of ENERGY STAR-qualified appliances and consumer electronics, to establish ENERGY STAR as the value leader in appliances. In addition to direct advertising targeting consumers, these approaches include supporting national ENERGY STAR marketing campaigns and working with industry partners at all levels of the retail supply chain. Among the specific marketing activities targeting consumers are the following: • Retail marketing and point-of-purchase displays • Print and radio advertising • Public relations • Coordination with the integrated Massachusetts website Work with industry partners at all levels of the retail supply chain includes the following: • Leveraging marketing budgets through cooperative promotions with retailers, distributors, and manufacturers, including marketing promotions, cooperative advertising, and special events at retail stores and in communities • Training and supporting retail sales staffs so they are able to educate consumers about the benefits of using ENERGY STAR-qualified products and to help them choose the best products to meet their particular needs. Satisfied consumers are more likely to purchase ENERGY STAR-qualified products in the future.
Target End Uses	Plug loads, major appliances, and ancillary equipment.
Recommended Technologies	The recommended technologies are cost-effective ENERGY STAR-qualified plug loads, major appliances, and ancillary equipment. In some cases, the Program Administrators will propose CEE Tiers for deeper savings than ENERGY STAR, and in other cases, the Program Administrators will propose to rebate energy efficient equipment before there is an ENERGY STAR label. There may also be additional products identified through

Recommended Technologies (cont.)	other national efficiency efforts. The goal is to have the most comprehensive list of measures in this category that would greatly increase the available number of product categories.
Financial Incentives	The Program Administrators establish all incentives and rebates so that they conform to the benefit/costs screening. Customer incentives are delivered via rebate or discount pricing through one of four mechanisms: • Joint-sponsored rebates available at retailers • Special promotions • NCPs with product manufacturers, distributors, and retailers; and • The Internet/mail-order sales channel for some electronic products.
Delivery Mechanism	A manufacturer/retailer outreach contractor will recruit and train retailers to participate in the program; place point-of-purchase materials and rebate coupons in participating retail stores; oversee the NCP process; and act as a liaison for Program Administrators, manufacturers, and retailers. A rebate fulfillment contractor will collect data and payment requests from manufacturers, retailers, and consumers; process rebate coupons and NCPs; and provide documentation to the Program Administrators for program tracking and evaluation purposes. An Internet/mail-order sales channel contractor will develop and distribute the catalog; purchase and stock products offered through the catalog and the www.estarlights.com website; staff a toll-free line for customers; and process catalog and website purchases.
Joint Program Administrator Enhancements Planned for 2010-2012	As described more specifically in the "Three-Year Deployment" section, the Program Administrators are dedicated to broadening awareness of the program and are also concentrating on a further penetration of the market.
Program Administrator Specific Elements	Please see PA-specific filings.

Three-Year Deployment/Road Map	For consumer products, efforts to broaden categories as well as allow consumers the opportunity to increase the savings in their homes with new technologies provide unique challenges for the Program Administrators. For example, when the Program Administrators introduced incentives for pool pumps in 2009, the Program Administrators met with representatives from industry and discovered that there are unique distributors, installers, training, and equipment for existing products in the program. In order to educate consumers, design a program, and realize savings, the program stakeholders must fully understand the market and the players. Because of these challenges, the Program Administrators will work on phasing-in new technologies while working diligently to expand the program offerings and increase savings for each consumer. Working with manufacturers, distributors, retailers, installers, and consumers, the Program Administrators will work with the best available data to design successful programs. For the three-year deployment, the Program Administrators will focus on: • Expansion of efficient products available in the retail market • Expansion of retailers and other channels for the sale and distribution of efficient products • Continuous program offerings at retail to provide year-round product availability for consumers • Innovative approaches to community and corporate events (including hard-to-reach communities) • Phasing-in implementation of qualified products for new technologies that require new entrants and implementation strategies
Special Notes	The preceding program description is designed to support the successful attainment of the Green Communities Act's energy efficiency investment goals and environmental benefits. Further, it is the intent of the Program Administrators to support the Council and its Consultants through a recognized ongoing iterative planning process to develop and implement plans that meet the objectives of the Council's Priorities Resolution document. This program design is intended to address a number of applicable Council priorities including: • Striving to provide all cost-effective measures through this program. • Providing program consistency. • Planning to phase-in new products and technologies.

Special Notes (cont.)	• Leveraging stimulus funding and other available funding for products in this program. • Focusing on maximizing incentive value for consumers and minimizing overhead costs in this program. • Providing greenhouse gas reduction information for consumers. • Striving to produce a variety of product rebate offerings for consumers to encourage depth in their purchase of ENERGY STAR and energy-efficient products for their homes. Additionally, Program Administrators will strive to use the best available research and analyses to determine the most appropriate incentive levels and market strategies for the various products in this program. • Striving to provide seamless delivery of this program to customers. • Providing user-friendly program by offering multiple paths/opportunities for participation.

Residential Pay & Save Financing/Loan Pilot

Primary Objective	To establish a pilot loan program that creates an alternative financing mechanism for customers to finance the customer contribution cost of the implementation and installation of Energy Efficiency measures. The desired effect is to eliminate a barrier for customers to participate in energy conservation.
Program Inception	New pilot program (see "Special Notes" regarding 2009 Energy Pay and Save Pilot Program).
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Joint vs. Program Administrator-Specific Offering	This pilot is a Joint offering.
Program Design	The program would make funds available to customers to assist in financing energy efficiency improvements and enable customers to repay those loans through their utility bills without interest.
Target Market	To be used by programs designated by Program Administrators.
Marketing Strategy/Approach	Pilot program will be incorporated into the RCS Tier Two audit process.
Target End Uses	Residential customers who install weatherization measures
Recommended Technologies	Non-portable measures

Financial Incentives	Financing the customer contribution assists customers who do not have the ability to pay the customer contribution in full at the time of the installation. It is expected that this incentive will allow for increased customer participation in programs.
Delivery Mechanism	RCS/MassSAVE Program delivery vendors.
Three-Year Deployment / Road Map	Once the pilot program is completed on December 31, 2009, an evaluation of participation levels and cost effectiveness will commence in early 2010. A decision to incorporate this program into 2010-2012 programs will be explored by Program Administrators once the evaluation process completes.
Special Notes	The Program Administrators fully understand that the desired effect of this pilot is to create an "on-bill" financing program available to our customers. The evaluation of this pilot will provide guidance as to how this may be accomplished. Further the Program Administrators will incorporate findings of the Department-approved Energy Pay and Save pilot program offered to residential and small business customers from April 1, 2009 – December 31, 2009 (D.P.U. 09-07) in any new financing initiative that may be developed.

Multi-Family Retrofit Program

Primary Objective	To maximize the acquisition of cost-effective gas and electric energy and demand savings by addressing the informational, economic, institutional, and technical barriers that historically have made the multi-family market a "hard-to-reach" sector. Moreover, the program aims to broaden participation and achieve deeper savings per participant through an incentive structure that encourages such action.
Program Inception	The Massachusetts Program Administrators have offered energy efficiency services to the multi-family sector, through various program designs, since the 1980's.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Joint vs. Company Specific Offering	The Program Administrators are proposing a common statewide program with the goal of offering a consistent customer experience throughout the state. In designing a program for this multi-faceted market, the Program Administrators recognize the need to allow for the flexibility to ensure that the needs of all participants are met.
Program Design	The program design is based upon the following guiding principles: • Participants will initiate a request for all program services through one party, without the need to directly contact multiple program administrators or multiple parties within the same program administrator. Throughout the project life cycle, the participant will have access to a single point-of contact that will facilitate all programmatic communication and coordination. • Eligibility for program measures and services will be based on cost-effectiveness and will not be restricted by the rate class associated with the meter(s) for the facility. • The program is structured to ensure that participants are provided with a "whole building" fully integrated offering targeting both gas and electric end-uses. While on-site, however, all opportunities, regardless of fuel source, will be identified and documented for the customer. All efforts required to deliver a fully integrated gas and electric offering to a participant (the audit will be offered for propane and oil end-uses, however, at this time incentives will be provided only for gas and electric measures), regardless of service territory or rate class, will be performed in a manner that will result in a seamless customer

Program Design (cont.)	experience, thus mitigating the potential for customer confusion and lost opportunities. The cornerstone of the program design involves the services of a Multi-Family Market Integrator who will provide project management services to ensure the seamless delivery of the program phases described below. (Additional detail on the role of the Multi-Family Market Integrator will be described in the section titled Program Delivery.) <u>Participant Screening</u> Delivering energy efficiency services to the multi-family market is challenging because of the many variations in size and construction as well as ownership and decision making structures that exist. The Program Administrators will ensure that the services offered by the program are easily scalable to accommodate simple projects, highly complex projects, and everything in between. In addition, there will be a screening process to identify where along this continuum a project lies. As stated above, some screening data will be available from the web site or lead generator and, in addition, usage data will be supplied by the appropriate Program Administrators (provided authorization from the customer paying the bills is obtained). The remaining screening information will be obtained when the participant is contacted upon enrollment. It is during this discussion, that the Multi-Family Market Integrator will gain a better understanding of the end uses available for treatment and the motivations that drove the participant to solicit energy efficiency services. Armed with this information, the Multi-Family Market Integrator will explain that, in addition to the measures initially requested, a whole building assessment may be performed which will identify other energy savings opportunities. (At this time, incentives will be paid for gas & electric measures only.) By motivating the participant to accept the whole building assessment, the project could ultimately result in deeper savings than otherwise would have been realized. <u>Enrollment</u> Because of the diversity within the multi-family sector and the various market actors that may be involved in lead generation, the program provides for multiple points of entry that will all ultimately provide participants with a comprehensive program offering and a seamless experience. Participants may enroll in the program via telephone, the statewide web site (which is currently under development) or their request for services may be initiated by other parties such as an Account Executive, a contractor, a consultant or engineer. Each participant will need to contact only one party to avail themselves of comprehensive services. Once the Multi-Family Market Integrator is made aware of a project (either via telephone, the web site or lead from another market actor), he or she reviews the information provided from the website screening questions or from the lead generator and then makes the initial contact with the customer and collects further information, as needed, to complete the enrollment.

Program Design (cont.)	Whole Building Assessment Based on the outcome of the screening/enrollment process, the appropriate technical resources will be assigned to conduct a whole building, (fuel blind) assessment. The Multi-Family Market Integrator will attempt, through the screening process, to identify all resources required for the assessment; however, there may be instances where additional expertise is required and further site visits may be necessary. Technical assessments, benchmarking, and engineering studies may be conducted on an as needed basis. Integrated Proposal for Energy Efficiency Services Using the findings from the site-specific assessment, the appropriate parties will draft a project proposal that will include measures, other available services and incentives. At this time, incentives will be provided for gas and electric measures only. Once the comprehensive offer receives Program Administrator approval, it will be presented to the participant by the parties required to help the customer fully understand the offering. Delivery of Measures and Services The Multi-Family Market Integrator will coordinate the delivery of the measures and services opted by the customer. The Multi-Family Market Integrator or other appropriate party will strive to have all dwelling unit measures installed in a single visit to minimize disruption for the tenants; however, multiple visits may be required for the installation of common area measures. Commissioning services will be performed as appropriate. Quality Assurance Quality assurance will be performed in support of this program. Third party independent QA/QC services will be solicited through a competitive bidding process. Currently there are plans for a statewide RFP to be issued to obtain QA/QC services for multiple residential programs, including the Multi-Family program. Customer satisfaction surveys will also be administered to provide additional feedback for the Program Administrators. *Additional Program Design Elements* • Upon request, a comparison of energy usage before and after participation will be provided by the Program Administrators or a vendor under contract to perform these services. • A link to the current EPA Benchmarking tool (Portfolio Manager), or other comparable tool, will be included on the website page(s) associated with the Multi-Family Program. This will allow building owners/managers

Program Design (cont.)	to assess the energy efficiency of their buildings against comparable facilities. • The Program Administrators recognize that proper training for building operator and maintenance staff is a key factor in ensuring that expected savings are realized initially and persist over time. The Program Administrators will sponsor at least two sessions of a multi-family building operator training each year and provide an incentive of up to 50% of the training cost for facility operators . • Representation from the Multi-Family working group will be included on the Deep Retrofit Pilot design team. The Multi-Family Steering Committee will coordinate referrals to the Deep Energy Retrofit Single-Family and Multi-Family Pilot Program.
Target Market	Residential facilities with five or more dwelling units. The program will address the unique circumstances associated with mixed use buildings.
Marketing Approach	The program will be supported by the statewide energy efficiency marketing effort; however, direct outreach to building owners and/or property managers via trade associations will be used as a cost-effective mechanism for communicating with this population. Beginning in November of 2009, the Multi-Family Steering Committee will begin developing a marketing plan to educate customers on the program services to be offered in 2010. The existing program vendors will participate in this session to provide their perspective based on their interactions with customers in the field. The Program Administrators conducted a literature review and focus group study. The results indicate that building owners/managers need to have confidence in the expected outcome from program participation. Once some projects are completed and results from these projects become available, this data can be used to develop simple case studies that can be placed on the web site and in other marketing materials.
Target End Uses	At this time the program targets, through a comprehensive energy assessment, gas and electric end-uses only. Instant savings measures such as energy efficient lighting upgrades and DHW saving devices as well as major measures are included. Under the program re-design, participants will have access to both those measures that are traditionally deemed "residential" and those that are considered "commercial" without any limitations imposed by their rate class/metering. Listed below are the primary end-uses targeted through the program. All cost-effective applications, systems, and building shell improvements that impact gas and electric consumption are eligible for incentives under this program. These include, but are not limited to, lighting, DHW,

Target End Uses (cont.)	building shell improvements, appliances, motors, variable-speed drives, HVAC equipment, energy management systems and building controls, chillers, compressed air, and other site specific end-uses.
Recommended Technologies	Recommended gas and electric technologies offered may include, but are not limited to: • Energy efficient lighting upgrades & controls • Occupancy sensors • DHW measures: low flow showerheads, aerators and pipe wrap • Programmable thermostats • Insulation • Air Sealing • HVAC hi-efficiency equipment upgrades and controls • ENERGY STAR-rated refrigerators and other eligible appliances • Variable Speed Drives • Motors • Chillers • Energy Management Systems (EMS) • Air compressors • Water heating equipment, including Solar hot water heating systems • Combined Heat and Power (CHP) • Heat Recovery Ventilators (HRV) / Energy Recovery Ventilators (ERV) • Custom Technologies Duct sealing measures and heat pump testing and upgrades will be performed through the existing Cool Smart or Cool Choice Program as appropriate. The Multi-Family Market Integrator will work with the customer to ensure that the appropriate services are delivered. These end-uses are best served by contractors specializing in this technology. In addition, there are instances where the customer's warranty may become void if anyone other than the original installation contractor performs work on the system. During program delivery, a packet of additional program offerings (*i.e.*, lighting & appliances) will be made available to participants.

Financial Incentives	There are four categories of incentives including a)100% incentive with $0 customer co-pay; b) fixed incentive and customer co-pay per measure; c) incentive expressed as a percentage of the total installed cost; and d) custom incentives based on the change between existing and replacement equipment. For individual gas and electric measure incentives, see Appendix A. Project caps, which take budget constraints into consideration, will be established by each Program Administrator. The Multi-Family Steering Committee will consider alternative incentive structures specifically designed to encourage deeper savings over time. However, the Multi-Family Working Group, based on their collective experience along with that of their implementation vendors, believes that offering integrated program services will provide for deeper savings than are currently being realized. The Program Administrators' approach involves launching the program using the incentive structure described above. Data on measures not opted for by program participants will be tracked by the Multi-Family Market Integrator and assessed by the Multi-Family Steering Committee. The Program Administrators believe that implementing this approach will allow for assessing where program incentives may need to be enhanced based on in-the field program experience. In addition to the measure-level incentives described above, the Program Administrators will provide funding for "soft costs" including building operator training and technical assistance for those projects requiring an engineering study. The Program Administrators recognize that proper training for building operators and maintenance staff is a key factor in ensuring that expected savings are realized initially and persist over time. The Program Administrators will sponsor at least two sessions of a Multi-Family building operator training each year and provide an incentive of up to 50% of the training cost for facility operators. Incentives may also be paid to offset the costs of gas and electric engineering studies. The Program Administrators will examine the potential for offering on-bill financing to program participants. This assessment will take into consideration the unique characteristics of the Multi-Family market (*i.e.*, the owner of the facility may responsible for the co-pay, but the energy bills may be paid by the tenants. The owner may not even be a customer of the Program Administrator). To assist building owners and managers with their planning efforts, the Program Administrators will commit to project-specific funding for up to one year for pre-approved projects with signed service agreement by customer, subject to regulatory and funding constraints.

<table>
<tr><td>Delivery Mechanism</td><td>The program will be administered cooperatively by the gas and electric Program Administrators. Collectively, the Program Administrators will form a Multi-Family Steering Committee which will be responsible for program oversight and promoting continuous improvement/best practices with regard to the Multi-Family market.

As stated in the Program Design section, the Multi-Family Market Integrator role will be key to the delivery of this fully integrated statewide program. The role was specifically created to ensure a seamless customer experience for participants regardless of the fuels, rates and service territories involved in a project. The Multi-Family Market Integrator will be responsible for facilitating the delivery of program services as well as acting as the conduit through which participant questions and concerns are directed to ensure that participants are not required to directly contact multiple parties during the project lifecycle. A comprehensive scope of work has been prepared for the Multi-Family Market Integrator role and a vendor will be selected via a competitive bidding process.

Provisions will be made within the delivery process to allow for participants to use their own staff or contractors to install the measures, provided that they have Program Administrator approval which will involve providing documentation of their qualifications prior to the installation.</td></tr>
<tr><td>Joint Program Administrator Enhancements Planned for 2010-2012</td><td>N/A</td></tr>
<tr><td>Program Administrator-Specific Elements</td><td>Individual Program Administrators are encouraged to conduct pilot programs designed to allow for the evaluation of alternative program designs or specific technologies, especially those that encourage deeper savings. Findings from these pilots will be shared with the entire Multi-Family Steering Committee and will be assessed to determine if enhancements to the current program design should be made based on the results of the pilots.</td></tr>
<tr><td>Three-Year Deployment/Road Map</td><td>Provided below is the roadmap for the completion of the program design and program implementation.

PHASE I – PROGRAM PLANNING
<table>
<tr><th>Task Description</th><th>Target Completion Date</th><th>Deliverable</th></tr>
<tr><td>1. Prepare scope of work for Multi-Family Market Integrator services.</td><td>Completed 9/09</td><td>Work scope for Multi-Family Market Expeditor services.</td></tr>
</table>
</td></tr>
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Three Year Deployment/Road Map (cont.)			
	2. Document process based on Multi-Family Market Integrator scope of work	10/31/09	Process Flow
	3. Create Marketing Plan	12/31/09	Marketing Plan including support provided by statewide marketing effort as well as additional communications to be funneled through trade organizations within the Multi-Family community.
	4. Finalize bidder list for Multi-Family Market Integrator	12/31/09	Vendor list
	5. Begin monthly Multi-Family Steering Committee Meetings	1/31/10	Agenda and meeting notes
	6. Vendor Selection for Multi-Family Market Integrator	6/1/10	
	a. Update scope of work (if required) based on regulatory ruling on the Plans	2/8/10	Final SOW
	b. Issue RFP	2/16/10	RFP
	c. Bids due	4/1/10	Bidder proposals
	d. Vendor selection	5/5/10	Notice to procurement staff of vendor selected
	e. Contracts with each PA signed	6/1/10	Signed contracts
	7. Individual Program Administrators develop internal plans to implement statewide program	7/15/10	

PHASE II – PROGRAM IMPLEMENTATION

Task Description	Target Completion Date	Deliverable
1. Implement common statewide incentives	1/1/10	
2. PAs that share a service territory will work together to provide integrated gas and electric energy efficiency services to customers being served prior to implementation of the formal	1/1/10	

Three-Year Deployment/Road Map (cont.)

Multi-family Market Integrator role.		
3. Implement Marketing Plan	Jan.- June 2010	Marketing materials and schedule for delivery
4. Kick-off meeting with Multi-Family Market Integrator	6/2/10	Agenda and meeting notes
5. Conduct training for PA and vendor staff	7/5/10	Documented completion of this task
6. Preparation of all program materials	7/5/10	Program materials
7. Program Implementation	7/15/10	Notification of program launch
8. Monthly Multi-Family Statewide Executive Committee Meetings	Ongoing	Meeting notes distributed to all participating Program Administrators
9. Standardize gas C&I measures and incentives (please see footnote in Appendix A)	For 2010 Program Year	Updated measure and incentive list

PHASE III – PROGRAM ASSESSMENT

Task Description	Target Completion Date	Deliverable
1. Annual Multi-Family Statewide Executive Committee review of program successes and lessons learned with results feeding back into modifications to the program design as required.	2011- 2012	Narrative to be included in annual PA plan updates.

Special Notes

To provide a fully integrated energy efficiency offering, the program design is being developed by a cross-functional team including the Consultant and Program Administration staff representing gas and electric fuels, with experts from both the residential and C&I sectors. To best utilize the expertise of each member of the team, the following sub-groups have been formed.

Special Notes (cont.)	The Technical sub-group is responsible for identifying the end-uses and associated technologies that are appropriate for the Multi-Family market. This sub-group is also responsible for developing incentive structures intended to achieve greater participation and deeper savings. The Evaluation sub-group was charged with building on the success of the April 2009 Multi-Family Workshop to obtain a greater understanding of the "market rate" sector. This assisted the Program Administrators in developing strategies to overcome market barriers and thus achieve increased participation and deeper savings. To this end, the Program Administrators contracted with Nexus Market Research to conduct focus groups as well as in-depth interviews with program administrators throughout the country. Additionally, the Program Administrators participated in pertinent webinars sponsored by organizations such as the Association of Energy Service Professionals (AESP) and ESource . • "50 Homes in One: Multi-family Efficiency Programs", on July 8, 2009, with speakers from Conservation Services Group, Wisconsin Energy Conservation Corp., Cambridge Energy Alliance, Pacific Gas & Electric, Commonwealth Edison, and NYSERDA. This program is being sponsored by ESource. • "Serving the Multi-family Market: New Construction to Existing Buildings to Policy Programs" on August 6, 2009 with speakers from the Wisconsin Energy Center, NYSERDA and the Heschong Mahone Group. This program is being sponsored by AESP. This program description has addressed each of the items included in the Council's Priorities Resolution. A summary of how these issues have been addressed is provided below for ease of reference. • "The PAs are encouraged to define "multifamily" as a building with more than four units". o The target market for this program is a facility with 5 or more units. • "The PAs are encouraged to work in conjunction with the Consultant to determine how to implement a program that from a customer's perspective will be blind to whether building meters are commercial or residential". o Participants will have access to incentives for all cost-effective measures offered through the program regardless of billing rate.

Special Notes (cont.)	• "The PAs are encouraged to work in conjunction with the Consultant to determine how to ensure that customers participating in the Multifamily Initiative need to fill out only one application for a given multi-family property and be required to interact with only one utility-related service provider or partner. For purposes of the multifamily program, the PAs are encouraged to define "property" as all buildings within a given property, regardless of the number of meters on that property. If the customer is not the building owner or landlord, the PA should seek to involve other customers on the property, whether other customers in the same development". o The Multi-Family Market Integrator will take the information necessary for the customer to apply for all eligible program services, so there will be no need for the customer to contact multiple parties to initiate a request. o The term property will not be limited to individual buildings, but rather can mean, where appropriate, a group of buildings. o The Program Administrators plan to involve tenants in the process, for example providing them with energy education. • "The PAs are encouraged to develop mechanisms, including outreach and education to landlords to demonstrate the benefits of undertaking energy efficiency and provide equitable sharing of the costs and benefits of energy efficiency improvements". o The marketing strategy for this program will include targeted outreach to the Multi-Family community. • "The PAs are encouraged to offer technical assistance in the form of audits, design assistance, commissioning, and training, and cash incentives based on building performance in the Multifamily Initiative". o As stated above, the program includes technical assistance in the form of a "whole building" assessment to identify opportunities regardless of fuel. Incentives are provided for cost-effective gas and electric measures. • "The PAs are encouraged to explore a Multi-family Initiative deep energy retrofit track". o There will be representation from the Multi-Family Steering Committee on the program design team working on the Deep Retrofit Pilot to assess opportunities in facilities with five or more dwelling units.

Special Notes (cont.)	• "To ensure the highest level of quality and consistency, the PAs are strongly encouraged, in conjunction with the Consultant, to research, analyze and report their findings to the Council requiring the accreditation of all auditors of multifamily facilities and associated contractors, through rapid but thorough review of successful models in other areas of the country including but not limited to New York, Wisconsin, Ohio, and the Pacific Northwest, and through researching BPI and other accreditation entities". o The Program Administrators recognize the role that having trained professionals perform assessment and install measures plays in realizing expected savings. Primary vendors contracted by the Residential Program Administrators are required to have BPI certification or the equivalent. Sub-contractors will work under the supervision of the primary vendor. Primary vendors contracted by the C&I Program Administrators are required to meet all local, municipal and state licensing requirements. • "PAs are encouraged to examine the experience of NYSERDA and other states' multifamily programs". o The Massachusetts Program Administrators held a conference call in April 2009 with NYSERDA and their Program Administrator to gain a better understanding of their delivery model. o In preparation for the Multi-Family Workshop, the facilitator conducted best practice research and presented their findings to the workshop participants. o In June 2009, the Program Administrators retained the services of a market research firm to conduct focus groups and in-depth telephone interviews pertaining to multi-family programs across the country. o Two nationwide webinars pertaining to Multi-Family programs were attended by representatives from the Program Design Working Group to review best practices.

APPENDIX A – FINANCIAL INCENTIVES TABLE -ELECTRIC

MEASURE	INCENTIVE
Instant Savings Measures	
Compact fluorescent light bulbs Energy Star rated light fixtures for within units Domestic hot water saving devices, such as faucet aerators and showerheads Programmable thermostats Air sealing Pipe insulation Smart strips Night lights	No Cost to Customer
Fixed Incentive or Customer Co-pay per Installed Measure	
Energy Star rated light fixtures for interior and exterior common areas	$10 co-payment per fixture
Metal Halide Pulse Start lighting	$70 incentive per unit
Daylight Dimming	$40 per ballast
Fluorescent HiLow dimming	$40 per ballast
Occupancy Sensors Remote mount	$75 per control
Occupancy Sensors Wall Mount	$25 per control
HIF and HID Wall Mounts	$25 incentive per unit

HIF and HID Ceiling Mounts	$75 incentive per unit
Exit signs	$10 incentive per unit
Brushless Fan Motors	$300 incentive per unit
New ENERGY STAR-rated refrigerator	$150 incentive toward the cost of a new ENERGY STAR-rated model
Motors – 1-200 HP	$45-$700.
Air conditioning 1-30 tons	Provided through the Cool Choice Program. (No rooftops unless broken.)
Dual Enthalpy Controls	$250 incentive per unit
ECM Fan Motor	$150 incentive per unit
Demand Control Ventilation:	$150 incentive per unit
Chillers- Air & Water Cooled (up to 1000 tons)	Incentives vary (No chillers unless broken)
HVAC – EMS up to 40,000 sq.ft. building:	$225 incentive per unit (limit 16 pts.)
HVAC – EMS 40,001 – 80,000 sq.ft. building	$300 incentive per unit (limit 48 pts)
HVAC – EMS 80,001 – 200,000 sq.ft. building	$200 incentive per unit (limit 128 pts)
VSDs 5-100 hp:	Incentive between $1,500 and $7,300
Air compressors:	Incentives vary and likely will not apply to multi-family
Refrigerated Beverage – Vending	$75 incentive per unit (If there is an existing unit only)
Non-refrigerated Vending	$30 incentive per unit (If there is an existing unit only)

Refrigerated Glass Front Vending	$75 incentive per unit (If there is an existing unit only)
CHP	Provided through the CHP program
Incentive Expressed as a Percentage of Total Installed Cost	
Attic insulation for electrically heated homes Wall insulation for electrically heated homes Basement/crawl space insulation in electrically heated homes Rim joist insulation	75% incentive
Custom Incentive Based on Change Between Existing & Replacement Equipment	
High Performance Sodium Lighting:	Incentive based on wattage reduction
Other Custom Technologies	Up to 50% incentive based on BCR analysis

Multi-Family 4-8 Story New Construction Program

Primary Objective	To broaden participation and achieve deeper savings in the multi-family new construction 4-8 story category through a program and incentive design that encourages such action.
Program Inception	The Program Administrators have offered energy efficiency services to the multi-family sector through multiple programs implemented separately by the commercial, residential, electric and gas Program Administrators.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Joint vs. Sponsor-Specific Offering	The Program Administrators are proposing a common statewide program with the goal of offering a consistent customer experience throughout the state.
Program Design	The cornerstone of the program design involves a Prescriptive Whole Building program and the services of a Multi-Family Market Integrator (MMI) who will provide project management services to ensure the seamless delivery of the program as described below. The program design was developed based on the same guiding principles as the Multi-Family Retrofit Program. Refer to "Program Design" section of the Multi-Family Retrofit description. <u>Participant Screening</u> There will be a well-defined screening process administered by the MMI to identify the participant's need for a particular project. Based on size and the inclusion of both residential and commercial measures, units will be eligible for this program.

Program Design (cont.)	Enrollment Participants may enroll in the program via a request for services initiated by themselves or by other parties such as a Program Administrator account executive, a contractor, a consultant or engineer. Prescriptive Whole Building Approach This program will present both commercial and residential measures to the participant in a single offering. All fuels will be considered however at this time incentives will be provided only for gas and electric measures. The MMI would support the participant in selecting the measures best suited to their individual energy efficiency goals for the project. Modeling would not be required to implement the program, as deemed savings would be determined based on modeling prototype buildings. Savings will be documented in kWh and therms. Savings will be attributed to the measures installed for ease in reporting and distributing the savings between residential and commercial sectors as required by each Program Administrator. Technical assistance and engineering studies will be conducted, as needed, for projects implementing custom measures not included in the prescriptive menu. Integrated Proposal for Energy Efficiency Services The MMI will coordinate a single project proposal that will include measures, other available services, and incentives for both gas and electricity (where applicable). Once the offer has Program Administrator approval, it will be presented to the participant by the MMI and any additional staff required to help the customer fully understand the offering. The MMI will ensure that any additional questions are brought to the appropriate party and facilitate the communications necessary to respond to the inquiries. The MMI will collect all supporting documentation required by the Program Administrator to approve the project proposal. Delivery of Measures and Services Upon execution of the participant agreement, the MMI will monitor the progress of construction and notify the Program Administrator to schedule post-installation inspections. Commissioning services will be supplied as required.

Program Design (cont.)	Quality Assurance Customer satisfaction surveys will be administered to provide additional feedback for the program administrators. *Additional Program Design Elements for Consideration* The Program Administrators recognize that proper training for building operators and maintenance staff is a key factor in ensuring that expected savings are realized. As such, the Program Administrators will assess the feasibility of offering incentives for applicable trainings. For consideration, the stretch code will provide multiple baselines by community throughout the state, which may impact cost-effectiveness of measures. This will be addressed in the general section on codes and standards.
Target Market	This program targets multi-family new construction projects in the 4-8 story category.
Marketing Strategy/Approach	The program will be supported by the statewide energy efficiency marketing effort; however, direct outreach to building developers and designers via trade associations will be used as a cost-effective mechanism for communicating with this population. In addition to the project management duties of the MMI, individual Program Administrators may choose to include marketing and promotional activities in the Scope of Work ("SOW") of the MMI. In any case, it will be important that all marketing collateral have a consistent visual "brand" that is presented across the Commonwealth.
Target End Uses	The program essentially targets, through a whole building approach, the installation of cost-effective measures, such as energy efficient lighting upgrades, building shell improvements, high performance HVAC systems and domestic hot water.
Recommended Technologies	Technologies to be evaluated for inclusion in the final program, include, but are not limited to: • Installation of energy efficient lighting upgrades & controls • Domestic hot water saving devices, such as low flow showerheads, aerators, and pipe wrap

Recommended Technologies (cont.)	• High efficiency HVAC systems • Increased levels of insulation • Air and Duct Sealing • ECM Motors • Renewable technologies, as appropriate and cost-effective
Financial Incentives	The Program Administrators will be evaluating various incentive structures and incentive levels to encourage increased participation and deeper savings. Specifically, incentives will be developed from the measure list described above. In addition, the Program Administrators will explore incentives for soft costs such as technical assistance and owner/operator training.
Delivery Mechanism	Program design and implementation will remain the responsibility of the Program Administrators. Collectively the Program Administrators will form a Multi-Family Steering Committee (MSC) which will be responsible for program oversight and promoting continuous improvement and best practices with regard to the multi-family market to insure a consistent customer experience across service territories.
Joint Program Administrator Enhancements Planned for 2010-2012	N/A
Program Administrator-Specific Elements	Please see PA-specific filings.

Three Year Deployment/Road Map	The multi-family program design effort is expected to create a platform for gas and electric integration that may be adopted or modified as required by other programs. Please refer to the Multi-Family Retrofit Program for program roadmap details.

Special Notes	In order to provide a fully integrated energy efficiency offering, the program design is being developed by a cross-functional team including Program Administrator staff representing gas and electric fuels, with experts from both the residential and C&I sectors.
	
	The preceding program description is designed to support the successful attainment of the Green Communities Act energy efficiency investment goals and environmental benefits. Further, it is the intent of the Program Administrators to support the Council and its Consultants through a recognized ongoing iterative planning process to develop and implement plans that meet the objectives of the Council's Priorities Resolution document. This program design is intended to address a number of applicable Council priorities including:
	
	• "The PAs are encouraged to define "multifamily" as a building with more than four units".
	  o The target market for this program is a building with five or more units.
	
	• "The PAs are encouraged to work in conjunction with the Consultant to determine how to implement a program that from a customer's perspective will be blind to whether building meters are commercial or residential".
	  o Participants will have access to incentives for all cost-effective measures offered through the program regardless of billing rate.
	
	• "The PAs are encouraged to work in conjunction with the Consultant to determine how to ensure that customers participating in the Multi-Family Initiative need to fill out only one application for a given multi-family property and be required to interact with only one utility-related service provider or partner. For purposes of the multifamily program, the PAs are encouraged to define "property" as all buildings within a given property, regardless of the number of meters on that property
	  o The MMI will take the information necessary for the customer to apply for all eligible program services, so there will be no need for the customer to contact multiple parties to initiate a request.
	  o The term "property" will not be limited to individual buildings, but rather can mean, where

Special Notes (cont.)	appropriate, a group of buildings.
	
	• "The PAs are encouraged to develop mechanisms, including outreach and education to landlords to demonstrate the benefits of undertaking energy efficiency and provide equitable sharing of the costs and benefits of energy efficiency improvements".
	  o The marketing strategy for this program will include targeted outreach to the multi-family community.
	
	• "The PAs are encouraged to offer technical assistance in the form of audits, design assistance, commissioning, and training, and cash incentives based on building performance in the Multifamily Initiative".
	  o As stated above, the program includes technical assistance to evaluate custom measures.
	
	• "PAs are encouraged to examine the experience of NYSERDA and other states' multifamily programs".
	  o The Massachusetts Program Administrators held a conference call in April 2009 with NYSERDA and their program administrator to gain a better understanding of their delivery model.
	  o In preparation for the multi-family workshop, the facilitator conducted best practice research and presented their findings to the workshop participants.
	  o In June 2009, the Program Administrators retained the services of a market research firm to conduct in-depth telephone interviews pertaining to multi-family programs across the country.
	  o Two up-coming webinars pertaining to multi-family programs will be attended by representatives from the Program Design Working Group.

Low-Income Residential New Construction

Primary Objective	To capture lost opportunities, encourage the construction of energy-efficient homes, and drive the market to one in which new homes are moving towards net-zero energy.
Program Inception	Since 1998, Program Administrators have included low-income new construction into the residential low-income new construction.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Joint vs. Program Administrator-Specific Offering	Joint
Program Design	The Program Administrators continue their strong commitment to a comprehensive whole-house approach for the Massachusetts New Homes with ENERGY STAR Program. The program is committed to achieving both a broader market penetration of energy-efficient homes as well as deeper energy savings where possible. The Program Administrators strive to retain participating builders and recruit new ones. Homebuilders must target ENERGY STAR certification for all homes submitted to the program. However, the program will also provide incentives for CODE Plus (a level above Massachusetts State Code but shy of the ENERGY STAR certification standards) as an avenue for broader reach as an entrée to ENERGY STAR. Direct installation of ENERGY STAR-qualified CFLs in appropriate hard wired sockets, on-site training, and a final verification inspection is required for all homes participating in the program. All projects four units and fewer will be identified as single family, and all projects five units and greater will be classified as multi-family. Buildings that are five stories or fewer that are permitted under the residential use group are eligible to participate in the program and to be certified as an ENERGY STAR-qualified Home.

Program Design (cont.)	Mixed-use (Residential/C&I) Buildings may participate if they are permitted in the commercial use group as long as: (1) the entire structure is five stories or fewer and (2) the space conditioning and water heating systems are not shared between the residential and commercial spaces. Additional qualifications for program participation are: **ENERGY STAR Certification:** • ENERGY STAR compliance with a HERS Index of 85 or less for ENERGY STAR Tier I and a minimum modeled improvement over the current Massachusetts Baseline Home/UDRH of at least 30 percent and 60 percent respectively for ENERGY STAR Tiers II and III. Three tiers of ENERGY STAR certification will be offered in the 2010 program. The criteria for each tier are listed in the Financial Incentives section. • Meeting the envelope leakage and duct leakage criteria. • Successful completion of a TBC and additional checklists as introduced by the EPA for version III of the national ENERGY HOMES standard. • Meeting the EPA's ENERGY STAR homes qualifications and/or the most rigorous standard available at the time (see www.energystar.gov/index.cfm?c=new_homes.hm_index). • Program required percentage of CFL installations. **Code Plus Certification:** • Meeting envelope leakage and duct leakage criteria • Program required percentage of CFL installations
Target Market	• Homebuilders • Contractors • Architects/designers • Trade allies • HERS raters • Homebuyers • Realtors • Developers • Low-income and affordable housing developers

Target Market (cont.)	• Code officials • Consumers (in the market for new homes and or major renovations)
Marketing Strategy/ Approach	The program will continue to educate homebuilders, consumer, and trade partners regarding the energy saving benefits, and value of ENERGY STAR-qualified homes. Marketing efforts will focus on: homebuilder recruitment, continued training and support, public relations, and the implementation of large scale multi-media advertising campaigns geared toward homebuilders, consumers and trade ally groups. The program will continue to support development of leads through building permit lists in cities and towns throughout the Commonwealth. These lists will be provided to market-based raters to use as prospecting tools. Hosting, sponsoring and attending various trade show exhibitions and homebuilder conferences remain crucial to marketing the program. The program's multi-media advertising campaign will include vehicles such as: strategic television partnerships with local affiliate or cable programming providers, radio live reads and on-air interviews, print advertising in builder and trade publications, direct marketing via email/fax lists and a heavy online advertising presence which includes comprehensive social media outlets. The program will participate in the new statewide consolidated website that will further promote the program and aid in cross program promotion. There will continue to be heavy emphasis on "earned media" and editorial PR involvement to ensure market penetration and an increased program capture rate. In addition, individual Program Administrators will use targeted marketing as needed to meet program participation and spending goals.
Target End Uses	• ENERGY STAR-qualified heating and cooling systems, lighting, appliances and windows • Increased levels of insulation using better materials, *i.e.*, blown in and/or foam board • Improved construction techniques to minimize air leakage, duct leakage, infiltration, and heat loss • Improved HVAC installation techniques and guidelines • Incorporate mechanical ventilation • Renewable ready-PV/Solar Thermal
Recommended Technologies	• ENERGY STAR-qualified heating and cooling systems, lighting, appliances and windows • Increased levels of insulation using better materials, *i.e.*, blown in and/or foam board • Improved construction techniques to minimize air leakage, duct leakage, infiltration, and heat loss • Improved HVAC installation techniques and guidelines • Incorporate mechanical ventilation

Recommended Technologies (cont.)	• Renewable ready-PV/Solar Thermal
Financial Incentives	Incentive levels may be adjusted to respond to market conditions. Current levels are shown in the table below. In addition, free ENERGY STAR-qualified CFL products are provided for each home. Participating homes are currently eligible for the following incentives which the program processes in addition to base incentives. This program will coordinate with other programs such as MassSAVE, GasNetworks, and CoolSmart. Please refer to those other filing sections for specifics. • Income eligible participants receive $100 incentive for an ENERGY STAR-rated dishwasher and refrigerator.

Package	**Requirements**	**Single-Family Incentive[1]**	**Multi-family Incentive[2]**		
			5-99 units	**100-199 units**	**200+ units**
CODE Plus	6 ACH CFM 50, 8 percent duct leakage	$325	$225	$225	$225
ENERGY STAR	ENERGY STAR compliance with a HERS Index of 85 or less	$750	$650	$500	$350
ENERGY STAR II	ENERGY STAR compliance with a HERS Index of 85 or less and 30% improvement or better over the	$1,250	$1,150	$850	$550

	Massachusetts UDRH				
ENERGY STAR III	ENERGY STAR compliance with a HERS Index of 85 or less and 60% improvement or better over the Massachusetts UDRH	$8,000	$4,000 [3]	$3,000 [3]	$2,000 [3]

[1] Starting in 2010 the program will define a single-family home as a structure that contains between one and four units.

[2] Starting in 2010 the program will define a multi-family home as a structure that contains five or more units.

[3] Energy Star III Multi-family projects will be reviewed for final fee structure, listed are the maximum incentives paid by Program Administrators.

Delivery Mechanism	The program is administered by a Program Administrator in each service territory and coordinated regionally through the JMC. The JMC, through a competitive bid process, choose an implementation contractor to oversee the day-to-day operations of the program statewide. The contractor is responsible for tracking and reporting program activity to the respective JMC Program Administrators. The contractor will also conduct quality assurance/quality control of field activities and advise the JMC on necessary program changes and enhancements. Throughout the planned timeframe, the JMC plans to continuously strive towards a market-based network of trained contractors who offer energy-efficiency and rating services to homebuilders for a fee. The Program Administrators may consider continuing to support rater fees for low-income projects in their service territories. The program recognizes the new emphasis on training necessary to make this program successful, as well as to support workforce development efforts through the Green Jobs Act. The program will support training of increased frequency and greater depth in the fundamentals of building science and the latest available technologies, including those for air sealing and insulation. The contractor will be a HERS provider of last resort to help new raters become established as part of the open market structure.

Joint Program Administrator Enhancements Planned for 2010-2012	• The Program Administrators are currently working together to identify a way to provide complete support to multi-family structures five stories or fewer. The Program Administrators will consider allowing master metered electric buildings to participate in the program, as they are ineligible currently. • The 2009 major renovation pilot projects being conducted by the Program Administrators will provide further understanding for the JMC to garner greater savings by administering a Major Renovation Program during 2010-2012. A plan for a consistent unified program--either within RCS or within new construction--will be part of the October filing for the 2010-2012 three-year Plan. • Support code amendments that add to energy efficiency • The program will promote building science technologies which help interested homebuilders construct zero energy homes. • Support workforce development efforts through Green Jobs Act by encouraging new raters to enter into the marketplace.
Program Administrator-Specific Elements	Please see PA-specific filings.
Three-Year Deployment/Road Map	For new construction, the efforts to achieve both deeper savings and gain broader market penetration will continue through multiple tiers of participation, one of which continues to push homes closer to net zero energy. These goals are daunting given the downturn in the economy and the resultant slow down of the building market. However, the program will have significant resources dedicated to "putting feet on the ground" to promote the program and support participating builders and other key stakeholders in the residential new construction market. For the three-year deployment, the Program Administrators will focus on: • Expansion of the current HERS rater network of nine competing companies • Moving closer to a fully market-based program where Program Administrators reduce and ultimately phase out subsidies to raters shifting those monies directly to builders who, in turn, will negotiate directly with raters for associated fees to rate homes • Expansion of the base of participating builders • Continued expansion of existing and new market allies • Training the market effectively in order to stay ahead of the introduction of more stringent building codes as well as new versions of the national ENERGY STAR Homes which will be significantly harder to achieve

Three-Year Deployment/Road Map (cont.)	• Collaboration with Green Communities through technical support • Continued ramp up of consumer awareness The Program Administrators, in conjunction with the Consultants and LEAN, will be performing an assessment of the multi-family programs in Massachusetts. Because the target market for this program includes multi-family customers, the results of the statewide assessment may apply here. For low-income multi-family projects, the assessment will include the evaluation of strategies to serve low-income multi-family buildings in a manner that is fuel-blind, meter-blind, and integrates low-income, residential, and commercial programs, as appropriate, with, a minimal or no co-payment pending a review of the budget impacts by each Program Administrator.
Special Notes	The preceding program description is designed to support the successful attainment of the Green Communities Act's energy efficiency investment goals and environmental benefits. Further, it is the intent of the Program Administrators to support the Council and its Consultants through a recognized ongoing iterative planning process to develop and implement plans that meet the objectives of the Council's Priorities Resolution document. This program design is intended to addresses a number of applicable Council priorities including: • Coordinating with other programs for outreach communication and marketing strategy • Performance-based incentive structure, Third Tier • Comprehensive program delivery through Joint Management Committee integrating gas and electric Program Administrators in a fuel-blind nature • Through tier development and refinement informed by the 2008-09 Zero Energy Challenge, the JMC will look to further promote near zero energy homes • Coordinating with other programs on integrated website • Market-based HERS Rater Model, Trainings, and Technical Assistance

Residential Low-Income Electric Single Family Program

Primary Objective	To deliver energy efficient products and services directly to the homes of income eligible customers to help them lower their energy bills to achieve deeper and broader energy savings.
Program Inception	Some Program Administrators' low-income programs date back to the early nineties. Since 1998, Program Administrators have been working with LEAN to improve the low-income program and increase funding. From this emerged the Best Practices Working Group, as a vehicle to provide a more coordinated statewide low-income program and to ensure correct installation techniques for the program. Working with the Best Practices Working Group, the Program Administrators have broadly expanded the measures offered in the program and have arranged for contractor training to implement such measures. A 2002 Low-Income Market Research Study recommended the following strategies to minimize barriers: statewide marketing of programs through a central source; extend outreach to more areas such as health services, social service agencies, and rental offices at apartment complexes; expand marketing efforts to regional and local newspapers; and offer marketing in languages not currently available. To address some of these barriers, the program has: 1) broadened from Program Administrators and Low-income Weatherization and Fuel Assistance Program Network ("Network") agencies' outreach and mailings to a statewide coordinated approach to help increase awareness and customer education regarding technologies and benefits including local media; 2) increased the guidelines for participation to include households with annual incomes at or below 60% of the state median income levels to assist customers with limited funds the cost of energy saving improvements; and 3) increased efforts to serve low-income renters.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Joint vs. Program	This program is offered jointly with each Program Administrator having individual administrative processing.

Administrator-Specific Offering	
Program Design	The Program Administrators, in collaboration with LEAN, state organizations such as the DHCD and Network agencies, make up the Best Practices Working Group. The working group's objective is to collaborate and coordinate on all aspects of the low-income program, including but not limited to planning, delivery, implementation, standardization, education, marketing, training, cost effectiveness, evaluation, and quality assurance. This program piggybacks on the current DHCD low-income energy efficiency program. Once customers are deemed eligible, they will receive an in-home energy assessment from their local Network agency. The Network agency will then arrange for weatherization and other services to be installed by a qualified contractor. Savings will be deepened by installing additional efficiency measures, to the extent cost-effective, such as indirect water heaters with heating systems, exterior doors, front load clothes washers, smart strips, and repairs to make efficiency measures possible. Other measures will be investigated, such as solar water heaters and usage monitoring systems. In addition, a change in rules as a result of the American Recovery and Reinvestment Act (ARRA) makes it possible to spend more federal money in each home which will allow Program Administrator funding to help address more items on the cost effective priority list for each customer. Savings will be distributed more broadly by treating additional homes, including mobile homes (including contractor training if needed) and rental homes where tenants pay for heat. Relatedly, a change in rules as a result of the Recovery Act makes it possible to spend more federal money in each home. As a final step the Network agency will perform a final quality assurance inspection to ensure that all work is performed to program guidelines. Education and information are included in all Program Administrators' energy efficiency programs. The low-income program plans to develop/improve education materials and material distribution which will include: • Customer Education packages: Common leave behinds in customer audit packs • Materials for outreach workers (e.g. hospital intake people, senior centers) • A web link on unemployment website • Other outreach opportunities
Target Market	Residential customers living in 1-4 unit dwellings who are at 60 percent of the state median income level. In the case of multi-unit dwellings, 50 percent of the occupants must qualify as low-income in order to be served

Target Market (cont.)	by the low-income program. In special cases, where outside grant money can enhance program services, the Program Administrators may approve participation for customers in specific communities at 80 percent of the state median income. Any changes to eligibility will be addressed through the Best Practices Working Group.
Marketing Approach	Program Administrators will engage in outreach efforts to notify customers of the availability and value of energy efficiency services. Marketing will consist of contacting, by mail and/or telephone, customers subscribing to the low-income rates who have not received prior energy efficiency services. Direct mail, bill inserts, and literature distributed through social service agencies, government offices, and other networks are also used to market the program. In addition, Program Administrators and low-income advocates are participating in statewide marketing efforts to encourage income-eligible customers to take advantage of discount rates, energy efficiency programs and fuel assistance programs. The program is also being integrated into a unified, statewide website. This website will allow customers to go to one site to find out about all energy efficiency offerings available to them. Outreach and marketing efforts will be expanded to include building relationships with unemployment centers, medical service providers, and other venues that would reach potential income-eligible customers. Marketing efforts will be designed to meet the objectives of reaching more customers (going broader into the customer base, for example by participating in statewide education and marketing efforts) and maximizing energy savings opportunities (going deeper into each home to find ways to save energy, such as by an energy education monitoring approach, with computerized feedback based on actual usage, if such a strategy proves to be cost-effective).
Target End Uses	Target end uses include but are not limited to: • Comprehensive, whole house approach • Building shell • Heating • Domestic water heating

Target End Uses (cont.)	• HVAC/Mechanical systems • Lighting and Appliances • General waste heat • New technologies and renewable
Recommended Technologies	The Program Administrators will continue to work with the Best Practices Working Group to identify new cost-effective energy efficiency services, measures and technologies that are appropriate to offer to income eligible customers. Current measures offered through the low-income program include but are not limited to: • Attic insulation • Wall insulation • Pipe insulation • Duct insulation • Air sealing • DHW measures • CFLs /Low mercury CFLs • Heating system repair and replacement • Major weatherization repairs (*e.g.*, electrical repairs, roofs, etc.) • Refrigerators • Freezers (PA-specific) • Landlord heating system retirement pilot (PA-specific) • Air conditioners • "Smart" power strips • Health and safety Other technologies to be discussed in the Best Practices working group for future consideration include but are not limited to: • Expanded landlord heating system retirement • Exterior doors • LEDs • Solar water heating

Recommended Technologies (cont.)	• Green/hypoallergenic products • Window coverings • Mobile home insulation • Super insulated roofs • Demand response • Other measures determined on a site-specific basis
Financial Incentives	In all but exceptional cases, low income products and services are directly installed and delivered with no co-payment from participating customers, subject to local Network agency discretion.
Delivery Mechanism	Program Administrators, when appropriate, use a lead vendor to administer the program. The Program Administrators work closely with their lead vendor and/or respective NETWORK agencies on all aspects of the program design and implementation. The lead vendor/NETWORK agencies are responsible for providing the actual weatherization services to the customer. The lead vendor/NETWORK agencies work with installation contractors to ensure that the proper program guidelines are enforced. These agencies are also responsible for ensuring that the customer meets the eligibility requirements for program participation and providing the lead vendor and/or Program Administrator with the required documentation of all work performed.
Joint Program Administrator Enhancements Planned for 2010-2012	In order for the low-income program to increase the number of program participants and achieve deeper energy savings over the next three years, the Program Administrators will: • Work with LEAN, DHCD, and NETWORK agencies to increase qualified contractor participation in the program through training and workforce development. • Continually review and evaluate new measures and technologies through the Best Practices Working Group process • Leverage all applicable revenue streams available to enhance services • Broaden program participation through coordinated marketing and outreach efforts • Deepen efficiency penetration consistent with our comprehensive, whole house approach

Program Administrator-Specific Elements	Please see PA-specific filings.
Three-Year Deployment	Training and workforce development will be accomplished by the Program Administrators working with LEAN, DHCD, and CAP agencies to increase the number of qualified contractors, energy auditors, and administrative staff. The Best Practices working group process will continually review and evaluate new measures and technologies. See recommended technologies above. Program Administrators will leverage all applicable revenue streams available to enhance services. Through marketing and outreach efforts, the Program Administrators will attempt to broaden program participation. Program Administrators will attempt to deepen efficiency penetration consistent with a comprehensive, whole-house approach.
Special Notes	The program will address several of the Council Priorities including: • Seamless Delivery. By coordinating Program Administrator programs with the U.S. Department of Energy and the Department of Health and Human Services' programs administered by DHCD, as well as other programs implemented by the NETWORK that implements the Program Administrator and DHCD programs, Program Administrators assure that a common set of programs is available to all income eligible customers and that the programs are seamless from the viewpoint of customers. Program Administrators' programs are also coordinated with each other, particularly across fuels. Nevertheless, experimentation and pilot programs implemented in particular territories allow development of improvements that are monitored by the Best Practices Working Group for possible adoption statewide. • Best Practices. The Program Administrators will continue to work within the Best Practice Working Group meetings for successful program development. The Best Practice Working Group's objective is to collaborate and coordinate on all aspects of the low income program including ongoing planning,

Special Notes (cont.)	delivery, implementation, marketing, training, evaluation and quality assurance. In addition, by piggy-backing on the DHCD weatherization program, the Program Administrators will maximize seamless delivery to the customer without duplication or complexity. • Training. The Program Administrators will continue to explore common protocols in auditor and contractor training development and outreach for all areas identified through the Best Practices Working Group. The quality standards for qualified contractors will be consistent with the Massachusetts Weatherization Assistance Program Technical Manual, which was developed as a working document to be used in conjunction with the Northeast Weatherization Field Guide. The Guide provides comprehensive technical guidelines on appropriate weatherization protocols and techniques. In addition, the Program Administrators will provide qualified auditors and contractors in-field training and materials related to energy efficiency technologies and help expand outreach efforts. • Quality Control. All work is rigorously inspected to ensure high quality materials and installation practices are used. The Program Administrators, in coordination with the Best Practices Working Group, will work to maintain this high level of oversight. • Pilots. The Best Practices Working Group is continually looking for new and innovative technologies and measures to help income eligible customers save energy. To that end, the Program Administrators will consider piloting, monitoring and evaluating new technologies/measures to determine if a full program rollout is justified. • Deeper/Broader . Through the comprehensive, whole-house approach, all available cost-effective energy efficiency measures offered through the program will be considered and where feasible (dependent on health and safety as well as overall program cost effectiveness) implemented in order to attain greater savings. The Program Administrators are aware that significant amounts of short term economic stimulus funds may be made available to help underwrite low-income energy efficiency efforts. The levels and possible effect of this potential capital infusion is not yet known, but this issue will be re-visited by the Program Administrators, LEAN and the Council as final, accurate information is available.

Low-Income Multi-Family Retrofit Program

Primary Objective	To deliver energy efficient products and services directly to the dwellings of residential customers living in facilities (with five or more units) on the low-income rate or of eligible income-eligible residents living in multi-family non-institutional facilities (with five or more units) owned or operated by a non-profit entity or a public housing authority, by addressing the informational, economic, institutional, and technical barriers that have historically made the low-income multi-family market a "hard to reach" sector in order to help eligible participants lower their energy bills. The program aims to broaden participation and achieve deeper savings per participant by integrating gas and electric measures into a single program.
Program Inception	Some Program Administrators offering services to this customer segment date back to the early nineties. Since 1998, Program Administrators have been working with the Best Practices Working Group to provide a coordinated program.
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Joint vs. Program Administrator-Specific Offering	The Program Administrators are proposing a common statewide program with the goal of offering a consistent participant experience throughout the state. The Program Administrators recognize the need to allow for the flexibility to ensure that the needs of all participants are met.
Program Design	This program is designed to minimize or eliminate co-payments, integrate gas and electric program delivery, and integrate funding across all sectors that serve low-income multi-family facilities to the greatest extent possible. Eligibility for program measures and services will be based on the established program cost-effectiveness test, which include agreed non-energy benefits, and will not be restricted by rate class associated with the meter(s) for the facility to the greatest extent possible.

Program Design (cont.)	The program will be structured to ensure that participants are provided with a "whole building", fully integrated offering targeting both gas and electric end uses. While on-site, all opportunities, regardless of fuel source will be identified and documented for the customer. All efforts to deliver a fully integrated offer to a participant will be performed in a manner that will result in a seamless participant experience. The Program Administrators in collaboration with LEAN, state organizations such as the DHCD, public housing authorities (PHAs), community development corporations (CDCs), other non-profit entities that own or operate low-income non-institutional multi-family housing (non-profits), and Community Action Program ("CAP") agencies, will make up the Best Practices Working Group. The working group's objective will be to collaborate and coordinate on all aspects of the low-income multi-family program, including but not limited to, planning, delivery, implementation, standardization, education, marketing, training, cost effectiveness, evaluation, and quality assurance. This program will piggyback on the current DHCD low-income energy efficiency programs and all other eligible funding sources (*i.e.*, federal and state) to enhance program services. The LEAN Lead Vendor with respect to each PA service territory will be the same as the LEAN Lead Vendor for other low-income efficiency programs, or such other arrangement as is agreed with LEAN (hereinafter "LEAN Lead Vendor"). Sub-contracting will be appropriate to the complexity of the work required and will be based on the same audit tool as in the market rate multi-family retrofit program. Low-income customers will be referred to the LEAN Lead Vendor by the Multi-Family Market Integrator (MMI), as defined in the multi-family retrofit program. Low-income customers may also apply directly through the LEAN network. An essential element of this program is that interested customers also have the option, at their discretion, of electing to participate in the market rate multi-family retrofit program. This approach helps ensure that there are multiple paths to participation in energy efficiency programs in this unique market sector that has also been served over many years by skilled contractors and engineering firms. These firms will continue to be eligible to provide services in this sector, both through the market rate multi-family retrofit program (and its terms and conditions) and, where qualified, as providers for the LEAN network under the terms and conditions of this program. The following program design components are similar as those found in the multi-family retrofit program description.

Program Design (cont.)	Enrollment Participants for this program may enroll through a low-income agency, statewide website, the multi-family statewide toll free number, Program Administrators or other venue. Participant Screening LEAN will develop an Advisory Committee composed of LEAN, CDCs, other nonprofit owners of low-income non-institutional multi-family housing, and PHAs, which will be tasked with prioritizing low-income multi-family projects for each Program Administrator and alerting the Multi-Family Market Integrator (MMI), as defined in the multi-family retrofit program, of projects assigned to move forward. The Advisory Committee will integrate flexibility into their planning to handle unique needs of Program Administrators or potential participants. Due to the nature of this market segment, most leads will be generated through the Advisory Committee, however, leads coming in via other venues will be screened by the MMI and forwarded to LEAN for eligibility confirmation. Upon confirmation of a project, the LEAN Lead Vendor is responsible for coordinating the appropriate parties to address the project needs based on protocols agreed to by specific Program Administrators and consultation with specific Program Administrators to move the project forward. Whole Building Assessment Based on the outcome of the screening process, the appropriate technical resources will be assigned to conduct a whole building, (fuel blind) assessment. The audit firms used for the market rate program will also serve the low-income sector, along with the current Network agencies who serve the low-income multi-family market. If the same firms are not available, the auditor(s) performing the services will be required to have, at a minimum, the same qualifications (*i.e.*, training, certification, etc.) as the market rate program auditors. The LEAN Lead Vendor will attempt, through the screening process, to identify all resources required for the assessment; however, there may be instances where additional expertise is required and therefore more than one site visit is necessary. Technical assessments, benchmarking, and engineering studies will be conducted as needed. At the time of the assessment, education will be provided to participants and instant saving measures will be installed,

Program Design (cont.)	as appropriate and authorized by the customer. Integrated Proposal for Energy Efficiency Services Using the findings from the site-specific assessment, the appropriate parties will draft a project proposal that will include gas and electric cost-effective measure opportunities and other available services where applicable. The project proposal will be forwarded to the appropriate Program Administrators for approval. Once the comprehensive offer has received Program Administrator approval, it will be presented to the participant by the parties required to help the customer fully understand the offering. Delivery of Measures and Services The LEAN Lead Vendor will coordinate the delivery of the measures and services opted by the customer. The installation firms used for the market rate program may also serve the low-income sector. If the same firms are not available, the vendors performing the services will be required to have, at a minimum, the same qualifications (*i.e.*, training, certification, etc.) as the market rate program vendors. An exception to this protocol will occur when participants select their own vendor for the installation of gas measures such as heating systems, but they still must have the same qualifications as any other qualified installation vendor. The installation contractors will strive to have all dwelling unit measures installed in a single visit to minimize disruption for the tenants; however multiple visits may be required for the installation of common area measures. Commissioning services will be performed as appropriate. Quality Assurance/Quality Control Quality assurance will be performed in support of this program. The Program Administrators anticipate that the quality assurance will be performed by an independent third party. Customer satisfaction surveys will also be administered to provide additional feedback for the Program Administrators. The same QA/QC protocols and vendors will be used for both the market rate and low-income sectors. Education and information are included in all Program Administrators' energy efficiency programs. The low-income multi-family program plans to develop/improve education materials and material distribution which will include education materials for landlords, property managers, building occupants, and property management personnel.

Program Design (cont.)	*Additional Program Design Elements* • The Program Administrators will, on request, inform participants of the change in their energy consumption one year after participating in the program. This may be accomplished via a letter or email. • Subject to a review of cost reasonableness, available tools will be used to allow LEAN to benchmark customer energy use against like buildings as part of the project screening process. • The Program Administrators recognize that proper training for building operators and maintenance staff is a key factor in ensuring that expected savings are realized. As such, the Program Administrators will assess the feasibility of offering incentives for the building owner/manager and/or their staff to obtain applicable training and certifications. The Program Administrators in collaboration with LEAN, state organizations such as the DHCD, public housing authorities ("PHAs"), CDCs, other non-profit entities that own or operate low-income multi-family housing (non-profits), and CAP agencies, will make up the Best Practices Working Group. When topics to be discussed apply to both market rate and low-income customers, this group and the Multi-Family Steering Committee (for the market rate program) will hold joint working sessions.
Target Market	Residential customers on the low-income rate or individuals living in non-institutional dwellings owned or operated by non-profit entities or public housing authorities with five or more units who are at 60 percent of median income level as well as landlords and property managers of these buildings. Fifty percent of the occupants must qualify as low-income in order to be served by the low-income multi-family program. In special cases, where outside grant money can enhance program services, the Program Administrators may approve participation for customers in specific communities at 80 percent of median income. Any changes to eligibility will be addressed through the Best Practices Working Group.
Marketing Strategy/ Approach	The Program Administrators foresee a high demand for the low-income multi-family program that will be managed jointly by the Advisory Committee and the Program Administrators.

Marketing Strategy/ Approach (cont.)	The Program Administrators will engage in outreach efforts to notify customers of the availability and value of energy efficiency services to stimulate interest in the program and operate within budgets. Marketing will consist of contacting customers subscribing to the low-income rates who have not received prior energy services and landlords of low-income tenants. Direct mail, bill inserts, and literature distributed through social service agencies, housing funders, government offices, and other networks are also used to market the program. Program Administrators will use their relationship with PHAs and other low-income property managers to market the benefits of the program. In addition, Program Administrators and low-income advocates are participating in statewide marketing efforts to encourage income-eligible customers to take advantage of discount rates, energy efficiency programs and fuel assistance programs. The program is also being integrated into a unified, statewide website. This website will allow customers and potential participants to go to one site to find out about all energy efficiency offerings available to them. Marketing efforts will be designed to meet the objectives of going broader and deeper to maximize energy savings.
Target End Uses	Gas and electric target end uses in both dwelling units and common areas include but are not limited to the following: • Comprehensive, whole building approach, including audits • Building shell • Heating and cooling • Domestic water heating • HVAC and other Mechanical systems and controls • Lighting and Appliances • General waste heat • New technologies and renewables • All other cost-effective site-specific end uses that impact gas and electric consumption
Recommended Technologies	The Program Administrators will continue to work with the Best Practices Working Group to identify new, cost-effective energy efficiency services, measures and technologies for gas and electric end uses that are appropriate to offer to low-income multi-family customers. Potential measures offered through the low-income

Recommended Technologies (cont.)	multi-family program, where cost-effective, include but are not limited to: • Attic insulation • Wall insulation • Pipe insulation • Duct sealing/insulation • Air sealing, including weatherstripping • Domestic hot water measures • Lighting upgrades and controls • Energy Management Systems (EMS) • Occupancy sensors • Motors and drives • Chillers • Air compressors • Heating system repair and replacement • Water heating equipment • Programmable thermostats • Ventilation system repair, adjustment, replacement • Refrigerators • Freezers (PA-specific) • Air conditioners • Heat Recovery Ventilation/Energy Recovery Ventilation • Redistribution systems • Temperature building controls • Power smart strips • Health and safety Other technologies to be discussed in the Best Practices working group for future consideration if cost-effective include but are not limited to: • Combined heat and power (CHP) • Major weatherization repairs (e.g., electrical repairs, roofs, etc.)

Recommended Technologies (cont.)	• Exterior doors • Other envelope measures • Low mercury light • LED • ENERGY STAR Clothes washers • Solar water heating • Geothermal • Biomass • Green/hypoallergenic products • Window coverings • Other measures as determined on a site-specific basis
Financial Incentives	Program Administrators will pay up to 100% of the project cost with established caps, including measure caps, which will be determined by agreement between LEAN and the Program Administrators based on a review of cost-effectiveness. Given the cost of larger capital investment projects (e.g. heating system upgrades), the Program Administrators will negotiate with all interested stakeholders to establish incentive caps and guidelines to ensure cost-effectiveness and a more systematic balanced approach to program spending. Program Administrator funds will only be accessed after other funding sources have been leveraged. Project participants willing to provide co-payments will be entitled to favorable weighting as the Advisory committee prioritizes projects.
Delivery Mechanism	The program will be administered cooperatively by the gas and electric Program Administrators in conjunction with interested stakeholders. There will be a common enrollment process (using the services of the Multi-Family Market Integrator) for both the market rate and low-income segments to prevent customer confusion. Once the participant's project is identified as a low-income multi-family project the delivery of the program services will be similar to that for market rate participants except that the LEAN Lead Vendor will be responsible for coordinating the appropriate resources and vendors to move the project forward. The program delivery mechanism serves to minimize lost opportunities and encourage deeper savings in the

Delivery Mechanism (cont.)	following ways: • The increased incentives amounts may allow for achieving energy savings that would not be possible if this population had to provide a significant co-payment. • Having the PHAs and non-profits (CDCs and other non-profit owners of non-institutional low-income multi-family housing) directly working with members of the Best Practices Working Group will facilitate access to the tenant spaces, which has been traditionally cited a potential barrier in the multi-family market. • The Best Practices Working Group will attempt to leverage funds from all applicable revenue streams to achieve deeper savings.
Joint Program Administrator Enhancements Planned for 2010-2012	In order for the low-income multi-family program to achieve deeper energy savings and increase the number of program participants over the next three years, the Program Administrators will: • Leverage, to the best extent possible, all applicable revenue streams available to enhance services on a meter-blind basis, including integration of gas and electric, low-income, residential, and commercial funding. • Deepen efficiency penetration consistent with our comprehensive, whole building approach on a fuel-blind basis with increased incentives. • Implement LEAN Lead Vendor services across the state, similarly as described for the MMI in the Market Rate Multi Family program description. • Broaden program participation through coordinated marketing and outreach efforts, if needed. • Continually review and evaluate new measures and technologies through the Best Practices Working Group process.
Program Administrator-Specific Elements	Please see PA-specific filings.
Three-Year Deployment/ Road Map	Provided below is the roadmap for the completion of the program design and program implementation.

Three-Year Deployment/ Road Map (cont.)

PHASE I – PROGRAM PLANNING

Task Description	Target Completion Date	Deliverable
1. Identify eligible measures and establish incentives	Completed 10/09	Set of measures and corresponding incentives
2. Prepare draft scope of work for Multi-Family Market Integrator services.	Completed 9/09	Draft work scope for Multi-Family Market Integrator services.
3. Establish PA protocols for budgeting and expense tracking under new "meter/rate" blind model	10/31/09	Discussion in the October filing in the Budget section describing assumption used in the budgeting process
4. Evaluate the feasibility of offering incentives soft costs such as technical assistance and for building owner/manager or their staff to obtain applicable trainings and certification.	10/31/09	Documented findings from joint PA and Consultant assessment
5. Develop detailed program delivery model	12/31/09	
• Document detailed roles and responsibilities for each market actor required to support the program design.	12/31/09	Matrix including market actors along with their roles and responsibilities.
• Develop process flow documentation illustrating the customer experience and the interactions between other key market actors including the PAs, auditors, installation vendors, technical assistance and QA/QC providers.	12/31/09	Process flow
6. Create Marketing Plan	Ongoing	If needed, form a low-income

Three-Year Deployment/ Road Map (cont.)

1. If needed, the Program Administrators and LEAN will work together to develop a full marketing plan beyond the statewide marketing efforts 2. Identify marketing material needed for customers		multi-family marketing committee to develop a detailed marketing and outreach plan.

PHASE II – PROGRAM IMPLEMENTATION

Task Description	Target Completion Date	Deliverable
1. Conduct training for PA and vendor staff	3rd QTR 2010	Documented completion of this task
2. Implement Marketing Plan and/or create customer marketing materials	3rd QTR 2010	Marketing materials and schedule for delivery
3. Program Implementation	3rd QTR 2010	Notification of program launch
4. Monthly Multi-Family Statewide Executive Committee Meetings, including LEAN	Ongoing	Meeting notes distributed to all participating Program Administrators and LEAN
5. Training	Ongoing	Training and workforce development will be accomplished by the Program Administrators working with LEAN, DHCD, CDCs, PHAs, other non-profit owners of non-institutional low-income multi-family housing, and CAP agencies to increase the number of qualified contractors, energy auditors, and administrative staff.
6.Leveraging of funds	Ongoing	The Best Practices Working Group

Three-Year Deployment/ Road Map (cont.)

		will leverage all applicable revenue streams available to enhance services.

PHASE III – PROGRAM ASSESSMENT

Task Description	Target Completion Date	Deliverable
1. Annual Multi-Family Statewide Executive Committee (including LEAN) review of program successes and lessons learned with results feeding back into modifications to the program design as required.	2011- 2012	Narrative to be included in annual PA plan updates.
2. Evaluation of new measures.	ongoing	The Best Practices Working Group process will continually review and evaluate new measures and technologies. See "Recommended Technologies" above.

Special Notes

The Program Administrators, in conjunction with the Council's Consultants, PHAs, CDCs, other non-profit owners of non-institutional low-income multi-family housing, and LEAN, have performed an assessment of the multi-family program in Massachusetts. For low-income multi-family projects, the assessment developed this program for serving low-income multi-family buildings in a manner that is fuel-blind, meter-blind, and integrates low-income, residential and commercial programs, as appropriate, with increased incentives up to100% (pending a review of the budget impacts by each Program Administrator).

The program will address several of the Council's Priorities Resolution including:

Special Notes (cont.)	• Seamless Delivery. By coordinating Program Administrator programs with the U.S. Department of Energy and the Department of Health and Human Services' programs administered by DHCD, as well as other programs implemented by the Network that implements the Program Administrator and DHCD programs, Program Administrators assure that a common set of programs is available to all low-income customers and that the programs are seamless from the viewpoint of customers. Program Administrators' programs are also coordinated with each other, particularly across fuels. Nevertheless, experimentation and pilot programs implemented in particular territories allow development of improvements that are monitored by the Best Practices Working Group for possible adoption statewide. This program will be uniquely meter-blind, *i.e.*, combine funding from gas and electric PAs across low-income, residential, and commercial sectors. • Best Practices. The Program Administrators will continue to work in coordination with LEAN (expanded to include CDCs, PHAs, and other non-profit owners of non-institutional low-income multi-family housing) at the Best Practice Working Group meetings for successful program development. The Best Practice Working Group's objective is to collaborate and coordinate on all aspects of the low-income multi-family program including ongoing planning, delivery, implementation, marketing, training, evaluation and quality assurance. In addition, by piggy-backing on the DHCD weatherization program and/or other state or federal programs, the Program Administrators will maximize seamless delivery to the customer without duplication or complexity. • Training. The Program Administrators will continue to explore common protocols in auditor and contractor training development and outreach for all areas identified through the Best Practices Working Group. The quality standards for qualified contractors will be consistent with the Massachusetts Weatherization Assistance Program Technical Manual, which was developed as a working document to be used in conjunction with the Northeast Weatherization Field Guide. The Guide provides comprehensive technical guidelines on appropriate weatherization protocols and techniques. In addition, the Program Administrators will provide qualified auditors and contractors in-field training and materials related to energy efficiency technologies and help expand outreach efforts. • Quality Control. All work is rigorously inspected to ensure high quality materials and installation

Special Notes (cont.)	practices are used. The Program Administrators, in coordination with the Best Practices Working Group, will work to maintain this high level of oversight. • Pilots. The Best Practices Working Group is continually looking for new and innovative technologies and measures to help low-income customers save energy. To that end, the Program Administrators will consider piloting, monitoring and evaluating new audits and technologies/measures to determine if a full program rollout is justified. • Broader/Deeper. Through the comprehensive, whole building approach, all available cost-effective energy efficiency measures offered through the program will be considered on a fuel-blind basis with minimized or no co-payments for gas and electric measures and where feasible (dependent on health and safety as well as overall program cost effectiveness) implemented in order to attain greater savings. The Program Administrators are aware that significant amounts of short-term economic stimulus funds may be made available to help underwrite low-income energy efficiency efforts, including at public housing authority buildings. The levels and possible effect of this potential capital infusion is not yet known, but this issue will be re-visited by the Program Administrators, LEAN and the Council as final, accurate information is available. The Program Administrators reserve the right to claim savings regardless of funding sources used. While the LEAN is looking to expand eligibility for this program to include affordable housing owners that are for-profit entities, both the Program Administrators and LEAN agree that implementation of this change will require policy changes. Until such changes are approved by the necessary regulators, this segment of the multi-family market will be served through the market rate program.

9. *C&I Program Descriptions*

C&I Retrofit Program for Existing Buildings

Primary Objective	This program will increasingly focus on comprehensive gas and electric energy efficiency opportunities associated with mechanical, electrical, and thermal systems in existing commercial, industrial, governmental and institutional buildings. It provides technical assistance and incentives to encourage retrofitting of equipment that continues to function, but is outdated and inefficient, and can be replaced with a premium efficient product. The program provides technical assistance (to identify and quantify opportunities) and financial incentives based on a percentage of project costs (both material and labor) to make equipment removal and replacement attractive to building and business owners in terms of conventional business payback requirements. The program also helps participants identify specific peak load management opportunities that enable participants to maximize other time-based incentives – such as those available from the ISO – to manage their electric and thermal loads, and assists occupants in improving their ongoing operation and maintenance practices.

Program Inception	Most electric Program Administrators have offered retrofit programs since 1988. Over time these programs have evolved and improved through incorporation of the lessons of actual delivery experience, program evaluation recommendations, and the best practices from other programs around the country. Also, prior to the passage of the Green Communities Act, the Electric Program Administrators had a long and productive relationship in the Massachusetts Electric Utility Collaborative, which provided a formal framework for incorporating customer input and best practices recommendations from outside consultants from all around the country into Program Administrator program designs. The Massachusetts programs developed through the Collaborative partnership came to be recognized as amongst the best in the country and both the programs and the collaborative decision-making model have been copied by a number of other jurisdictions in North America. The Gas Program Administrators have collaborated through GasNetworks since 1997. GasNetworks is a nationally-recognized, award-winning collaborative of local natural gas companies serving nearly 2 million residential and C&I customers throughout New England that has been promoting energy efficiency and the use of high efficiency natural gas technologies since 1997. The mission of this unique collaborative is to work with governmental agencies, trade allies, and consumers, in order to promote energy-efficient technologies. Successful strategies include the creation of common energy efficiency programs, education of consumers, and promotion and sponsorship of quality contractor training and awareness programs of ever-changing natural gas technologies. Massachusetts members include Bay State Gas, Berkshire Gas, National Grid, New England Gas, NSTAR Gas, and Unitil. In recent years the Electric Program Administrators have increasingly collaborated at the management, program director, and technical staff levels to harmonize program measures, incentives, technical requirements, and participation criteria. Each Program Administrator now has a suite of retrofit program services that provides customers with technical solutions to guide better peak and overall energy management, incentives to drive customers to replace existing inefficient equipment and systems, and a means to measure the results of these replacements through cost-effective commissioning and retrocommissioning practices. The programs have been responsive to advancements in technologies and design standards for higher performance practices. The Program Administrators have developed more comprehensive solutions and wider choices in incentive offerings to promote deeper savings and greater customer participation. They have also adapted offerings in response to evolving customer needs and expectations and developed targeted initiatives – such as those for cities and towns, schools, small businesses and site-specific commercial and industrial processes – to address the needs of unique customer niches. In addition, PA-administered programs have fostered growth of a robust private sector infrastructure of companies and individual skilled energy efficiency technical practitioners – contractors, trade allies and suppliers, engineers and analysts – who work with both the programs and the marketplace to influence the selection, replacement, and management of mechanical, electrical and gas equipment and systems. Because of the international reputation of the Massachusetts programs for excellence in design and implementation, many

2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Program Design	In 2010, the Electric Program Administrators will complete the harmonization of their retrofit offerings into a consistent core set statewide of prescriptive and custom offerings, incentives, and supportive services. Gas Program Administrators will similarly organize their programs into prescriptive and custom offerings and align them into a consistent set of services and incentives. All gas and electric retrofit programs will be organized under a single program name, using application forms and other program materials that are the same, except for information pertaining to the individual Program Administrator brand identifiers, contact information, etc. In addition to this core program, individual administrators may also test the viability of new strategies and options for their customers. Strategies under consideration for implementation in 2010 include: identifying cost effective methods to improve deep energy efficiency in retrofit markets, identifying new financing instruments to promote greater access to capital to promote deeper penetration into customer sectors, and incorporating new technologies to accelerate adoption of emerging and promising electric and gas end uses, as well as an increased emphasis to automate loads to maximize the value of time-based energy supply offerings. The overall Retrofit Program addresses energy efficiency opportunities in existing commercial, industrial, governmental and institutional buildings. Under this umbrella, there are multiple offerings, tailored to unique customer needs and opportunities, including: **Technical Assistance Services**: Solid, professional, unbiased and independent technical advisory services provide the foundation for the achievement of deep and broad savings in existing buildings. The TA Services component of the program provides technical support matched to the specific needs and capabilities of each commercial or industrial customer. Services may include walk-through audits, detailed energy-efficiency studies for buildings or building components, and specialized technical studies, such as studies of industrial process improvements and compressed air projects. In general, study proposals will be assigned to, and performed by, TA consultants who have been selected as

Program Design (Cont.)	preferred vendors through a competitive procurement process by the Program Administrators. TA consultants will be assigned based on an assessment of their expertise with the technology area under consideration. Customers can also elect to use a TA provider of their own choosing, as long as the co-funding PA approves with the firm's qualifications and cost-estimate. Non-preferred vendors must comply with the same level of detail and quality as preferred vendors. In many instances, commercial and industrial customers may have both gas and electric equipment options for a particular end-use. In order to (a) encourage more comprehensive, integrated, and balanced consideration of all the energy efficiency options available, and (b) ensure that customers have open choices, the gas and electric Program Administrators delivering the statewide program will provide coordinated Technical Assistance Studies In general, the study costs will be cost-shared between the gas and electric Program Administrators according to the proportionate share of the analysis and/or opportunities found through the analysis. Study opportunities are likely to appear in larger, complex buildings and industries. For smaller, simpler buildings and businesses turnkey vendors are expected to provide evaluations as part of their proposals without an additional cost. As an example, lighting retrofits are not eligible for technical assistance study funding. **Whole Building Assessment** ("WBA") is a comprehensive targeted approach designed to attain, over time, maximum savings in buildings through a detailed technical review and an integration of energy consuming gas and electric equipment and systems, including upgrades as appropriate. WBA helps commercial and municipal customers with larger buildings to, first, assess energy efficiency opportunities through benchmarking, and then provide them with an integrated, optimized, and systematic action plan to, over time, address identified opportunities and overcome institutional barriers. WBA provides the ongoing technical assistance and incentives required to achieve maximum deep and lasting savings. Customers sign a Letter of Agreement ("LOA") that commits them to work in good faith to implement a menu of cost-effective energy efficiency and peak load reduction strategies identified in an energy assessment report. The in-depth technical assessment includes benchmarking buildings using ENERGY STAR's Portfolio Manager[15] to analyze energy use data. The assessment also includes a lighting and mechanical all-fuels walk-through audit. This holistic analysis is summarized in a report to the customer. The report details the building's current energy use, lists and prioritizes energy saving opportunities (both low-cost/no-cost and capital improvements), identifies incentives (gas, electric, tax and other) when available to bring the plan to action and provides the basis for a jointly-developed action plan to systematically improve the building's

[15] http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager.

Program Design (cont.)	energy performance. The plan also provides peak load management opportunities to allow participants to consider time-sensitive supply offerings. Customers are also encouraged to enroll their facility staff in the Building Operator Certification Program and to avail themselves of other suggested energy education opportunities in order to help building operators implement low-cost/no-cost recommendations and monitor building operations by reviewing and interpreting Portfolio Manager reports. Program Administrators pay for a portion of the cost of participating in such trainings. **Municipalities** often have unique barriers which the Municipal Initiatives is designed to help overcome. These barriers can include: capital and staff limitations and procurement processes which were not designed to easily accommodate the vendor-driven process of energy efficiency. Municipalities may lack the technical recourses to become familiar with complex efficiency options, and requirements for governing body approval of all capital budget items can make it difficult for municipal officials to act on opportunities to reduce energy costs. Also, many cities and towns have very old public facilities with old systems. Local government structures also delegate responsibility for energy upgrades to the individual department level, while payment of bills often resides at a central finance office. Thus, there is little incentive for departments to upgrade the energy efficiency of their buildings because the reward for reduced energy bills may simply be a reduced operating budget in the subsequent year. The cumulative consequence is that municipal customers often have very outdated and inefficient energy systems, but because savings per building may be low and the transaction costs of public procurements are high, energy service companies have little or no incentive to market to these customers. The Green Communities Act provides a new streamlined contracting process that allows cities and towns to sole-source efficiency projects to a Program Administrator, or the Program Administrators' delivery contractor, if the total work is less than $100,000. By providing upfront competitive bidding, enhanced financial incentives, and Program Administrator financing options, including on-bill payment, some PAs have been able to provide a turnkey service with incentives structured to create positive cash flow and to encourage comprehensive projects. This addresses many of the implementation barriers cited above. The Program Administrators will use direct, targeted outreach to municipalities to ensure they are aware of all energy services and customized assistance available to facilitate participation and will simplify transaction and administrative burdens for municipalities.

Program Design (cont.)	**Compressed Air**: Significant energy savings can be achieved from optimizing compressed air systems in industrial facilities (over 100 HP). The focus is on the efficiency of the compressor system elements and recovery of waste heat generated by these systems. **Industrial:** Small and Large industrial customers will be targeted by the combined gas and electric energy efficiency program. Industrial energy savings opportunities will be viewed comprehensively and all the potential cost and savings streams will be quantified. The approach will incorporate measures like heat recovery and process improvements, as well as the DOE Steam Assessment and Savings program. Non-gas/electric energy benefits or additional costs related to improvements will be quantified to the extent possible. Examples of additional benefits might be; raw material, scrap and increased thru-put. We plan to target industrial opportunities more aggressively and more routinely and explicitly to quantify the non-energy benefits of efficiency measures and educate customers about them. **Retro-Commissioning:** Deferred maintenance, piecemeal upgrades, "sensor drift" and other factors affect, and degrade, building operation over time. Retro-commissioning allows a thorough evaluation of all building systems to ensure they are operating as designed. Remedial actions resulting from these studies are usually low cost or no cost and have an immediate impact on the energy use and quality of the building operation. Typically these studies require a significant time investment by a higher level engineer and therefore are often not cost-effective. In order to look for ways to reduce the study costs, Program Administrators will support these studies on a limited basis. **Retrofit Performance Lighting**: Many spaces have lighting that was installed without benefit of a customized lighting design matched to the work requirements in the space or with limited or no consideration for comprehensive energy performance. By combining better fixtures lamps and controls, and altering layout where cost-effective there may be a significant opportunity for both energy reduction and a better system that contributes to a better visual and working environment. This will be offered on a limited basis and projects will be evaluated through the custom path to determine the potential for a broader customer application and cost effectiveness. **Renewable Energy:** Some existing buildings have potential for incorporating renewable energy options. PA-contracted vendors who conduct audits on existing buildings will be directed to offer a preliminary investigation of PV and solar thermal opportunities when a customer expresses an interest in pursuing such options. Where opportunities are found, the customer will be directed to the appropriate entity to secure more detailed information to properly evaluate these opportunities. Solar thermal opportunities may be eligible for

Program Design (cont.)	custom measure incentives under PA efficiency programs as well. **Governor's Clean Energy Challenge ("GCEC")**: The Program Administrators fully support delivery of the Clean Energy Challenge. Program Administrators will provide Massachusetts companies that accept the GCEC with the means to reduce their energy and operating costs, and, and to calculate the carbon savings from these actions. The assistance begins with an on-site Whole Building Assessment, including energy use benchmarking and a technical study to identify energy use reduction strategies—performed through a review of utility consumption data provided directly by utilities and other vendors. **Demand Response ("DR"):** Demand response will help participants identify specific peak load management opportunities that maximize their opportunities to secure time-based incentives to manage their electric loads. Additional DR opportunities will be identified and automated control measures will be identified where applicable. The program also assists occupants in improving ongoing operation and maintenance practices that could favorably impact demand. To maximize demand resource enrollment in the FCM, Program Administrators will work with third party Curtailment Service Providers ("CSP"s) to facilitate the enrollment of as many participating large C&I customers as possible. Program Administrators expect that this approach will provide a more manageable path for customers to participate in the FCM and, therefore, the need for Program Administrators to aggregate these customers should be minimal. Smaller businesses will be offered DR-enabled thermostats if they agree to participate in potential load curtailment in the future. The DR potential for this customer class will be aggregated and after two years the cost and market penetration impacts of this strategy will be evaluated. The intent and expectation is that this least-cost method of enabling mass market DR will produce the critical mass necessary to enroll in the FCM. DR benefits and incentives would be retained by the Program Administrators to increase the pool of program funds. **Combined Heat and Power ("CHP")** is an attractive offering for customers such as hospitals, thermal intensive industrials, multi-family housing and others with year round thermal use. CHP presents unique challenges, as reductions of metered electric loads are offset by increased use of fossil fuels to power the CHP system. Overall energy efficiency is improved through increased utilization of the on-site electric generator's recoverable heat. Program Administrators will require a custom analysis and screening of potential CHP opportunities to ensure positive net benefits and a net reduction in greenhouse gases. The eligibility process

Program Design (cont.)	will be aligned with the Alternative Portfolio Standard ("APS") process. In summary, a fully integrated energy efficiency delivery model is being constructed that will deliver gas and electric efficiency, CHP, renewable energy, and the DR services necessary for adoption of Smart Grid technology. As markets evolve and change in response to other emerging clean energy technologies and new business growth, the Program Administrators will be organized in a way that allows rapid response to these new opportunities for the benefit of their customers and the Commonwealth. As a recent example, the expansion of the internet has driven rapid growth of power-consuming data centers, and the Program Administrators have responded with strategies to reduce energy consumption and costs for these facilities by providing high performance ventilation and cooling for computer servers. Similarly, the growing commercial laboratories business in the Commonwealth presents unique challenges and opportunities to provide tailored energy use reduction strategies. Next to data centers, laboratories are the most energy intensive non-industrial facilities and opportunities for efficiency improvements have gone largely untouched, due to concerns about a sterile environment and safety. Program Administrators have addressed these issues directly in their proposals for efficiency projects. Success in these early projects will open the door for many more opportunities with significant potential for both electric and fossil fuel savings. Similarly, industrial customers represent significant natural gas energy savings and the Program Administrators will work with the Department of Energy's Industrial Technologies Program to identify steam savings and carbon reduction opportunities.
Target Market	The target market is all non-residential customers - commercial, industrial, governmental, and institutional. Multi-Family customers will be channeled through the separate Multi-Family Retrofit Program described separately in this filing.
Marketing Approach	While a variety of marketing approaches will be employed, experience has established that the most successful avenue is through one-on-one communication with customers through account executives, in partnership with trade allies, who can initially identify gas and electric opportunities and gauge customer interest in pursuing an efficiency upgrade, or a comprehensive plan of upgrades. Account managers can leverage their intimate, long-term relationships with customers and their knowledge and analysis of customer data (energy use, demand, sector analysis, etc.). Trade allies such as equipment vendors, consulting engineers and energy service companies, or "channel partners" are key actors in promoting, identifying, and delivering services to customers. Account managers conduct dual sales calls, open houses, training, and new product and service demos with trade allies. All Program Administrator programs are "open" and allow significant flexibility to vendors and

Marketing Approach (cont.)	customers in determining the optimal implementation strategy and partners for their particular project. The Program Administrator experience with non-residential customers has established that this kind of one-on-one "relationship marketing" is most successful in moving businesspeople and institutional/government customers to action. In addition to channel partners, Program Administrators may also leverage closer alliances with turnkey installation contractors. These are firms that have been chosen through a formal bid solicitation and act as agents to the Program Administrators in performing specific program functions. Program Administrators use these firms to strategically market to specific customers, sectors and/or technologies. While channel partners provide widespread marketing and maintain customer flexibility, turnkey installation contractors allow for targeted, coordinated sales along with pre-approved turn-key solutions to customers. In 2010 the Program Administrators will launch a statewide website and statewide media marketing. Additional marketing approaches may be used by one or more Program Administrators to increase participation and capture deeper, broader savings with their customers. These could include: direct mail; seminars and training sessions; power breakfasts; webinars; participation in trade shows and conferences; co-marketing through trade industry, public interest and civic groups that represent the target market and have extensive outreach capabilities; and informational meetings with ESCos and contractors. In addition, Program Administrators expect to supplement these strategies with broad-based radio, printed matter and email-blast outreach. Email alerts and other low-cost means to reach customers will also be adopted to advance customer participation. Program Administrators are currently using on-line communications to bring new and emerging technologies to the attention of their customers. Other social marketing techniques will be used to increase customer awareness of program services and the means to access these services. All these strategies will be integrated into a common marketing plan that will identify key drivers, objectives, strategies, and tactics to increase customer participation.
Target End Uses	Targeted end uses include, but are not limited to, lighting and lighting controls, motors and drives, HVAC equipment, energy management systems, compressed air and unique industrial processes. Gas end uses include: building envelope and glazing, commercially sized heating and water heating equipment, system and building controls. Any commercially available energy efficiency technology may be considered through a custom application. Fully integrated and comprehensive gas and electric approaches will be taken to ensure the capture of all cost-effective achievable technical potential.

Recommended Technologies	Recommended technologies include efficient lamp technologies, efficient lighting fixtures, lighting controls, efficient motor drive systems, efficient HVAC systems, CHP, compressed air systems, heat recovery, steam systems, industrial process systems and controls, building controls, demand controlled ventilation, Energy Recovery Ventilation Units ("ERVs"), advanced gas technologies, dehumidification and humidification. Solar hot water, advanced cooling systems and other emerging technologies may also be addressed.
Financial Incentives	In recent years the PAs have increasingly collaborated to harmonize program measures, incentives, technical requirements, and participation criteria. The process of fully harmonizing prescriptive measures and the accompanying incentives will be complete for 2010. Similarly, the criteria for vetting and approving custom projects, and assigning incentives will be standardized in 2010. Financial incentives cover a portion of the total installed project costs, typically by providing up to 50% of labor and equipment costs, or by incentivizing the installed costs down to the equivalent of a fixed payback period. Financial incentives may also include co-funded engineering and commissioning studies and/or design incentives covering a portion of incremental architectural and design costs for efficiency improvements. In addition, Program Administrators with the capability will offer on-bill financing options for municipal customers in 2010 to enable them to implement comprehensive energy efficiency treatment in their communities. The Program Administrators anticipate that some incentives will be adjusted higher to support emerging or underutilized technologies in order to accelerate market acceptance and sales volume. Over time, this strategy is intended to bring down the cost of these measures, and thus the incentive requirements. Incentives for more accepted efficient electric and gas end use technologies may also be increased when they are used in combination with other measures to promote broader and deeper savings. This is the so-called "Multi-Measure Incentive."
Delivery Mechanism	Program Administrator staff, trade allies and project administrators perform most sales, marketing, program administration, and implementation functions. In addition, outside contractors are retained for technical review of applications, on-site energy analysis, technical and design assistance for comprehensive projects, project commissioning services, and the actual measure installations, including turn-key services.

Joint program administrator enhancements planned for 2010-2012	Key joint Program Administrator enhancements are identified in the narratives above. In summary, program services and incentives will be offered under one common umbrella program with a statewide platform. Individual Program Administrators will administer the program in their locales, using common procedures, qualifications and incentives. Application forms and promotional materials will feature the statewide program name; the local Program Administrator brand, and will be common, except for any unique information required to properly administer the program in an individual Program Administrator's locale – such as contact numbers and addresses, etc. There will also be an integrated website and statewide program marketing and customer outreach campaigns. Program Administrators will also work together on CHP and DR activities, introduction and promotion of new and emerging technologies, integration of multi-family program options, and responding to GCA directives. Programs are kept in harmony by regular meetings of the respective program managers around policy and delivery issues, and the Joint Standing Technical Committee around issues of measure savings quantification, vetting new measures, and testing of emerging technologies. The Gas Technologies Committee was recently formed to coordinate on the review of savings, new measures and technologies. This group will also work to keep trades and vendors apprised of new technologies and program design. Over the next three years the Program Administrators will increase their capacity to deliver deeper savings by evaluating internal staff capacity and needs, and adjusting accordingly, retaining additional installation contractors to deliver services to customers, and expanding the pool of qualified contractors, engineering and architectural consulting firms in order to deliver larger scale energy efficient technical solutions to customers. In addition, the Program Administrators are looking to develop additional strategic partnerships with other energy services providers. To address customer needs for additional capital to invest in more comprehensive or expensive solutions in their facilities, various financing options will be tested and implemented. Also, as described earlier, program components targeting specific customer groups and building types with specific needs and energy saving opportunities will be expanded to increase participation and savings.

Special Notes	The current Massachusetts portfolio of retrofit services is mature and successful. Massachusetts gas and electric programs have received numerous awards from peer organizations (EPA, DOE, AGA, American Council for Energy Efficient Economy ("ACEEE"), Natural Resources Defense Council, NEEP and others) for being examples of exemplary program design. The Massachusetts electric Program Administrators' programs have also been identified as "Best Practices" in studies commissioned by the Energy Trust of Oregon, the California program administrators, ACEEE, and others. The Program Administrators have long collaborated with their peer program deliverers in other states and regions, through active participation and leadership in such organizations such as the American Council for and Energy Efficient Economy, the Alliance to Save Energy, Northeast Energy Efficiency Partnership, the Consortium for Energy Efficiency, GasNetworks, etc. The Program Administrators also regularly collaborate with individual utilities or groups of utilities to develop new program delivery models and strategies. With growing common challenges to develop comprehensive and deep treatments in buildings, leading program deliverers have joined to develop common, national approaches. For example, the Massachusetts Program Administrators are currently actively involved in the Office of the Future Project for deep treatments of office space (with such partners as the Energy Trust of Oregon, BC Hydro, Southern California Edison, Pacific Gas and Electric, the US Department of Energy, and others); the Advanced Buildings program for new construction (with the New Buildings Institute, Efficiency Maine, Efficiency Vermont, Efficiency New Brunswick, We Energies, and others); and the DesignLights Consortium Solid State Lighting Program (with all the major New England program administrators, the Long Island Power Authority, the Energy Center of Wisconsin, the California utilities, and others).

C&I Lost Opportunity Program

Primary Objective	The program is designed to optimize the efficiency of equipment, building design and systems in new construction and renovation of commercial, industrial, institutional and government facilities. These are opportunities that would otherwise be lost because of the myriad of barriers to efficiency that operate in these markets. The focus is on offering a comprehensive set of electric and gas efficiency options that are specific to the needs of each unique facility. The program also targets the brief window of opportunity to install premium grade replacements when equipment fails or is near the end of its useful life. The Program Administrators also partner with advocates, building scientists, and regulators to ensure that the best practices in building design and equipment specification which introduced and propagated by the program are ultimately built into the evolution of better building requirements.
Program Inception	The electric and gas Program Administrators have offered new construction services since 1987 and 1997, respectively. Massachusetts and the states of the Pacific Northwest were the first jurisdictions to offer such programs, and the Massachusetts program model has been widely replicated in subsequent years, in New Jersey, New York, at the Long Island Power Authority, New Hampshire, and Maine, for example. The programs have evolved and been refined over time, incorporating field experience, market feedback, evaluation results, and successful measures developed by other states. The experience of the Massachusetts Program Administrators, and those of our peers elsewhere, have produced such cooperative ventures between jurisdictions as the *Advanced Buildings/ Core Performance* initiative, the Advanced Energy Office (currently in the pilot phase), and targeted initiatives to unique building types – such as data centers, commercial laboratories, and other industrial processes with unique energy and business requirements. The programs provide value to the unique financial and operational needs of each building owners, by using a variety of strategies in combination – technical assistance, case studies of similar facilities, incentives, commissioning, etc. Program Administrators use skilled technical assistance contractors, recognized experts drawn from the marketplace, to work with the customer's design team to identify the best design and equipment options for their particular building, and then provide incentives to ensure that these options are incorporated into the structure. These design principles and equipment selections are verified as part of the design and construction process.

Program Inception (cont.)	For smaller buildings interested in a holistic approach that can lead to LEED designation, the Advanced Buildings approach is applied. For buildings already in progress where comprehensive treatment is not possible, or where the owner is interested in upgrading targeted end uses only, prescriptive approaches, or prescriptive in combination with some custom measures, are applied. The gas Program Administrators have collaborated through GasNetworks since 1997. GasNetworks is a nationally-recognized, award-winning collaborative of local natural gas companies serving nearly 2 million residential and C&I customers throughout New England that has been promoting energy efficiency and the use of high efficiency natural gas technologies. The mission of this unique collaborative is to work with governmental agencies, trade allies, and consumers, in order to promote energy-efficient technologies. Successful strategies include the creation of common energy efficiency programs, education of consumers, and promotion and sponsorship of quality contractor training and awareness programs of ever-changing natural gas technologies. Massachusetts members include Bay State Gas, Berkshire Gas, National Grid, New England Gas, NSTAR Gas, and Unitil. As is the case with the retrofit program, the Program Administrators have increasingly collaborated at the management, program director, and technical staff levels to harmonize lost opportunity program measures, incentives, technical requirements, and participation criteria. The Joint Standing Technical Committee, now composed of representatives of each Program Administrator, reviews emerging technologies, monitors test installations, and maintains communications with peers in other efficiency programs and at various research laboratories. A Program Review Committee of Program Administrator staff annually reviews standard measures, incentives, and administrative procedures across Program Administrators and harmonizes the offerings. Additionally, the program managers of each Program Administrator meet as needed to address policy and program issues of common concern.
2010-2012 Program Goals	See 08-50 Tables in MA Joint Statewide 3-Year Program Filing and as submitted by each Program Administrator.

2010-2012 Budget	See 08-50 Tables in MA Joint Statewide 3-Year Program Filing and as submitted by each Program Administrator
Program Design 2010-2012	In 2010, the electric Program Administrators will complete the harmonization of their lost opportunity offerings into a consistent core set statewide of prescriptive, custom, and comprehensive design approaches incentives, and supportive services. Gas Program Administrators will similarly organize their programs and align them into a consistent set of services and incentives. All lost opportunity programs will be organized under a single program name, using application forms and other program materials that are substantially the same, except for information pertaining to the individual Program Administrator brand identifiers, contact information, etc. In addition, this core program, with one or more Program Administrators, may also test the viability of new strategies and options for their customers. Strategies under consideration for implementation in 2010 address data centers, high performance laboratories, targeted LED installations, and an investigation of Zero Net Energy Buildings. The statewide offering will allow C&I customers the opportunity to receive financial incentives, technical services, and commissioning services for their projects. The program addresses two broad types of time-dependent projects: • Projects involving new construction of a building or the major renovation/remodeling of an existing facility • Projects involving primarily new equipment purchases and/or the end-of-life replacement of fully depreciated equipment. The program encompasses the Comprehensive Design track, high efficiency heating and water heating, a Core Performance track, Performance Lighting, and a variety of prescriptive and/or custom options. In addition, specific technologies can be addressed through Massachusetts MotorUp, Massachusetts Cool Choice and various GasNetworks initiatives. The program also supports advancing federal equipment standards, the

Program Design 2010-2012 (cont.)	Massachusetts Building Energy Code and code compliance training. **Technical Assistance ("TA") Services**: Provision of timely, high-quality, independent technical advisory services to design teams is central to the achievement of comprehensive savings in new construction. The TA Services component of the program provides technical support matched to the specific requirements of each project and the needs of each design team. Services may include detailed energy modeling of the performance of the proposed building using various configurations of design and equipment, targeted studies and recommendations for specific building components or systems, or specialized technical studies, such as proposed industrial process improvements and compressed air projects. In general, study proposals will be assigned to, and performed by, TA consultants who have been selected as preferred vendors through a competitive procurement process by the Program Administrators. TA consultants will be assigned based on an assessment of their expertise with the technology under consideration. Customers can also elect to use a TA provider of their own choosing, as long as the co-funding Program Administrator approves the firm's qualifications and cost-estimate. Non-preferred vendors must comply with the same level of detail and quality as preferred vendors. In many instances, customers may have both gas and electric equipment options for a particular end-use. In order to (a) encourage more comprehensive, integrated, and balanced consideration of all the energy efficiency options available, and (b) ensure that customers have open choices, the gas and electric Program Administrators delivering the statewide program will provide coordinated TA studies. In general, the study costs will be cost-shared between the gas and electric Program Administrators according to the proportionate share of the analysis and/or opportunities found through the analysis. **Advanced Buildings Core Performance** is a comprehensive, prescriptive program for small commercial new construction built around delivering the New Building Institute's national Advanced Buildings Program. The Advanced Buildings *Core Performance Guide* applies proven and available energy efficient technology and building science to the design of commercial and institutional buildings in the 10,000–100,000 square foot range. The Core Performance criteria address better performance characteristics in the building envelope, dedicated mechanical heating, cooling and lighting systems, multiple demand control ventilation practices, indoor air quality improvements, and domestic hot water system efficiency. These criteria are based on the results of 30,000 energy modeling evaluations of three major building prototypes (retail, office, school), with four high-efficiency thermal and HVAC system permutations for each prototype. That analysis identified a package of consistent strategies (the "core" in Core Performance) that lead to predictable energy savings across

Program Design 2010-2012 (Cont.)	all climate zones. In Massachusetts, application of all Core Performance criteria will result in buildings with energy savings that exceed the Massachusetts Energy Code by 20-30 percent. In addition, peak energy reduction techniques will be employed to allow participants with either third-party energy supplier time sensitive rate offerings or those enrolled in the ISO-NE Price Response Program additional savings opportunities. Core Performance is accepted by the US Green Buildings Council as an alternative pathway to achieve the energy and environment points required to qualify a smaller building for Leadership in Energy and Environmental Design ("LEED") certification. Program Administrators will provide technical assistance consultants to help design teams incorporate all the Core Performance features in their buildings, incentives (presented to the customer in easy-to-comprehend $ per square foot (sqft) terms), independent third party verification of Core Performance compliance, and recognition via certification of the building as an "Advanced Building" as well as ancillary publicity as jointly agreed to by the Program Administrator and the client. The Core Performance model is best applied in small office, retail, public assembly, and school/preschool applications. (The benefits diminish in lodging, large multi-family and assisted living circumstances.) The economics are based on buildings with central mechanical cooling systems. Building owners and their design teams must agree to comply with all of the essential requirements of the program (the "core") in order to participate, and they may select other features ("Enhanced Performance Strategies") to exceed the base savings potential. **Advanced Energy Office ("AEO")** is being developed by a consortium of utilities, including some of the Massachusetts Program Administrators, Southern California Edison, California Gas & Electric, BC Hydro, and others. It will target time-dependent energy efficiency opportunities that occur when a new office building is fit out for new tenant occupancy, or when an existing office building is refit at the time of tenancy change. The largest areas of energy use in office buildings are interior lighting, plug loads (computers, office equipment, etc.), ventilation, and cooling. The AEO Consortium has developed, and is now field testing, a comprehensive package of measures—the "25 Percent Solution"—that can predictably reduce lighting, plug, and HVAC loads in office spaces by 25 percent. In addition, peak energy reduction techniques will be employed to allow participants with either third-party energy supplier time sensitive rate offerings or those enrolled in demand response programs to achieve additional savings opportunities. The package also highlights such occupant amenities as improved lighting quality and comfort system performance. The 25 Percent Solution is structured to complement the tenant improvement process, when new or existing office spaces are "fit up" for an incoming

Program Design 2010-2012 (cont.)	tenant. Implementers of the AEO initiative will work with property owners/managers, tenants, design professionals, and contractors to create a more responsive and responsible office environment—one that better serves tenants' needs while also reducing energy costs, enhancing property values, and supporting a reduced carbon footprint. It is expected that with today's heightened concern about both high energy prices and climate change, tenants will aspire to achieve "25% Solution Certified" space. **Advancements to Massachusetts Building Energy Codes:** Program Administrators have worked with the Massachusetts Board of Building Regulations and Standards ("BBRS") and other interested partners on the advancement in building energy codes for over a decade. Representatives of the Program Administrators sit as active members of the Energy Advisory Committee ("EAC") where they have helped BBRS develop the technical requirements for more stringent energy codes in the commonwealth. In addition, the Program Administrators support the "stretch" energy code option for local communities. The stretch code is based on *Advanced Buildings Core Performance,* which is supported as a voluntary program outside of stretch code communities. Program Administrator's will support the adoption of local stretch codes through continuation of upstream and/or downstream incentive structures for a set transition period, targeted at two years after local adoption, or until the next statewide code upgrade. **State and Federal Equipment Standards:** Appliances and plug loads often account for 25 percent of a building's total energy consumption and can be as much as 50 percent or more, especially in hospitals and laboratories.[16] Appliances are usually not regulated by building energy codes, which is why supporting higher equipment standards may be as important as supporting a rigorous code. Gas and electric programs offer incentives for energy-efficient equipment that is more efficient than required by state and federal standards, thereby helping "mainstream" these products in the marketplace, and increasing the likelihood that they can be incorporated in future cycles of standards upgrades. The Program Administrators will continue to work with regional and national groups, such as the Consortium for Energy Efficiency, the Alliance to Save Energy, Northeast Energy Efficiency Partnerships, and the Appliance Standards Awareness Project to support legislation and regulation that calls for more stringent state and federal equipment standards. Program Administrators will also support efforts underway to ensure that states seeking exemptions from federal standards to enhance local standards be allowed to do so. Support

[16] From "*The Role of Energy Codes in Public Policy A White Paper by the Northwest Energy Codes Group"* - December 2008

Program Design 2010-2012 (cont.)	provided by Program Administrators in the Program Administrators has included legislative testimony, briefings with state and federal legislators, and letters of support for specific legislation on codes and standards. **Training for Building Code Compliance:** Program Administrators will continue to provide support for training of code officials, building design professionals and contractors. Improved knowledge helps both the regulated community (architects and engineers) and code regulators improve compliance. The Program Administrators will make recommendations to BBRS and seek their direction on training and outreach efforts that might be offered for the current code and any stretch codes that might be adopted. The Program Administrators and BBRS will then coordinate efforts to implement those efforts. **Product Availability:** The Program Administrators will continue to work with distribution houses to facilitate product access and provide competitive pricing of efficient products. In some cases, this involves bidding for specific products (lamps, ballast, fixtures, drives, heating, water heating equipment, controls, etc.), which are then promoted to customers and vendors. This is especially vital to smaller customers and vendors who do not have the resources and size to procure at bulk pricing. **Performance Lighting:** The Programs Administrators promote high performance lighting technologies and design practices that are either more efficient than standard practice and/or the requirements of the Massachusetts Building Code through incentives for better lighting design. The Performance Lighting option promotes the thoughtful combinations of energy efficient lighting fixtures and lighting controls in site-specific lighting designs that produce quality lighting using lower watts per square foot than the current commercial Massachusetts building code. **DesignLights Consortium:** The Program Administrators will introduce solid state ("LED") lighting technologies as these become cost-effective in various applications. The Massachusetts Program Administrators participate with a number of regional and national program administrators in the DesignLights Consortium, which has contracted with the Lighting Design Laboratory at Rensselaer Polytechnic University to qualify specific LED products submitted by manufacturers for lighting quality, reliability, and energy savings. After vetting, these technologies will be approved for incentives by each of the DesignLights cooperating program administrators. **Massachusetts Cool Choice and MotorUp:** The Program Administrators will continue to jointly deliver state-wide initiatives that target high efficiency HVAC equipment and controls and NEMA Premium efficiency motors. Additional gas technologies for heating and cooling will be evaluated, as well as new electric technologies such as variable refrigerant flow heat pump systems, as to their overall energy savings benefits for

Program Design 2010-2012 (cont.)	future integration as a prescriptive incentive. **Gas Technology and Application:** The Program Administrators will continue to jointly deliver state-wide initiatives that target high efficiency heating, water heating, and kitchen equipment and control systems. Program Administrators will continue to identify and evaluate high efficiency gas technologies, as well as incorporating energy savings electric technologies, as joint offerings to our customers. **Combined Heat and Power ("CHP")** is an attractive offering for customers such as hospitals, thermal intensive industrials, multi-family housing and others with year round thermal use. CHP presents unique challenges, as reductions of metered electric loads are offset by increased use of fossil fuels to power the CHP system. Overall energy efficiency is improved through increased utilization of the on-site electric generator's recoverable heat. Program Administrators will require a custom analysis and screening of potential CHP opportunities to ensure positive net benefits and a net reduction in greenhouse gases. The eligibility process will be aligned with the Alternative Portfolio Standard ("APS") process.
Target Market	The target market is all time-dependent gas and electric energy efficiency opportunities in the C&I sector – commercial, industrial, institutional, and government customers. Key market actors are architects, engineers, commissioning agents and owners/ developers of new buildings, and manufacturers and distributors of energy efficiency gas and electric technologies.
Marketing Approach	Projects involving new construction have significantly different dynamics than retrofit projects. New construction typically requires longer lead-times and involves more decision makers and influencers than retrofit projects. In addition, while retrofit projects typically involve turn-key vendors selling a project specifically on efficiency attributes, a parallel market actor does not exist in new construction. Products are usually specified, not sold. While the customer is still a key decision maker, it is critical that all stakeholders are included and are informed and influenced toward a common goal of energy efficiency. Although this process starts with the architect, the final design/product can be changed (value-engineered/alternate specification) by the engineer, contractor, distributor and so forth. To address these dynamics, specific outreach strategies are designed for each of these stakeholders groups. Extensive one-on-one communication is the primary outreach strategy – building relationships by partnering on successful projects and adding value ensures commitment to efficiency. This direct marketing is supported through numerous other channels including brown bag educational seminars,

Marketing Approach (cont.)	formal training such as Labs21, newsletters, and open houses. Direct marketing pieces have been developed to pursue new construction leads identified through such publications as the REED Construction Database and New England Construction News. Additional marketing approaches used by one or more Program Administrators include direct contact with customers identified through trade publications and advertising in local trade publications, seminars and training sessions. The statewide website and statewide media marketing will build overall awareness of the program. For time-dependent projects involving replacement of failed or end-of-life equipment, marketing efforts focus on customers and equipment vendors rather than on developers and designers. Program Administrators market the equipment replacement track to customers and vendors through extensive one-on-one communication. Supplemental marketing efforts include distribution of promotional material (such as case studies), attendance at trade shows and conferences, power breakfasts, and other customer and vendor focused training seminars. Program Administrators are constantly looking for additional innovative ways to work with equipment distributors and installers to help them promote energy-efficient equipment and systems to their customers.
Target End Uses	Targeted end uses include can include: lighting equipment and controls, lighting design, motors, variable speed drives, high performance HVAC equipment, chilled water systems / refrigeration systems, building envelope measures, compressed air, high efficiency heating and water heating, and industry-specific gas and electric industrial processes. Site-specific custom measures, including CHP distributed generation, may also be considered. Full comprehensive gas and electric approaches are aggressively promoted to ensure the capture of all cost-effective achievable and technical potential in a given facility.
Recommended Technologies	Recommended technologies can include: efficient lamp and ballast technologies, direct/indirect lighting fixtures, lighting controls, building envelope measures, efficient motors and motor drive systems, efficient cooling systems, chillers, gas-fired infrared heating systems, efficient boilers and hot water equipment, combustion controls, compressed air, ERVs, dehumidification, humidification, gas and electric process improvements and energy management systems. Other cost-effective electric or gas efficiency measures will be evaluated for eligibility.

Financial Incentives	All Program Administrators' financial incentives structures will be consistent. Both prescriptive incentives (fixed amounts for specific measures) and custom incentives (based on the unique energy savings criteria of a project) are available. Financial incentives may cover up to 75 percent of incremental labor and equipment costs. Prescriptive financial incentives are offered for selected lighting, motor, variable frequency drive, HVAC measures, heating and water heating, controls and kitchen equipment. Other cost effective measures are promoted with custom incentives based on the incremental equipment and installation labor costs (if any) of installing high efficiency equipment compared to standard efficiency equipment, or brought down to an equivalent of a fixed payback period. Design incentives covering a significant portion of incremental architectural and design costs associated with comprehensive energy efficient designs are promoted to encourage holistic design treatments. Program Administrators also co-fund targeted engineering and commissioning studies.
Delivery Mechanism	The Program Administrators will work together to market and implement the program as a unitary statewide effort to maximize the acquisition of potential energy savings (gas and electric) in the ongoing market for new facilities and replacement equipment in the Commonwealth.

Joint Program Administrator Enhancements Planned for 2010-2012	Key joint Program Administrator enhancements are identified in the narratives above. In summary, program services and incentives will be offered under one common umbrella program with a statewide platform. Individual Program Administrators will administer the program in their locales, using common procedures, qualifications and incentives. Application forms and promotional materials will feature the statewide program name; the local Program Administrator brand, and will be common, except for any unique information required to properly administer the program in an individual Program Administrator's locale – such as contact numbers and addresses, etc. There will also be an integrated website and statewide program marketing and customer outreach campaigns. Programs are kept in harmony by regular meetings of the respective program managers around policy and delivery issues, and the Joint Standing Technical Committee around issues of measure savings quantification, vetting new measures, and testing of emerging technologies. The Gas Technologies Committee was recently formed to coordinate on the review of savings, new measures and technologies. This group will also work to keep trades and vendors apprised of new technologies and program design. Over the next three years, the Program Administrators will increase their capacity to deliver deeper savings by evaluating internal staff capacity and needs, and adjusting accordingly, retaining additional installation contractors to deliver services to customers, and expanding the pool of qualified contractors, engineering and architectural consulting firms in order to deliver larger scale energy efficient technical solutions to customers. In addition, the Program Administrators are looking to develop additional strategic partnerships with other energy services providers. The intent of the Program Administrators is to build on our successful base of twenty years of experience with a continued focus on offering all-fuels-integrated design solutions to move buildings to optimal levels of performance. To address customer needs for additional capital to invest in more comprehensive or expensive solutions in their facilities, various financing options will be tested and implemented, including the ability for the Program Administrators to provide financing using program funds to all eligible customers, with flexibility to set different terms based upon experience. Also, as described earlier, program components targeting specific customer groups and building types with specific needs and energy saving opportunities will be expanded to increase participation and savings.

Special Notes	Improving the energy performance of commercial buildings is essential to achievement of minimizing carbon emissions. The next generation of building science planning will examine how buildings can move to *Getting to Fifty*—50 percent more efficient than current codes. The Program Administrators will work with a number of the leading organizations that are investigating technical solutions and practices to meet this next threshold. These include the New Buildings Institute, the US Green Buildings Council (USGBC), the American Institute of Architects, the American Council for and Energy Efficient Economy and other experts in the building science field. The current Massachusetts portfolio of lost opportunity services is mature and successful. Massachusetts gas and electric programs have received numerous awards from peer organizations (EPA, DOE, AGA, American Council for Energy Efficient Economy ("ACEEE"), Natural Resources Defense Council, NEEP and others) for being examples of exemplary program design. The Massachusetts electric Program Administrators programs have also been identified as "Best Practices" in studies commissioned by the Energy Trust of Oregon, the California program administrators, ACEEE, and others. As noted elsewhere in this document, the Program Administrators have long collaborated with their peer program deliverers in other states and regions, through active participation and leadership in such organizations such as the American Council for and Energy Efficient Economy, the Alliance to Save Energy, Northeast Energy Efficiency Partnership, the Consortium for Energy Efficiency, GasNetworks, etc. The Program Administrators also regularly collaborate with individual utilities or groups of utilities to develop new program delivery models and strategies. With growing common challenges to develop comprehensive and deep treatments in buildings, leading program deliverers have joined to develop common, national approaches. For example, some of the Massachusetts Program Administrators are currently actively involved in the Advanced Energy Office Project for deep treatments of office space (with such partners as the Energy Trust of Oregon, BC Hydro, Southern California Edison, Pacific Gas and Electric, the US Department of Energy, and others); the Advanced Buildings program for new construction (with the New Buildings Institute, Efficiency Maine, Efficiency Vermont, Efficiency New Brunswick, We Energies, and others); and the DesignLights Consortium Solid State Lighting Program (with all the major New England program administrators, the Long Island Power Authority, the Energy Center of Wisconsin, the California utilities, and others).

C&I Direct Install Program

Primary Objective	The primary objective of the C&I Direct Install Program is to provide cost-effective, comprehensive electric and gas retrofit services to business customers on a turnkey basis using the same delivery model throughout the Commonwealth.
Program Inception	Each Electric Program Administrator began offering some kind of specialized services for hard-to-reach small business customers in the 1990s. The "direct install" turnkey model was first offered by National Grid in 1990 for customers 50 kW and smaller. With experience it evolved and improved over time and was subsequently adopted, with some variations, by all the Massachusetts electric Program Administrators except for FG&E. The gas Program Administrators have no history of offering a direct install option. The Massachusetts direct install model has been recognized by many national "best practices" studies and awards as the best delivery mechanism to comprehensively and cost effectively address this market, and it has been replicated by programs in New Hampshire, Rhode Island, Vermont, and Nova Scotia to date. With the direct install model, Program Administrators solicit competitive bids for the labor and materials costs of installing improved lighting equipment, lighting controls and, in some cases, improved refrigeration measures for walk-in coolers. Through a turnkey process, a single contractor conducts an audit to identify better lighting options and installs recommended measures. Some Program Administrators offer on and/or off-bill financing options to help customers finance their share of the cost of installing improvements. Program Administrators offer incentives ranging from 35% to 80%. Over time the Program Administrators have learned that, depending on the financing mechanism, it is possible to alter the mix of incentives and financing and maintain attractive customer penetration rates. Current variations in incentives: • NSTAR has a 30% customer co-pay (with no discount for the customer making a one-time payment of their share of the project cost), remainder financed through separate sundry bill for 12 months at 0% interest • WMECo has a 65% customer co-pay (with a 5% discount off the total project cost for a single payment by the customer), remainder financed on the bill

Program Inception (cont.)	• National Grid has a 30% customer co-pay (with 4.5% discount off the total project cost for a single customer payment), remainder financed on the bill for 12 or 24 months at 0% interest • Cape Light Compact has a 20% customer co-pay, balance due to contractor upon completion. Municipal projects require no co-pay. Projects are capped at $150,000 per project year unless exempted by vote of the Governing Board. • Fitchburg Gas & Electric has a 20% customer co-pay, balance due to contractor upon completion Current variations in "Small Business" definition: • NSTAR: <300 kW • WMECo: <200 kW • National Grid: <200 kW • Cape Light Compact: <300 kW • Fitchburg Gas & Electric: <100 kW
National Grid Goals 2010	Please see PA-specific filings.
National Grid Budget 2010	Please see PA-specific filings.
Program Design 2010 – 2011	The Program Administrators will offer a consistent statewide delivery model in 2010. That is, the electric and gas measures offered and delivery through a direct install turnkey mechanism will be the same throughout the Commonwealth. **2010** will be a "transition year" during which the following issues will be addressed for implementation in 2011. 1. All Program Administrators will move to a common <300 kW cap and reevaluate after six months for its impact on gas measures and opportunities. 2. FG&E will transition to the standard DI model

Program Design 2010 – 2011 (cont.)	3. All Program Administrators will identify and add prescriptive gas measures and potentially more prescriptive electric measures, and adjust their screening tools to allow for custom gas measures. 4. All Program Administrators will renegotiate their current contracts to add identified gas prescriptive measures and provide for screening of gas custom measures 5. The gas Program Administrators will commence actions to provide on-the-bill-financing by 2011 or, in the alternative, negotiate arrangements with the electric Program Administrators servicing their areas to bill gas measures through the electric bill, with a reimbursement to the electric Program Administrators for measure and financing costs. 6. FG&E and NSTAR will commence actions to provide on-the-bill financing payments in 2011 7. All Program Administrators that offer financing will offer a common discount for single customer payment 8. All Program Administrators that offer financing will explore flexible repayment terms to produce a positive cash flow for the customers, beyond 24 months. 9. The Program Administrators will develop and pilot the structure of a "mid-tier" DI option, with an expanded portfolio of measures to address this sector business retrofit DI measures as well as additional opportunities found in a selected band to be determined, for implementation in 2011. (Target band in the range of 200/300 – 750 kW); pilot as necessary 10. The Program Administrators will develop and pilot a "Main Street" DI retrofit project for very small customers, size, eligibility and delivery mechanism to be defined 11. All Program Administrators will move to a 70% incentive, except for CLC, which will negotiate to use NSTAR billing services. If successful, CLC will drop to the common incentive level in 2011. **2011** 1. The Program Administrators will either form a single contracting entity or present another administrative model that assures maximum efficiency of delivery statewide. 2. All Program Administrators will offer two or three tiers of DI options, if the analyses/pilots with the upper and lower range of small customers show promise

	3. The continuation or expansion of the "Main Street" project TBD
Target Market	The program will target all direct install retrofit business customers within the defined size limitations identified above in 2010. There will be a common size definition in 2011.
Marketing Approach	There will reference to the program at the common statewide website, but the program will continue to be primarily marketed by the direct installation contractors directly to the customers on lists of eligible customers provided to them by the Program Administrators. Contractors use direct mailings and telemarketing, as well as specialized targeted efforts for hard-to-reach market segments, such as customers in economic development zones and ethnic neighborhoods, and outreach through neighborhood business associations. Trade allies, industry stakeholders, suppliers and company field personnel also inform customers about the program's benefits and incentive mechanisms. In addition, small business customers with high-bill complaints may be referred to the program as a way for them to reduce their electric and gas usage.
Target End Uses	Targeted electrical end uses include, but are not limited to: lighting and lighting controls, HVAC equipment, water heating, VSDs and refrigeration. A variety of other electric end uses may be served through a custom approach. Targeted gas end uses may include, but not be limited to: heating system controls, commercial dishwashing - water heating and potentially building envelope.
Recommended Technologies	Recommended electric technologies include energy-efficient fluorescent ballasts, lamps, and fixtures; hard-wired and screw-in compact fluorescent systems; high intensity discharge systems; LED lighting and occupancy sensors; energy management systems; and refrigeration measures such as evaporator fan controls, efficient evaporator fan motors, automatic door closers and door heater control devices for walk-in coolers. To create greater depth and appeal for the program, customers are offered the opportunity to install non-prescriptive lighting and other comprehensive energy efficiency measures through the custom approach. Recommended gas technologies include programmable thermostats, pre rinse spray valves, pipe insulation, and potentially some weatherization and infiltration measures. Other identified gas measures may be served through a custom approach to include EMS and Hood controls
Financial Incentives	Qualified participants receive an audit to identify cost effective opportunities for saving energy. Both prescriptive incentives (fixed amounts for specific measures) and custom incentives (based on the unique energy savings criteria of a project) are available. Financial incentives cover a portion of the total installed costs, including labor and equipment. In addition, some Program Administrators currently offer low- or no-interest financing options and/or discounts for upfront payment of their share of the cost, and all

	Program Administrators will move to include these options.
Delivery Mechanism	Vendors are selected through a competitive bidding process to implement the program. These vendors market the program, perform audits at customers' facilities, offer recommendations to customers, complete audit forms and questionnaires, purchase lighting materials from a supplier also selected through a competitive bid process, install measures, input data into a database, and prepare progress reports for the Program Administrators on a regular basis.
Three-Year Deployment	Over the next three years the Program Administrators will examine their capacity to deliver deeper savings by evaluating internal staff and contractor capacity and needs, and adjusting accordingly, as well as by retaining additional installation contractors to deliver services to customers and promote the installation of custom measures. The Program Administrators will also pilot variations of the direct install model both up market, to larger facilities, and down market, to very small customers. Additional technical assistance consultants will be retained to help installation contractors with a broader array of custom projects. After program harmonization in 2010, Program Administrators will pilot various modifications to the current incentive formulas, including extending payment terms beyond two years and adjusting incentive levels.

C&I Pay & Save Financing/Loan Pilot

Primary Objective	To establish a pilot loan program that creates an alternative financing mechanism for customers to finance the customer contribution cost of the implementation and installation of energy efficiency measures. The desired effect is to eliminate a barrier for customers to participate in energy conservation.
Program Inception	New pilot program (see Special Notes regarding 2009 Energy Pay and Save Pilot Program)
2010-2012 Program Goals	Please see PA-specific filings.
2010-2012 Budget	Please see PA-specific filings.
Joint vs. Program Administrator-Specific Offering	Joint offering.
Program Design	The program would make funds available to customers to assist in financing energy efficiency improvements and enable customers to repay those loans through their utility bills without interest.
Target Market	To be used by programs designated by Program Administrators.
Marketing Strategy/ Approach	Pilot program will be incorporated into the small business audit process as well as other C&I programs
Target End Uses	C&I customers who install non-portable measures.
Recommended Technologies	Non-portable measures
Financial Incentives	Financing the customer contribution assists customers who do not have the ability to pay in full at the time of the installation. It is expected that this incentive will allow for increased customer participation in programs.

Delivery Mechanism	C&I program delivery vendors.
Three-Year Deployment	Once the pilot program is completed on December 31, 2009, an evaluation will commence and a decision to incorporate this program into 2010-2012 programs will be explored by Program Administrators.
Special Notes	The Program Administrators will incorporate findings of the Department-approved Energy Pay and Save pilot program offered to residential and small business customers from April 1, 2009 – December 31, 2009 (D.P.U. 09-07) in any new financing initiative which may be developed. In all programs or instances where financing is provided, the Program Administrators have the ability to providing provide financing using program funds to all eligible customers, with flexibility to set different terms based upon experience.

Codes and Standards Support

The Program Administrators have long supported a number of efforts to develop and implement progressive building energy codes and appliance efficiency standards. These have included providing testimony before the Board and Building Regulations and Standards (BBRS), offering training to code officials, and supporting efforts by the Northeast Energy Efficiency Partnerships (NEEP) and others to have state-level appliance efficiency standards adopted in Massachusetts.

These efforts will continue and plan to be expanded over the 2010-2012 timeframe. Planned and anticipated activities include:

- Support for the Recently Adopted Stretch Code. The Program Administrators plan to provide support of individual jurisdictions considering adoption of the recently approved Stretch Code. In addition, the Program Administrators plan to work with the BBRS and other interested stakeholders to develop compliance documents and to develop and offer training to builders, architects and code officials on the Stretch Code.

- Identify and Advocate for Continued Improvement of the Massachusetts Building Code. Through the Standing Technical Committee the Program Administrators will identify code changes that will further the goals of increased energy efficiency in Massachusetts. As needed and as deemed appropriate, the Program Administrators in consultation with other key stakeholders will help develop technical analysis and provide testimony before the BBRS and other regulatory authorities in Massachusetts in support of these changes.

- Expand Training for Building and Design Professionals and for Code Officials. The Program Administrators plan to work with other key stakeholders to develop and offer training to building/design professionals and code officials. These trainings will address code compliance issues, as well as highlight beyond code efforts (Stretch Code, LEED, etc.) and include Program Administrators' program offerings.

- Advocate for New and/or Improved State Appliance Standards. Through the Standing Technical Committees the Program Administrators plan to identify savings opportunities that could be obtained through new or improved state appliance efficiency standards. The Program Administrators will work with NEEP, the Appliance Standards Awareness Project (ASAP) and others to support new standards be adopted in Massachusetts. Similarly, the Program Administrators will support efforts at the national level to develop and promulgate federal appliance standards

The above and related codes and standards efforts will require Program Administrators' time and resources. Currently, the Program Administrators do not claim savings for any of their codes and standards activities. The completion of a 2009 residential metric will provide a basis for developing an attribution model to claim savings for Program Administrator code and standards efforts. The Program Administrators plan to work with the Council, DOER and others to develop a final approach that would allow Program Administrators to claim and reflect all savings from codes and standards efforts.

G. Special Public Education and Action Activities

1. *Introduction*

In order to achieve the aggressive goals set forth in this Plan, the Program Administrators will undertake a comprehensive energy efficiency public education and awareness outreach campaign. The core goals of the Program Administrators in any public education and promotion campaign include: reaching the maximum level of residential and business customers possible; providing messages that are not overly technical and that clearly describe the benefits of energy efficiency; exploring targeted marketing to unique or specific communities throughout the state (including communities where English is not the primary language); utilizing diverse media (*e.g.*, internet, bill inserts, television, radio, billboards, public transit) to disseminate consistent and clear messages; and ensuring that the various strategies work together to ultimately achieve deeper and broader savings. The Program Administrators are aware that, in addition to their efforts, the Commonwealth seeks to promote energy efficiency and the Program Administrators will look to coordinate activities with applicable governmental initiatives, such as the efforts contemplated under Section 108 of the Green Communities Act, which provides for a collaborative pilot effort by the DOER and the University of Massachusetts at Boston to establish an educational outreach program, that includes programs to be provided at community colleges and community centers. The Program Administrators will look to the DOER for further guidance with respect to this pilot effort. The Program Administrators will also continue to work with local schools, including technical vocational high schools and community colleges, to support comprehensive standards-based education in order to promote a more energy-conscious and educated society. These efforts are discussed in more detail below.

2. *Updated Statewide Education and Outreach Efforts*

During the summer of 2009, the Program Administrators commenced collaborative efforts with the DOER to address public education and participation-oriented efforts in more detail, with a particular focus on statewide efforts. The overall purpose of energy efficiency education, community outreach, and marketing efforts will be to increase residential and business consumer awareness and encourage consumers' subsequent participation in energy efficiency programs, while fostering behavioral changes that lead to energy savings, the reduction of greenhouse gas emissions, and increased customer savings. A successful and effective statewide education and marketing plan is fundamental for the Statewide three-year Plan, and will play an important role in achieving the goal of transforming markets for energy efficiency. In addition to the current program level education and marketing efforts, the Program Administrators will undertake the development of a comprehensive statewide energy efficiency campaign in order to achieve the savings goals proposed in this updated Plan. The Program Administrators will develop strategies to deliver this campaign to targeted customer profiles. While much of the educational focus has been on residential markets, the Program Administrators will also consider specific strategies targeting the business sector. Ultimately, the educational and marketing effort should move residential and business consumers through a process of awareness, attitude change, and finally action.

In order to realize their public education, community outreach, and marketing potential, the Program Administrators have identified the following goals:

- Prioritizing public education.
- Providing information that clearly outlines the benefits of energy efficiency and a path to a Zero Net Energy future.

- Broadening awareness of available resources and actions to all potential audiences, including residential and business customers.
- Identifying and understanding the barriers to action, and developing potential motivators to bridge the gap between awareness and action.
- Communicating with the general public and with targeted audiences in the most effective ways possible to reach those audiences.
- Maximizing the number of individuals, organizations, and businesses that take action to reduce their energy consumption.
- Educating consumers on the benefits of, and ways to achieve, deeper savings through deep energy retrofits.
- Educating service providers and equipment suppliers on the benefits of, and ways to deliver energy efficient products and services to achieve savings across their broader customer base.
- Encouraging behavioral change to conserve energy, save money, and reduce greenhouse gas emissions.

The Program Administrators will expand and develop outreach strategies while creating seamless consumer experiences that offer integrated portfolios of energy efficiency information and program options that are clear, relevant to the consumer, and available to all Massachusetts residents, businesses, and other organizations. Some of the expanded statewide energy efficiency efforts currently underway that will assist in implementing this education and marketing plan include the following:

i. Education & Training

The Program Administrators continue to participate in existing and burgeoning efforts to create a standardized energy curriculum where one does not already exist. Some Program Administrators currently offer curriculum and educational information and guidance to schools; these efforts will be expanded to Program Administrators through collaboration with the DOER, Massachusetts Department of Education, the University of Massachusetts, and with local

community colleges to create and disseminate additional educational curriculum. The Program Administrators are considering developing a standard introduction to energy and energy efficiency that will be common to all education and training efforts. Further, the Program Administrators will continue to support ongoing efforts to reach targeted audiences (*e.g.*, teachers, schools, contractors, architects, realtors, building inspectors).

The Program Administrators have learned over the years that trade ally relationships, events, and training sessions prove to be a critical and effective means of promoting energy efficiency. Thus, the Program Administrators will expand the promotion of programs through various PA-sponsored training events, trade shows, and trade ally events in conjunction with large-scale, statewide GasNetworks training seminars which to date have proven very successful and will continue to be a part of integrated efforts. For example, over 360 HVAC professionals attended the September 24, 2009 conference in Randolph, which featured a myriad of expert trainers and speakers who explored subjects such as high efficiency natural gas heating equipment and installation practices, hydronic heating, on demand water heating, and condensing and modulating boilers, and which also included 25 equipment manufacturers and suppliers who displayed new products and technology, and a trade show. To date, GasNetworks has provided expert training to over 7,300 HVAC contractors. The Program Administrators recently established an education and training center in Fitchburg. In this "hands-on" classroom environment, contractors experienced in energy efficiency installations are trained in the proper techniques of air sealing and insulation installation in order to ensure consistency across service providers. The Program Administrators have plans to open a second center in Springfield. In addition, the MassSAVE team is currently creating a comprehensive education package designed

as a tool to inform all residents about how to contemplate energy savings in their homes over the long-term, and to direct them on a path of energy efficiency that could lead to Zero Net Energy.

Moreover, the Program Administrators are joining with the Massachusetts Energy Efficiency Partnership ("MAEEP") to present US DOE-sponsored energy efficiency workshops on various technologies. The Program Administrators have also joined with the Northeast Energy Efficiency Council ("NEEC") Building Operator Certification ("BOC") regional training program that focuses on how O&M procedures and processes impact energy costs. The Program Administrators also offer Advanced Building™ ("AB") seminars as a suite of technical and training resources to improve the way buildings are designed, built and used. Using whole building patterns, design process tools, and education, this AB effort provides designers with the resources to incorporate integrated design strategies on their next project to reduce energy usage and improve indoor environmental quality. In addition, the Program Administrators will work with the Massachusetts Clean Energy Center ("CEC"), a quasi-public agency that serves as a clearinghouse and support center for the clean energy sector and focuses in part on workforce development and training.

ii. Energy Efficiency "Brands"

Building upon successful regional and statewide energy efficiency brands, the Program Administrators are currently working towards developing a complementary, statewide energy efficiency brand (or brands) with the expectation that once adopted, it will have created a clear, consistent, and recognizable message about the individual and social value of energy efficiency. This "branding" will serve as the foundation for all residential and business consumer information on energy efficiency products and incentive programs, and will encourage customers to strive for deeper savings. In addition, as the electric and gas programs become more

integrated and "fuel blind," joint branding will allow the Program Administrators to further pool resources and create targeted educational and marketing collateral materials that will provide residential and business consumers with an increased understanding of the full array of energy efficiency options available in Massachusetts.

iii. Mass Media

Newspaper articles, radio, and television news reports highlighting energy efficiency programs have consistently increased activity in the relevant spotlighted program. Consequently, the Program Administrators have utilized limited mass media advertising to educate and promote their energy efficiency program offerings. As the branding efforts described above are finalized, a larger scale, more frequent, mass media advertising plan will be implemented to create the desired effect of increased and broader consumer awareness for available programs, while striving to encourage deeper consumer savings. Moreover, the ability to promote a common, integrated website to a mass market will allow for further economies of scale and, in turn, more frequent, cost-effective mass media advertising in order to increase customer awareness.

iv. Community Based Outreach/Social Education and Marketing

The Program Administrators see an important opportunity to expand and develop relationships with community organizations that have existing influential relationships within cities, towns, regions, and demographic and special interest groups. Some of these organizations have already promoted efficiency to their members, while others have strong networks but have not yet focused on energy issues. The Program Administrators will seek to develop enhanced strategies to reach out to non-English speaking consumers, low-income consumers, and groups that have historically low participation, and explore increased efforts with representative

community organizations. The potential to leverage community-based organizations to educate and promote energy efficiency actions is significant and will be developed in the "community mobilization initiatives" being evaluated as pilot programs. The Program Administrators can learn from, and build upon, successful programs such as the Marshfield Energy Challenge (NSTAR), the MAPS Pilot which included outreach to the Portuguese-speaking community (NSTAR), and Energy Smack Down (National Grid/NSTAR), and will take note of positive developments experienced with the Western Mass Saves (WMECO) launch in August. The lessons learned from these community outreach programs will be the catalyst to the creation of future similar educational outreach efforts throughout the Commonwealth. The Program Administrators will also explore a new pilot collaboration with community-based organizations that have long-standing relationships with homeowners, tenants and small businesses in economically marginalized communities, to assess the feasibility of a "community mobilization outreach model" that implements a neighborhood approach to energy efficiency services. This model has the potential to offer effective and appropriate energy education to underserved communities, including limited English speakers and economically marginalized groups. These efforts are discussed in more detail below.

The Program Administrators will also explore how "word of mouth" contact can be tapped to heighten motivation towards energy efficiency action. The Program Administrators will explore offering "incentives" for referrals that lead to other consumers participating in energy efficiency programs.

v. Internet—"Integrated Website"

The Program Administrators are engaged in developing a single point of entry for all residential and business audiences through a new integrated website. The Internet offers a

powerful, cost-effective platform to provide energy efficiency information, promote programs, and inspire action. The integrated website will provide a point of access to a multitude of residential and commercial energy efficiency programs in a user-friendly environment. The statewide "brands" will be prominently featured throughout the website.

The increase in program participation levels over time indicates that the traditional education, outreach, and marketing efforts (such as direct mail, ethnic outreach, radio and print media, bill inserts, trade ally relationships, and training events, sponsorships, educational seminars, and program brochures) have been successful to a significant degree. In order to create even broader energy efficiency public awareness, however, and establish even deeper participation in the programs offered, additional methods of market defining techniques and barrier identification should be implemented, and the Program Administrators believe that an integrated website provides a distinct opportunity to reach a broader audience, increase energy efficiency awareness, and encourage deeper savings.

vi. Behavioral Research

Program Administrators understand that identifying the motivational factors that cause residential and business customers to take action and participate in programs is important in developing energy efficiency programs capable of achieving long-term sustainable success. Equally important is the ability to identify those barriers that could potentially block a motivated customer from participating in energy efficiency programs. The Program Administrators will research successful motivational actions that have worked in other states, determining which motivational strategies have succeeded, and which might be best suited for application with the Plan. Additionally, the Program Administrators will sponsor primary market research in Massachusetts in order to answer critical questions regarding behavior related to energy

efficiency. The Program Administrators will solicit input, through the Council and its Consultants, on existing barriers involving non-English speaking groups and members of communities in the state which have historically low rates of participation in energy efficiency programs. The Program Administrators will then incorporate the successful methods determined by the research in Massachusetts and other states into their education, outreach, and marketing programs.

One successful organization upon whose work the Program Administrators would like to build is Positive Energy, a corporation that is committed to persuading consumers to save energy through a combination of technology, analytic direct marketing, and behavioral science. Several Program Administrators have engaged the services of Positive Energy to "rate" consumers' energy usage in comparison to their neighbors. This "normative information" approach has been successful in California and will be considered for implementation in Massachusetts. In addition, focus groups, such as the recent series of meetings organized as part of the MassSAVE RCS effort, will be expanded to include all market segments, including residential, C&I, and low-income, to garner as much consumer information as possible to further identify barriers to participation and to assist the Program Administrators in formulating outreach efforts.

vii. Segmentation Research

Recently, through the use of the Warren Group Report, the Program Administrators have initiated an effort to better understand the demographics in each service territory. The Warren Group Report identifies the population of single homes, multi-family properties, and low-income residences that exist in each of the service areas. Other internal and external resources to identify the characteristics and demographics of consumer populations—such as information that can be provided by local community groups—will be examined to assist in further identifying

consumption, motivations, and barriers to positive action. Such reports and information will be used to identify specific customer profiles and will facilitate targeted outreach to these groups.

viii. Message Development

In creating energy efficiency messages, both high level and targeted, the ultimate goal is to have consumers understand the many benefits of energy efficiency and then take action. Further, to engage consumers who have already implemented energy efficiency measures, the message will include and highlight the additional benefits and importance of going "deeper" by implementing additional energy efficiency measures, such as deep retrofits. Traditional messages focusing on self interest ("*save money*"), the environment ("*help the planet*"), and social responsibility ("*do your part*") used in previous education and marketing campaigns have been effective to an important degree, but new messages need to be developed to help foster broader and deeper participation. In addition to the overall message, the Program Administrators will also develop messaging at the program level and at the sector level, in order to engage varied consumers and other important market actors (contractors, equipment suppliers, opinion leaders) with differing motivations. The Program Administrators plan to conduct qualitative and quantitative research to identify what consumers believe to be conservation and energy efficiency behaviors, and to determine what motivates consumers to practice more energy efficient behavior. This research will lead to the creation of a "call to action" for the residents and businesses of Massachusetts.

ix. Maintenance of Complementary Individual Efforts

While working diligently on the statewide public education efforts, the Program Administrators will also continue to maintain customer awareness, satisfaction, and participation goals. As the Program Administrators have noted in Section II.A.7.iii, consistency is a high

priority and the Program Administrators will also continue outreach efforts utilizing customer representatives and company-specific efforts that complement and are consistent with statewide efforts.

x. Next Steps and Conclusion

The Program Administrators will be optimizing the budget for the statewide education action plan, and will continue to collaborate with the DOER, the Council, and its Consultants, and other interested parties as the budget is developed. The Program Administrators will explore how the rules governing cost-effectiveness could present challenges to this effort, despite the importance of the education and outreach campaign to the saving goals in the Plan, and are confident that these issues can be resolved and that overall program cost-effectiveness, even including increased public education and marketing costs, will remain robust.[17] Additionally, the Program Administrators will be developing and issuing RFPs for partners in some or all of the following areas: market research; segmentation research; message development; community-based education; and integrated education/behavior change campaigns.

The ultimate goal of these educational, community outreach, and marketing efforts is to develop a broad system of communication with Massachusetts citizens and businesses and deliver comprehensive energy efficiency programs. Through an array of effective messages and valuable information resources, the Program Administrators will engage with a large portion of the population to assist in delivering value to residential and business customers and achieving the aggressive energy efficiency goals set forth in this Plan.

[17] By way of example, the Program Administrators are reviewing including outreach efforts in the "hard to measure" category. *See* D.P.U. 08-50-A, at 24-31; *see also* G.L.c.25, §21(b)(2)(iv)(I). The DOER has noted in its memorandum titled Guidance on the Impact of 08-50 on Public Education Efforts for Energy Efficiency, dated June 30, 2009, that there is clear regulatory support to develop and implement public education programs on energy efficiency. The DOER specifically stated that market research to assess, *inter alia*, customer attitudes is allowed and strongly encouraged within the scope of education efforts.

H. Evaluation and Monitoring

1. *Introduction*

This section proposes a framework for evaluation and monitoring for the three-year plan period, 2010-2012. The section begins with the text of the EM&V Resolution. Based on the principles of the EM&V Resolution, the Program Administrators and the Council have delineated specific research areas, based primarily on target markets. The section then provides an overview of the types of evaluation and monitoring strategies that are utilized by the Program Administrators, followed by a discussion of high-level evaluation budget levels. Finally, there is a discussion of the Program Administrators' transition strategy, as well as a detailed section on specific evaluation and monitoring priorities and activities planned for each of the research areas.

2. *EM&V Resolution*

On September 8, 2009, the Council approved its EM&V Resolution, which is quoted in full below:

> The Energy Efficiency Advisory Council recognizes that the deployment of the energy efficiency programs by the electric and gas Program Administrators ("PAs"), in support of the mandates of the Green Communities Act, is expected to produce energy savings and related benefits to the Commonwealth that involve the expenditures of unprecedented levels of customer and public monies. It is therefore critical that the programs be evaluated, measured, and verified in a way that provides confidence to the public at large that the savings are real and in a way that enables the Program Administrators to report those savings to the Department of Public Utilities with full confidence. There is a need to ensure both the reality and the perception of the independence and objectivity of EM&V activities, as well as the need to help ensure consistency, timeliness, and credibility of the results.
>
> The Council also recognizes that the evolution of more uniform statewide programs necessarily leads to greater use of statewide evaluation studies as well as other organizing principles.

Accordingly, the Council adopts the following principles and policies -- divided into the topics of policy /authority and implementation -- regarding the evaluation, measurement, and verification of energy efficiency programs:

POLICY/AUTHORITY

Decision Making:

- The EEAC will assume an oversight role over the EM&V activities of the Program Administrators to ensure the objectivity and independence of those activities, and the perception of such, and to help ensure consistency, timeliness, and credibility. While PAs and EEAC Consultants (acting on behalf of the EEAC) will continue to work diligently to reach a consensus on evaluation issues, where there are areas of difference that may arise that cannot be resolved through consensus during the on-going interactive process between the EEAC Consultant and the PA evaluation staff, authority for decision-making will reside with the EEAC or its Designee.

- **Appeals:** To enable the Program Administrators to fulfill their responsibility to report program savings to the DPU with full confidence, an appeals process shall be established, through which the PAs may bring decisions made by the Council or its Designee for review and resolution. This process will be implemented through the formation of a standing evaluation committee ("Standing Committee") of the Council, whose responsibility in this area will be to hear the matter under dispute and rule so that the study may proceed in a timely way. In general, it is expected that this review process will be completed within 72 hours once an issue is elevated to the Standing Committee.

- **Resolution of Disputes:** This Standing Committee will consist of three voting members of the Council, including DOER. Consistent with general Council proceedings, the Standing Committee will include and consult with, in both deliberations and decision-making, a representative of both the PAs and the EEAC consultant team, neither of whom shall have a vote in the standing committee. The Committee will review the issues related to the disputed matter, hear from the PA evaluation staff and EEAC Evaluation Consultant (the "principals"), and make a determination on the outcome of the matter. The decision will be recorded, along with a description of the applicable issues. The participants in the appeal will sign the record of the decision, indicating their acceptance of, the representation of the issues and of the decision. In exceptional cases, where the PAs perceive there to be significant risk to their ability to manage the energy efficiency programs in the near term, the PAs will note their disagreement with the decision of the Standing Committee on the record of the decision and reserve the right to immediately petition the DPU on the Standing Committee's decision. The PAs shall be able to submit any such documents to the DPU in conjunction with the filing

of the Energy Efficiency Plans and Annual Reports. The DPU will be able to review the record of this decision in its review of Plans and Annual Reports.

IMPLEMENTATION

- **A. Statewide Focus:** Impact evaluations, and other studies, should be performed at a statewide rather than an individual Program Administrator level to the maximum extent possible, while enabling to the extent necessary results at the Program Administrator level. It is recognized that circumstances could occur where a service territory specific or non-statewide evaluation or study would be appropriate. Such EM&V activities should only be undertaken following an assessment of the need and value of a non-statewide study and agreement between the PA evaluation staff and EEAC Evaluation Consultant.

- **B. Research Areas:** The range of evaluation activities should be divided into 5 to 7 semi-permanent statewide research areas, each oriented primarily to specific target markets (e.g., residential retrofit, large C&I), each with a long-term research and contract manager from the PAs, an independent evaluation contractor to conduct the studies under a long-term contract, and the EEAC Evaluation Consultant. The PAs and the EEAC Evaluation Consultant shall jointly prepare a statewide research management plan to carry this out. The EEAC Evaluation Consultant shall have the opportunity to comment on the proposed assignments of the PA research area managers. The EEAC will have the authority to remove assigned research area managers if they do not perform effectively in accordance with pre-established objective standards for research area managers. Those standards will be developed jointly by the EEAC Consultant and the PAs.

- **C. Evaluation Planning:** The research area managers and EEAC Evaluation Consultant will jointly prepare a proposed statewide evaluation plan and illustrative budget and submit it to the EEAC for approval[18]. We expect that this plan will be reviewed and updated annually. Consideration will be given to regional EM&V activities and FCM requirements, and will be responsive to DPU directives about EM&V in the development of the evaluation plan.

- **D. Coordination of Studies:** All studies[19] in which Massachusetts PAs participate should be included in the statewide evaluation plan for the

[18] The PAs and the EEAC recognize that the DPU has the ultimate authority to review and approve each PA's energy efficiency plan, including the PA's evaluation plan and budget.

[19] Some Massachusetts PAs are multi-jurisdiction utilities and may propose expanding some Massachusetts studies to include those other jurisdictions, where appropriate. If mutually agreed-to by the research area manager and the EEAC Consultant, these cross-jurisdictional efforts will proceed.

purposes of coordination of evaluation and promotion of consistent methods, and conducted by the research area independent evaluation contractors. Some studies, however, may be excluded from the statewide research area contracts. The EEAC Consultant and PAs will develop guidelines for assessing which studies may be excluded from the statewide research contracts and will apply them as necessary to identify mutually agreed upon studies that will be conducted outside of the statewide evaluation contracts. Research area managers, the PAs, and the EEAC Consultant should make every effort over time to determine if these studies may be included in research area contracts. Under the circumstances where a study is not included in a research area contract, the appropriate research area manager shall manage the study and represent Massachusetts statewide evaluation interests in the execution of the study. The EEAC Evaluation Consultant may participate in regional evaluation projects directly, upon the direction of the EEAC.

- **E. Integration:** Electric and gas evaluation efforts should be fully integrated to the maximum extent possible. Each of the statewide research areas should cover both electric and gas evaluation efforts.

- **F. Contracting:** The Program Administrators will be the main mechanism for contracting with the independent evaluation contractors.

- **G. Implementation:** As is current practice, statewide evaluation studies will be coordinated by staff from Program Administrators, with a lead from one of them (the "Study Manager"), and an EEAC Evaluation Consultant. This will enable Program Administrators and the EEAC to collaboratively provide their expertise in the planning, scoping, management, review of methods and draft protocols, and review, acceptance, and application of results of the individual studies. In many cases the Study Manager and the statewide research area manager will be the same individual. The Study Manager shall manage study efforts so that the approved evaluation study budgets are not exceeded[20]. The EEAC Evaluation Consultant should have the authority to recommend to the EEAC removal of the assigned Study Manager if they do not perform effectively in accordance with pre-established objective standards for Study Managers. Those standards will be developed jointly by the EEAC Consultant and the PAs.

- **H. Communication and Documentation**: The Study Manager will communicate regularly with the EEAC Evaluation Consultant about issues related to study execution. The Study Manager will document decisions made in the course of a study, for potential review by the EEAC, DOER, the DPU, and/or any other party.

[20] At times, the scope of an evaluation study is modified for good reasons. The Study Manager and the EEAC Consultant agree to review proposed changes in scope with the Standing Committee when the change in scope is likely to lead to an increase in study cost of more than 10% or to adversely affect the study timeline.

We expect and encourage the PAs to perform the evaluation roles assigned to them in this framework in an effective and timely way.

We recognize that there are details that remain to be worked out under this framework and that the framework may evolve over time. We encourage the EEAC Consultant and PAs to continue discussions on these topics to establish an effective process that leads to high quality and useful evaluation results, mindful of the need to maintain public confidence in the overall conduct of these programs. The process, roles and responsibilities should be reviewed and modified, as necessary, after twelve months first, and bi-annually thereafter.

3. *Descriptions of Research Areas*

Guided by and consistent with the EM&V Resolution, the Program Administrators worked collaboratively with the Consultants to develop six market research areas. They are organized primarily by target markets, which should help to maximize the statewide effectiveness of EM&V while presenting minimal overlap among areas. The research areas identified are as follows:

- **Residential Retrofit and Low Income.** This category would include residential cooling and heating equipment, residential heating and water heating, residential and low income retrofit 1-4 (MassSAVE) including weatherization, and residential and low-income retrofit (and new construction) multi-family programs.
- **Residential Retail Products**. This includes residential lighting and appliance programs.
- **Residential New Construction.** This includes residential and low income new construction and major renovations programs.
- **Non-Residential Large Retrofit and New Construction**. This includes C&I new construction (small and large) and major renovations, as well as large C&I retrofit programs.
- **Non-Residential Small Retrofit**. This includes the current C&I small retrofit, direct install programs. This category would also include future programs that may target small non-residential customers.
- **Special and Cross-Sector Studies**. This research area reflects the fact that not all studies will fall into the five market categories above, and some studies may be cross-sector in nature. Some types of studies could include: cross-sector free ridership and

spillover studies; non-energy benefits; behavioral programs; community-based pilots; and marketing, public education, and outreach activities.

4. *Transition Plan*

Under the new Evaluation Framework, the Program Administrators must transition their current individual evaluation efforts to the new approach as soon as is possible. Some research areas, such as Residential New Construction, are already being evaluated on a statewide basis. In other research areas, specific needed studies, such as a comprehensive market assessment of the commercial and industrial market, have not been conducted before; these studies should be ready to launch under the new framework as soon as RFPs can be drafted.

The first step in the transition is to develop a detailed evaluation plan to be reviewed by the Council. The goal is to communicate expected evaluation projects and studies in each of the research areas for review and approval by the Council sometime before the end of the year. The plans will cover all types of evaluation (as described in Section 6) for each sector.

The Program Administrators intend to initiate evaluation efforts as soon as possible, while acknowledging that there are some short-term transitional challenges involved in moving to the new framework. Those challenges include:

- *Proper attention to 2009 program evaluation*. Program Administrators are committed to moving forward to the new 2010-2012 framework as soon as possible but have a continuing obligation to conduct the necessary studies to evaluate the 2009 programs. Program Administrators must be allowed to initiate and complete studies that are necessary to document savings for their 2009 Energy Efficiency Annual Reports. While they will be performed under the oversight/management structure contemplated by the EM&V Resolution, these studies (a) may not be statewide in scope, and (b) must be initiated before statewide evaluation contracts are in place.

- *Working with individual Program Administrators' procurement departments.* The new framework requires large multi-year umbrella RFPs which cover all studies in a given research area on a much larger scale then employed before. Some RFPs may involve $5M-$10M of work over a three year period. Because it is not possible to provide detailed scopes of work for each study in a given research area ahead of time, the RFPs will be relatively open-ended, serving more as a request for qualifications ("RFQ"), with specified contractors and subcontractors providing rates and availability over a specified time period. Once contracts are signed, specific scopes of work not included in the RFQs will be developed on a time and materials basis. Because this type of large contract is new to the procurement staff and will involve more negotiation for the first year or so until all the details are ironed out, it may add to the length of time needed to develop and implement the new statewide framework. If development of the umbrella RFPs appears to be leading to excessive delays in the implementation of needed studies, the Program Administrators may develop and release more targeted, short-term RFPs covering high-priority projects. Any such targeted RFPs would be statewide in scope, performed under the new administrative framework, and administered by the appropriate Research Area Manager.

- *Lags in implementation changes*. Although this statewide plan requires increased coordination between Program Administrators and between gas and electric offerings, these efforts will take time to fully implement. Evaluating some areas before certain implementation changes have even begun may be difficult. For example, conducting a process evaluation of an integrated process or approach prior to the implementation of full integration would be problematic. However, market assessment activities or impact studies conducted before programs are fully integrated would be more feasible.

- *Coordinating with current and recently completed evaluation efforts*. Some programs or end-uses have not been evaluated in a number of years and are ready to be rolled into the new framework immediately. Others have been evaluated regularly and, in some cases, major evaluations were just kicked off by individual Program Administrators. Commercial lighting load shapes is an example of this synchronization challenge, with some Program Administrators having recently completed evaluations, others currently in the middle of large evaluation studies, and others ready to move forward with a new study as soon as possible. In such situations, it may take a year or more for the Program Administrators to coordinate their study schedules. It is more desirable to delay a study to get the schedule in sync than to use finite evaluation resources to launch and manage a statewide study to replace recent vintage studies.

- *Differences in program tracking systems.* In order for evaluation results to be used, they must feed back into tracking systems. Differences in tracking systems can impact development of common sampling methodologies for studies and applicability of results. Because large investments have been made to develop individual PA tracking systems, the systems cannot be merged and differences

will persist. In some cases, particularly for C&I projects, Program Administrators will have to navigate these differences before studies can begin.

- *Long-standing differences in evaluation methodologies and approaches.* A careful examination must be conducted as to how each Program Administrator has done evaluations in the past, selecting the most effective methodologies and combining them into one unified approach. A prime example of this is how large and small C&I custom projects are evaluated relative to similar prescriptive measures. Some Program Administrators may have itemized and studied specific custom end-uses, where others may have combined prescriptive and custom end-uses and evaluated a large retrofit program, for example, as a whole. These differences in approach will need to be reviewed and worked out to determine the best approach.

- *Staffing issues.* Some Program Administrators will need to hire additional staff to manage the increased emphasis on EM&V. The market for experienced evaluation project managers is extremely tight and it will take time to hire and train additional staff to manage these large complex research area RFPs.

- *Boundary Issues*. Planned studies must be coordinated with those being conducted by Program Administrators in other states, as well as studies being performed regionally under the NEEP EM&V Forum. In such situations, the objectives of the EM&V Resolution should be balanced with the interests of other jurisdictions that may have authority over the same study. It is in the interest of all parties to resolve these issues and achieve economy of effort, rather than unnecessarily duplicating studies.

5. *Evaluation budgets*

By agreement with the Consultants, the Program Administrators allocated 4% of total program budgets for evaluation and market research in each year of the three-year plan.[21] As program budgets increase, so will the evaluation budget.

[21] Agreement was made based on Consultant approximating 2010 total electric budget of approximately $225 million, thus resulting in an evaluation budget statewide of approximately $9 million for electric Program Administrators. For gas Program Administrators, given cost considerations, the budget 2010 amount is approximately 3% of total gas budgets.

6. *Types of evaluation functions*

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 includes the following types of studies:

- *Measurement and Verification* refers to the measurement of gross savings achieved in individual buildings.
- *Impact Evaluation* refers to the measurement of net or gross savings achieved within overall program populations.
- *Market Evaluation* refers to the measurement of the effects that programs have on the structure and functioning of their target markets.
- *Process Evaluation* refers to the systematic assessment of programs for the purpose of documenting their operations and developing recommendations to improve their effectiveness.
- *Market Characterization or Assessment* refers to the systematic assessment of energy efficiency markets for the purpose of improving the effectiveness of programs targeting those markets.
- *Evaluation of Pilots* refers to EM&V activities intended to assess the effectiveness of pilot programs, determine their potential for full-scale implementation, and develop recommendations for any changes in program approach. Under the new framework, evaluation of pilots will occur under the research area most closely related to the market being targeted.

7. *Specific Evaluation and Monitoring Activities for 2010-2012*

As noted above, the Program Administrators have worked with the Consultants to define statewide evaluation and research areas and specific evaluation needs for 2010-2012. Listed below are brief outlines of the highlights of possible studies for each research area.

Residential Retrofit and Low-Income

In early 2010, the Program Administrators will issue an RFP for an Evaluation Contractor for the residential retrofit and low-income programs. This research covers a wide range of areas, including retrofit 1-4, as well as all multi-family, including both multi-family retrofit and new construction. It also includes residential cooling & heating equipment (HVAC), and residential heating and water heating.

One outstanding issue that needs further discussion and resolution during 2010 pertains to the role of evaluation in the quality assurance/quality control process with regard to residential retrofit programs. However, listed below are agreed upon priority areas of research for each of the retrofit programs:

Residential Retrofit 1-4 (MassSAVE) Programs

- During 2010, the group will evaluate and determine whether or not a full impact evaluation on the MassSAVE program makes sense, or if concentrating on research and documentation of updated costs and savings values for the measures offered through this program, including new measures, of more value.

- Process evaluation focusing on the statewide marketing effort, the new vendor delivery structure, including a review of the statewide vendor software, as well as other adjustments to the program that have occurred over the past few years;

- During the second part of the three-year plan, process evaluation focused on gas/electric integration efforts;

- Evaluation of Deep Energy Retrofit pilot(s) including a process-type evaluation, as well as a focus on the barriers and/or drivers to customer acceptance;

- Evaluation of other pilots, such as Marshfield Energy Challenge, Cambridge Energy Alliance, and/or Energy Smack-Down.

Low-Income Retrofit Programs

- Develop a research strategy through collaboration with the low-income advocates. Likely areas of research include both a process and an impact evaluation of the low-income programs.

Multi-family Programs

- Study to determine the potential in the multi-family retrofit sector;
- Process evaluation, including effectiveness of statewide marketing efforts, role of Market Integrator approach, process flow, and all aspects of the program re-design, including low-income and gas/electric integration;
- Assessment of the adoption rate for eligible measures to determine if incentive levels need adjustment or if there are other strategies that Program Administrators can utilize to potentially achieve greater savings.

HVAC Programs

- Impact evaluation of the Brushless Fan Motor pilot;
- Systematic review of HVAC of EM&V conducted both in MA, as well as other New England states in order to develop a research plan.

Residential Heating and Water Heating

- Process and impact evaluations of both the residential heating and water heating programs are kicking off in late 2009 and will continue into 2010;
- Evaluation of the Heat Pump Water Heater pilot.

Residential Retail Products

In early 2010, the Program Administrators will issue an RFP for an Evaluation Contractor for the residential retail products category, which includes the Residential Lighting and Residential Appliance programs.

Recent evaluation results highlight the urgency of EM&V activities in this research area. The residential lighting market has been evolving very quickly, and has also been affected by the recession. In the face of these changes, early evaluation results suggest that the 2008 program

may have had a limited impact on the market. As a result, there are ongoing discussions about changes to the program for 2010.

Given the size and potential of this market, this research area has several priority areas that require analyses:

- A new net-to-gross impact study, potentially including a CFL saturation study to get more recent data;
- A study to develop and verify applicable net-to-gross methods for specialty and hard-to-reach bulbs;
- A process evaluation to assess changes and re-design efforts made to the lighting program;
- Research on various market characteristics, such as pricing, retailer stocking, and promotional practices;
- Market research on appliance categories, such as consumer electronics (rapidly moving market) or pool pumps (potentially large demand characteristics).

Residential New Construction

In early 2010, the Program Administrators will issue an RFP for an Evaluation Contractor for the Residential New Construction Program. As has been done over the last seven years, the selected evaluation contractor will be responsible for conducting and managing all evaluation activities for the program.

In 2010, the two main evaluation activities slated for completion are a new baseline study of residential new construction practices and an Annual Progress Report. Although baseline studies tend to be costly and time consuming, they are an important measurement of where typical market practices currently stand and how the program is influencing the market, and serve as an appropriate measure on which to base savings associated with the program. In

evaluation planning discussions, the Evaluation Committee for the Joint Management Committee ("JMC") had determined that, due to the cost of baseline studies and the time required for construction practices to change, an appropriate time interval between baseline studies would be approximately five years. A baseline study for this program was last conducted in 2005.

Currently, the JMC Evaluation Committee is considering incorporating more detailed diagnostic measurements, measure code compliance, baseline information for heating and cooling equipment, and appliances into the baseline study. The specifics of how and to what extent these items will be included will be determined once an evaluation contractor has been selected.

An Annual Progress Report, which has been conducted each year since 2002, summarizes program activity over the past year. Program performance information detailed in the report includes historical as well as current information to show the growth of the program over time.

In addition to these two studies, other areas that will need evaluation efforts are Codes and Standards and Major Renovation. The Codes and Standards work will involve how the program can better influence upgrading codes and take credit for the resulting savings. The Major Renovation effort will involve integrating major renovation into the program. The specific timing and amount of evaluation work associated with these tasks will be determined once the initiatives are better defined.

Other selected evaluation activities may be undertaken as the need arises. Evaluation activities for 2011 and 2012 will be developed once an Evaluation Contractor has been selected and hired and will likely focus on impact and process evaluations to capture the effects of recent program changes.

Non-Residential Large Retrofit and New Construction

In early 2010, the Program Administrators will issue an RFP for an Evaluation Contractor for the Non-Residential Large Retrofit and New Construction programs. For the past decade or more, each Program Administrator has conducted most of its evaluation in this area independently, with oversight by the Department and various non-utility party consultants. The new framework will require the Program Administrators to develop a comprehensive research plan, taking into account the transition challenges discussed above.

The first step in that plan is to gain a better understanding of the commercial and industrial market for energy efficiency products and services. This includes collecting data on the efficiency of existing and new baseline efficiency equipment, overall building shell characteristics and operation and maintenance practices, the quantity and characteristics of new construction activity, and the number, characteristics, and business practices of various types of vendors.

At the same time, the Program Administrators need to conduct a wide variety of studies to help estimate program savings and inform planning estimates. At this point, the following studies are the top priorities for 2010:

- End-use metering for large commercial retrofit lighting program for those Program Administrators whose data is older than three years. This effort will be coordinated through the EM&V Forum to maximize its use through the region by combining it with other existing data.
- An impact evaluation of non-prescriptive HVAC installations. Previous evaluation efforts for some Program Administrators have combined less complex measures such as unitary HVAC replacements with large comprehensive cooling system upgrades. This impact evaluation will provide more detailed feedback to program implementation and planning, as well as effectively documenting savings.

- A process and impact evaluation of comprehensive multi-measure new construction and major renovation projects. Previous evaluation efforts for some Program Administrators have combined this type of project with less complex measures. This type of installation involves the highest level of technical support and a separate evaluation of this effort is warranted. As an add-on, this effort could also include an evaluation of the Advanced Building Program, a less intensive comprehensive design offering for smaller buildings. This effort will provide more detail to feed back into program implementation and planning, and will effectively document savings. Through the EM&V Forum, a study of the load shape of unitary HVAC measures will be conducted. Savings from this measure category, which is offered by all Program Administrators, are relatively small; however, the last study was conducted over ten years ago. Because the costs associated with this type of study are prohibitive for an individual Program Administrator, it is an ideal candidate for a joint study through the EM&V forum.
- Gas prescriptive high efficiency heating and water heating equipment impact evaluation. An impact evaluation of this larger commercial and industrial gas rebate program has not previously been performed, so an appropriate methodology will need to be developed.
- Gas custom measure impact evaluation. An impact evaluation of non-prescriptive gas measures such as boiler controls and building shell measures. This measure category has not been evaluated. Part of the effort will be to select an appropriate methodology for an impact evaluation.
- An impact evaluation of prescriptive variable speed drives. Savings from this high potential measure category has not been systematically evaluated for a number of years due to the high cost relative to the savings. This situation is an ideal scenario for a joint study to assess how well this measure is performing when delivered in a simplified prescriptive manner.

Non-Residential Small Retrofit

In early 2010, the Program Administrators will issue an RFP for an Evaluation Contractor for the non-residential small retrofit area. The delivery mechanisms (direct install), size of projects, and incentive amounts for this program category (on the electric side) have become increasingly similar over the past five years, and in late 2007/2008, the electric Program Administrators worked together on a joint impact evaluation using billing analyses. The new

framework will require the Program Administrators to develop a more comprehensive approach, incorporating small retrofit gas opportunities as well.

This program category tends to consist largely of lighting (approximately 85-90% for the current program), and also tends not to involve as much volatility in impact factors as some of the other research areas, with relatively minimal free ridership and spillover (as compared to the larger programs). With this in mind, priorities for research in the non-residential small retrofit area include:

- A lighting-only metering impact study focusing on load shape data, not energy savings; which have been recently studied through billing analysis;
- A market review and research on other non-lighting measures, including gas end uses, to see if there is merit in undertaking additional impact studies;
- A process evaluation, probably in late 2010 or in 2011. This evaluation could focus in areas such as: on gas/electric integration approaches, examination of alternative incentive levels, on-bill financing and repayment, and comprehensiveness of savings.

It is also assumed that the small retrofit area will be part of the larger C&I market characterization and market research analysis.

Special and Cross-Sector Studies

In early 2010, the Program Administrators will issue a Request for Proposals for an Evaluation Contractor for Special and Cross-Sector Studies. Given the diversity of topics, it may be necessary to issue more than one RFP, perhaps several months apart, to acquire contractors with expertise in diverse areas. Such studies will include:

- Cross-cutting free rider and spillover studies
- Behavioral programs

- Community-based pilots (geographically targeted programs)
- Non-energy benefits (low-income, residential, and business)
- Umbrella marketing efforts
- Input into regional long-run avoided costs.

Eventually, such studies might be expanded further to include equipment and building standards, commercial & residential plug loads and emissions reduction analyses, and other potential cross-sector programs or issues. However, studies are not likely to be rolled out in all these areas in 2010. In 2010, the Program Administrators expect to conduct the following studies:

- Free ridership and spillover study focusing on C&I customers and possibly some residential programs;
- Behavioral programs evaluation, starting with National Grid's OPower pilot, but spreading in later years to other Program Administrators' programs;
- Non-energy benefits applicable to low-income and several other programs;
- Evaluation of community-based pilots, starting with NSTAR and National Grid's Chinatown pilot;
- Long run avoided cost study, which should start up later in 2010.

8. *Technical Reference Manual*

An initial draft of the Technical Reference Manual ("TRM") is found on www.richmaylaw.com/eeplan and is incorporated herein by electronic reference given its volume. As a result of the passage of the Act, the creation of the Council and the significant energy efficiency mandates set out by the Act, a sub-group consisting of Program Administrators, the Council, its Consultants, and interested stakeholders, such as the Attorney

General, was convened to develop the TRM. The TRM is intended, in its final form, to be used by Massachusetts energy efficiency Program Administrators to plan for, quantify, and report energy efficiency savings. The TRM will also provide the Department and interested stakeholders with comprehensive information related to energy efficiency savings. At this point, the TRM is in the initial phases of construction, and as such it is inappropriate to include in this filing. The Program Administrators commit to filing the TRM with the Department as soon as possible, after it has undergone thorough review and refinement, but no later than September 30, 2010.

I. Performance Incentives

The Green Communities Act requires energy efficiency plans to contain proposed performance incentive mechanisms. G.L. c. 25, § 21(b)(2). The Council's Priorities Resolution acknowledged this statutory requirement by addressing the development of performance incentive mechanisms to be incorporated by the Program Administrators in their energy efficiency plans.[22] Specifically, Council Priority #4 states that:

> The Commonwealth should employ the right structure and level of performance incentive for PAs who administer and deliver demand-side management programs striking the appropriate balance between fiscal responsibility and positive economic signals for the PAs to achieve strong efficiency performance and customer value. As set out in the GCA, the PAs shall coordinate with the Council, as part of the development of the statewide and individual three-year electric and gas energy efficiency plans, to develop appropriate performance incentive mechanisms.

The Department acknowledged this statutory requirement in its D.P.U. 08-50 orders (*see* D.P.U. 08-50, at 25-26; D.P.U. 08-50-A at 51), and found that establishing performance incentive principles, rather than a prescribed incentive mechanism, appropriately complied with

[22] Performance incentives are not applicable to the Cape Light Compact.

the Green Communities Act. D.P.U. 08-50-A at 49-50. In reviewing the performance incentive requirement, the Department stated that it will rely on the following principles:

- Performance incentive mechanisms should be designed to encourage distribution companies to pursue all available cost-effective energy efficiency.

- The amount of funds available for performance incentive mechanisms should be kept as low as possible, in consideration of the other guiding principles, in order to minimize the costs to electricity and gas customers.

- Performance incentive mechanisms should be designed in such a way as to encourage energy efficiency program designs that will best achieve the Commonwealth's energy goals, particularly with regard to the goals stated in the Green Communities Act.

- Performance incentives should be based on clearly-defined goals and activities that can be sufficiently monitored, quantified and verified after the fact.

- Performance incentives should be available only for activities where the distribution company plays a distinct and clear role in bringing about the desired outcome.

- Performance incentive mechanisms should be as consistent as possible across all electric and gas distribution companies. Any deviations across distribution companies should be clearly justified.

- Performance incentive mechanisms should be created in such a way to avoid any perverse incentives.

- Any modifications to a previously approved performance incentive mechanism should be fully justified at the time they are proposed to the Department. The Department expects that stakeholders will consider and propose performance incentives that are relatively consistent from one three-year energy efficiency plan to the next. Distribution companies may propose modifications to an approved performance incentive mechanism in any subsequent three-year energy efficiency plan, but they must provide sufficient justification demonstrating how the proposed modifications will improve upon the performance incentive mechanism with consideration of each of the design principles listed above.

Id.

Program Administrator Performance Incentive Principles

Consistent with the Department's Performance Incentive guidelines, the Program Administrators have developed a high-level set of principles—after consulting with interested stakeholders and the Consultants—that provide support for a more detailed performance incentive proposal for inclusion in the Plan. These principles are as follows:

- A very substantial percentage of the savings should accrue to customers;
- Utility incentives should align with the Commonwealth's energy policy goals;
- Incentive structures for gas and electric programs should align;
- Incentives should recognize and reward achievement of aggressive targets;
- Incentives should send appropriate economic signals to the Program Administrator;
- Savings and net benefits should be the primary drivers of assessing performance;
- Incentive targets should be company-specific, recognizing differences in service territories;
- Incentive models should be performance-based to encourage stretch;
- Incentive awards should be based on performance against approved plan target which will be developed annually;
- The energy efficiency plans should be grounded in well-supported planning assumptions that withstand external scrutiny; and
- Goals for incentives should be developed annually.

Description of Incentive Provision

The Program Administrators have consulted with representatives of the Council to address financial performance incentives in 2010 through 2012. Over the course of numerous meetings and negotiations, the Council reached a consensus agreement that provides a monetary incentive spurring Program Administrators to focus on high levels of energy savings while maximizing the funding of energy efficiency programs. The Program Administrators plan to provide escalating levels of customer energy savings in each of the next three years, resulting in over 2,600 GWh of annual savings by the end of 2012. These are savings that will continue to accrue to the benefit of customers and the environment for many years.

Incentive Pool

The incentive provision provides for a state-wide pool of incentives that is shared among Program Administrators based on their savings targets expressed as annual energy savings in GWh and the dollar value of both benefits and net benefits associated with Plan goals. Since the pool is not tied to spending levels, the amount of incentive earned is directly related to the achievement of savings. This aspect of the Program Administrators' incentive proposal, in particular, is consistent with the Department's articulated principle of designing performance incentive mechanisms in a manner that will encourage distribution companies to pursue all available cost-effective energy efficiency. To the extent that the Program Administrators do not pursue all available cost-effective energy efficiency, it is unlikely that they will be able to achieve the significantly increased savings goals proposed in the Plan, and, correspondingly, unlikely to earn performance incentives. Moreover, tying incentives to savings goals that are themselves designed to result in a significant reduction in electricity load and overall electricity

consumption, meets the Department's guideline that performance incentive mechanisms should be designed in such a way as to encourage energy efficiency programs that will best achieve the Commonwealth's energy goals.

The overall incentive pool increases during the three-year period along with the targeted savings levels. In 2010, the statewide savings target is 630 GWh (roughly 1.4 percent of retail energy sales), which provides a $17.5 million incentive pool. In 2011, the statewide savings target is 910 GWh (roughly 2.0 percent of retail energy sales), which provides a $22.0 million incentive pool. In 2012, the statewide savings target is 1,109 GWh (roughly 2.4 percent of retail energy sales), which provides a $25.5 million incentive pool.

Program Administrators can earn higher incentives by exceeding performance targets. However the amount of the statewide incentive pool is capped in 2010 at $21.875 million, 125% of the incentive amount related to the achievement of target savings levels for each Program Administrator. No determination has been made about the imposition of a cap for 2011 and 2012 and, if a cap is defined, what the cap on performance incentives in those years will be.

The incentives are intended to encourage the Program Administrators to enthusiastically promote energy efficiency goals; these positive financial incentives are separate and distinct from other ratemaking mechanisms, such as decoupling and lost base revenues, which only aim to remove the financial *disincentive* to promoting energy efficiency programs.

Historically, Massachusetts electric energy efficiency budgets included incentives at a level of approximately 8.2% of spending on a pre-tax basis with the design level incentive defined as 5% of spending on an after-tax (earnings) basis. The levels proposed in the three-year plan have reduced the payout basis considerably when compared to the same percentage of

spending in the past. The statewide incentive amounts at target performance for the three years is **$64,054,281** or approximately 5% (pre-tax) of spending. Compared to the previous 8.2% incentive, this agreement has lowered Program Administrator incentives by approximately 25%, while adopting significantly higher savings targets. This aspect of the performance incentive proposal is consistent with the Department's principle that the amount of funds available for performance incentive mechanisms should be kept as low as reasonable, in order to minimize the costs of electricity (and gas) to customers.

Allocation of Incentive Pool

The incentive targets are allocated among the individual Program Administrators according to their target savings goals. Therefore, Program Administrators that commit in their energy efficiency plans to achieving higher savings goals will be eligible to earn more of the statewide incentive pool. Program Administrators that commit to lower or higher goals than the statewide plan have detailed justification (*e.g.*, unique service territory challenges) for the need for their deviation. Program Administrators committing to comparatively lower goals are correspondingly eligible for a lesser amount of the incentive pool. In this way, the Council is able to assure that Program Administrators with lower savings goals (and correspondingly lower target savings goals) have reasonably reduced PA-specific incentive pools. In short, the overall system proposed by the Program Administrators is fundamentally equitable. The final allocation of the incentive pool is shown on table z below. Please see Appendix A for details of the calculation on how these figures were derived.

Table z:

Incentive Payouts Using Adjusted Goals

Assuming 100% Achievement at Target – Electric

Program Administrator **$**	**2010**	**2011**	**2012**
National Grid	$8,370,607	$10,457,876	$12,143,309
NSTAR	$7,478,914	$9,449,773	$10,904,724
WMECO	$1,301,750	$1,442,451	$1,997,622
Unitil	$116,416	$160,614	$230,225
Total	**$17,267,687**	**$21,510,714**	**$25,275,880**

Thresholds

Program Administrators must achieve a threshold level of performance defined as 75% of the dollar value of plan savings to earn under the savings mechanism and 75% of the dollar value of net benefits compared to Plan targets in order to receive an incentive under the savings and value mechanisms. If a Program Administrator commits to a lower goal than the baseline because of the unique challenges in its service territory (*e.g.*, low load growth or negative growth, small or challenged C&I base, high percentages of low-income customers), the threshold is still 75% of their stated goal and not 75% of the baseline goal.

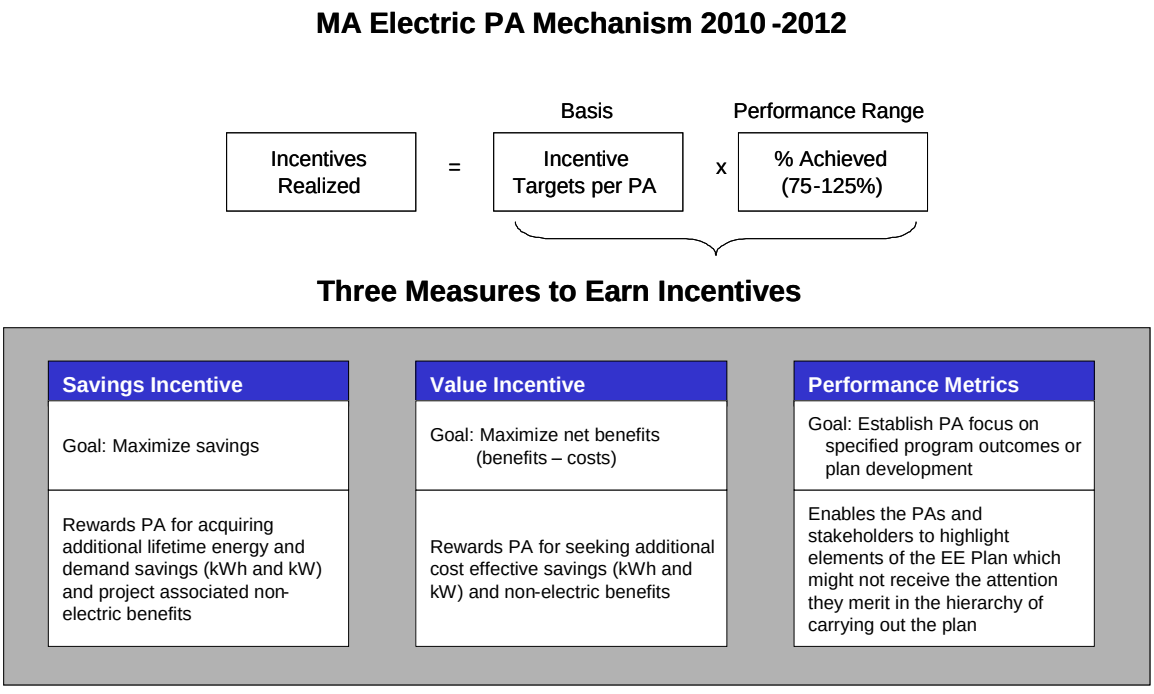
For example, assume WMECo has a 2010 savings goal of 44 GWh, less than the baseline amount savings target of 51.6 GWh. The 75% threshold for this WMECo would be 75% of the 44, or 33 GWh.

In 2010, a Program Administrator can earn anywhere from 75% to 125% of its allocated incentive amount depending on the achievement of its goals.

Incentive Model

The proposed performance incentive model is under refinement and discussion with the Council and its Counsultants. The performance incentive mechanism will continue to include three components: (1) a savings mechanism; (2) a value mechanism; and, (3) other performance metrics. (See Figure x).

Figure X



Generally, it is contemplated that the weights for the individual components will vary by year with a greater focus on savings over time. (*See* Table aa)

After further discussion with the Council and its Consultants on implementation mechanics, each Program Administrator plans to file specific goals with performance targets by component.

Performance Metrics

With respect to the performance metrics component, the Program Administrators note that each of them, in consultation with stakeholders, will establish individual performance metrics that are aligned with the statewide metrics and are appropriate to their customer base. The performance metric goals are intended to assure that the Program Administrators are properly motivated to undertake desirable programs that provide difficult to measure benefits.

The Program Administrators will propose a limited number of performance metrics for consideration by the stakeholders by November 9, 2009. It is anticipated that the Program Administrators and the stakeholders will conduct negotiations about these performance metrics over the next two weeks with an objective of reaching a consensus about proposed performance metrics that the Program Administrators can file with the Department in a supplemental filing prior to the commencement of evidentiary hearings at the Department on the company-specific three-year plans.

2010 Incentive Cap

In 2010, Program Administrators will sum the initial estimate of their earned performance incentive by component (savings mechanism, value mechanism, and performance

metrics) and will compare that amount to 125% of the target incentive amount. The earned incentive will be capped at 125% of the target incentive level.

Application of Evaluation Measurement & Verification (EM&V) Results

For the purpose of the incentive calculation, savings and benefits[23] will be based on EM&V results, as reported in each Program Administrator's Energy Efficiency Annual Report submitted to the Department each summer. However, the impact of any resulting change as a result of the application of EM&V findings that either increases or decreases preliminary year-end results (*i.e.*, results that are based on the planning assumptions used to derive goals for the year) at the individual Program Administrator sector level will be limited to +/- 25%.[24]

The application of EM&V results to the Program Administrator's ultimate incentive calculation will ensure that incentives will be tied to a Program Administrator's active and distinct role in achieving savings and related benefits. This aspect of the incentive plan adheres to the Department's guidelines that performance incentives should be: (1) available only for activities where the Program Administrator plays a distinct and clear role in bringing about the desired outcome; and (2) based on clearly-defined goals and activities that can be sufficiently monitored, quantified and verified after the fact.

[23] Benefits will be valued using the same avoided costs that were used to cost-justify planned efforts.

[24] There is one exception to this bandwidth limit. The Residential Lighting Program savings and value components shall have a collar of +/- 15% for 2010.

Summary

The proposed Program Administrator performance incentive plan will align the interests of Customers, Program Administrators, and the Commonwealth in working to achieve the goals established by the Green Communities Act.

1. *Performance Incentives Summary Table*

The following table is presented in accordance with the filing procedures developed in the D.P.U. 08-50 Working Group. It is based upon a "roll-up" of the incentive allocations for the Program Administrators using the methods described above.

2010						
Sector	**After-Tax Performance Incentives**	**% of After-Tax Performance Incentives**	**% of Total Program Costs**	**Pre-Tax Performance Incentives**	**% of Pre-Tax Performance Incentive**	**% of Total Program Costs**
Residential	**$3,160,615**	**30%**	**3.4%**	**$5,199,953**	**30%**	**5.7%**
Low Income	**$1,015,238**	**10%**	**3.0%**	**$1,670,537**	**10%**	**4.9%**
C&I	**$6,318,753**	**60%**	**4.2%**	**$10,397,197**	**60%**	**6.9%**
GRAND TOTAL	**$10,494,606**	**100%**	**3.8%**	**$17,267,687**	**100%**	**6.2%**

2011						
Sector	**After-Tax Performance Incentives**	**% of After-Tax Performance Incentives**	**% of Total Program Costs**	**Pre-Tax Performance Incentives**	**% of Pre-Tax Performance Incentive**	**% of Total Program Costs**
Residential	**$3,738,870**	**29%**	**3.2%**	**$6,150,807**	**29%**	**5.3%**
Low Income	**$1,113,825**	**9%**	**2.4%**	**$1,832,608**	**9%**	**4.0%**
C&I	**$8,222,895**	**63%**	**3.3%**	**$13,527,299**	**63%**	**5.4%**
TOTAL	**$13,075,590**	**100%**	**3.2%**	**$21,510,714**	**100%**	**5.2%**

2012						
Sector	**After-Tax Performance Incentives**	**% of After-Tax Performance Incentives**	**% of Total Program Costs**	**Pre-Tax Performance Incentives**	**% of Pre-Tax Performance Incentive**	**% of Total Program Costs**
Residential	**$4,426,018**	**29%**	**3.2%**	**$7,280,599**	**29%**	**5.2%**
Low Income	**$1,320,597**	**9%**	**2.3%**	**$2,172,619**	**9%**	**3.7%**
C&I	**$9,619,773**	**63%**	**3.0%**	**$15,822,662**	**63%**	**4.9%**
TOTAL	**$15,366,389**	**100%**	**2.9%**	**$25,275,880**	**100%**	**4.8%**

2010-2012						
Sector	After-Tax Performance Incentives	% of After-Tax Performance Incentives	% of Total Program Costs	Pre-Tax Performance Incentives	% of Pre-Tax Performance Incentive	% of Total Program Costs
Residential	$11,325,503	29%	3.3%	$18,631,360	29%	5.3%
Low Income	$3,449,661	9%	2.5%	$5,675,763	9%	4.1%
C&I	$24,161,422	62%	3.3%	$39,747,158	62%	5.5%
TOTAL	$38,936,586	100%	3.2%	$64,054,281	100%	5.3%

J. Cost Recovery

The Program Administrators emphasize that cost recovery, including the recovery of Lost Base Revenues ("LBRs") and performance incentives (or through implementation of a Department-approved decoupled rate structure), is a critical element of this Plan. In order for the Program Administrators to pursue the aggressive goals set forth herein – which goals have not been achieved on a sustained statewide basis in any other jurisdiction to the Program Administrators' knowledge – it is essential that the cost recovery be well understood and that the cost-recovery process provide a full and fair opportunity for the Program Administrators to be made economically whole for aggressively pursuing sales-reducing energy efficiency efforts and to earn a reasonable return on this investment based upon their performance and achievement.

As contemplated in the Act, recovery of all costs associated with the materially increased energy efficiency efforts reflected in the Plan, as well as recovery of LBR consistent with the established guidelines of the Department and the opportunity to earn a performance incentive, are integral elements of this Plan. Accordingly, the electric Program Administrators have each

proposed an energy efficiency cost recovery mechanism[25] relating to their energy efficiency efforts.

In addition to the newly expanded and approved funding sources available for energy efficiency programming as result of the Act, discussed herein in Section II.B, the Department is directed by the Act to ensure that electric and natural gas resource needs are first met through the use of all cost-effective energy efficiency and demand resources. G.L. c. 25, § 21. To that end, the Act directs electric companies, gas companies and municipal aggregators to include in their Plans "a fully reconciling funding mechanism which may include, but which shall not be limited to, the charge authorized" by the Department. Id.

Moreover, after reviewing a Program Administrator's proposed Plan, the Department is directed by the Act to approve recovery of all expenditures for the Program Administrator's energy efficiency measures that are screened through the cost-effectiveness test described herein in Section II.D. Id. In the event that program costs exceed available revenue sources, the Department must approve a fully reconciling funding mechanism to ensure that the costs for all cost-effective energy efficiency measures are recovered from customers. Id. Therefore, in reviewing a Program Administrator's proposed Plan, the Department must assure that the Program Administrator is able to implement all Plan offerings that are found to be cost-effective, even if the costs associated with providing those offerings are in excess of the established funding sources provided for in the SBC and through other sources.

In this context, the electric companies have each filed with the Department proposed tariffs or modifications to their respective energy efficiency charge tariffs that include an EERF factor to recover and reconcile their respective energy efficiency costs in a particular program

[25] Please note the Cape Light Compact has not included LBR estimates as this is still pending outcome of various Department proceedings, including NSTAR Electric Company, D.P.U. 08-117.

year with the revenue it receives through: (1) the SBC; (2) participation in the FCM; (3) proceeds from participation in cap-and-trade programs such as RGGI; and (4) proceeds available from other private or public funds that may be available for energy efficiency or demand resources.[26] This is consistent with the Legislature's mandates established in G.L. c. 25, §§ 19 and 21. In addition to costs associated with program implementation and performance incentives, and consistent with Department directives, each electric Program Administrator's respective energy efficiency tariffs will also include recovery of incremental LBR for energy efficiency measures installed that produce incremental savings that exceed the savings levels from 2007 energy efficiency activities, until such time as the electric distribution companies have new base rates approved by the Department that include a mechanism to "decouple" rates from energy consumption (see Order on Decoupling, D.P.U. 07-50-A, at 83 (2008)). The factor is calculated as the sum of a Program Administrator's energy efficiency costs, net of that Program Administrator's energy efficiency revenues (from sources outlined above), divided by the forecasted kilowatt-hour sales for the previous calendar year.

The electric Program Administrators will submit new EERFs annually for calendar years 2010, 2011 and 2012 during the course of the implementation of this three-year statewide Plan.

1. *Calculation of Lost Base Revenue*

The following table provides a statewide aggregation of estimated LBR recovery for 2010-2012 in accordance with the filing processes developed by the D.P.U. 08-50 Working Group. The Program Administrators emphasize that these numbers are estimates based upon the currently available data. Actual amounts of LBR will vary by Program Administrator and will be determined, where applicable, on a PA-specific basis in appropriate Department dockets.

[26] An EERF will also be established for the Cape Light Compact through the EERF tariff submitted to the Department by NSTAR Electric in D.P.U. 08-117. See D.P.U. 08-117, at 46-47 (May 29, 2009).

Calculation of Lost Base Revenue, 2010								
Sector	2007 Savings (kWh)	Savings in 2010 from Measures Installed in 2009 (kWh) (2)		Savings in 2010 from Measures Installed in 2010 (kWh) (2)		Total Incremental Savings (kWh)	LBR Rate ($/kWh) (1)	Lost Base Revenue ($)
		Total	Incremental	Total	Incremental			
Residential	150,079,134	217,052,131	66,972,997	125,893,846	(24,185,289)	84,391,609		$3,072,123
Low Income	7,422,198	15,066,166	7,643,968	15,601,424	8,179,226	15,823,194		$209,296
C&I	202,846,431	299,655,339	96,808,908	365,910,340	163,063,909	259,872,818		$5,230,854
TOTAL	360,347,763	531,773,636	171,425,873	507,405,610	147,057,847	360,087,620		$8,512,274

Calculation of Lost Base Revenue, 2011										
Sector	2007 Savings (kWh)	Savings in 2011 from Measures Installed in 2009 (kWh) (2)		Savings in 2011 from Measures Installed in 2010 (kWh) (2)		Savings in 2011 from Measures Installed in 2011 (kWh) (2)		Total Incremental Savings (kWh)	LBR Rate ($/kWh) (1)	Lost Base Revenue ($)
		Total	Incremental	Total	Incremental	Total	Incremental			
Residential	150,079,134	217,052,131	66,972,997	169,165,994	19,086,859	152,810,617	2,731,483	116,541,870		$4,513,251
Low Income	7,422,198	15,066,166	7,643,968	21,771,307	14,349,109	20,838,970	13,416,772	35,409,849		$449,901
C&I	202,846,431	299,655,339	96,808,908	461,827,002	258,980,572	492,127,616	289,281,185	645,070,666		$14,140,175
TOTAL	360,347,763	531,773,636	171,425,873	652,764,303	292,416,540	665,777,203	305,429,440	797,022,385		$19,103,326

Calculation of Lost Base Revenue, 2012												
Sector	2007 Savings (kWh)	Savings in 2012 from Measures Installed in 2009 (kWh) (2)		Savings in 2012 from Measures Installed in 2010 (kWh) (2)		Savings in 2012 from Measures Installed in 2011 (kWh) (2)		Savings in 2012 from Measures Installed in 2012 (kWh) (2)		Total Incremental Savings (kWh)	LBR Rate ($/kWh) (1)	Lost Base Revenue ($)
		Total	Incremental	Total	Incremental	Total	Incremental	Total	Incremental			
Residential	150,079,134	217,052,131	66,972,997	169,165,994	19,086,859	209,936,134	59,856,999	192,851,903	42,772,768	198,545,067		$8,060,969
Low Income	7,422,198	15,066,166	7,643,968	21,771,307	14,349,109	28,352,163	20,929,965	25,476,159	18,053,961	60,977,004		$756,570
C&I	202,846,431	299,655,339	96,808,908	461,827,002	258,980,572	636,218,215	433,371,784	601,126,366	398,279,936	1,187,441,200		$26,404,222
TOTAL	360,347,763	531,773,636	171,425,873	652,764,303	292,416,540	874,506,512	514,158,749	819,454,428	459,106,665	1,446,963,270		$35,221,761

Total Lost Base Revenue, 2010-2012 (3)				
Sector	2010	2011	2012	TOTAL
Residential	$3,072,123	$4,513,251	$8,060,969	$15,646,343
Low Income	$209,296	$449,901	$756,570	$1,415,766
C&I	$5,230,854	$14,140,175	$26,404,222	$45,775,251
TOTAL	$8,512,274	$19,103,326	$35,221,761	$62,837,361

2. *Calculation of EERF*[27]

The Program Administrators calculated their EERF estimates in the following manner; as directed in the Department's recent orders on the Program Administrators' 2009 energy efficiency programs (see, *e.g.*, Cape Light Compact, D.P.U. 08-113; Fitchburg Gas & Electric Light Company, D.P.U. 08-116; National Grid, D.P.U. 08-129; NSTAR Electric Company, D.P.U. 08-117; Western Massachusetts Electric Company, D.P.U. 08-118).

- Funds collected through the SBC, FCM, and RGGI were allocated to each customer sector in proportion to the sector's kWh consumption. However, consistent with G.L. c. 25 § 19(c), as amended by the Green Communities Act, at least 10 percent of the amount expended for electric energy efficiency programs shall be spent on low-income energy efficiency efforts;

- The EERF charged to low-income customers was calculated by dividing (1) the amount of EERF revenue required to fund the low income programs, by (2) total company-wide (*i.e.*, the sum of all customer sectors) kWh sales;

- The EERF charged to residential customers was calculated as the sum of (1) the amount of EERF revenue required to fund residential programs divided by total residential kWh sales and (2) the low-income EERF, as described above; and

- The EERF charged to C&I customers was calculated as the sum of (1) the amount of EERF revenue required to fund C&I programs divided by total C&I kWh sales and (2) the low-income EERF, as described above.

Calculation of the Energy Efficiency Reconciliation Factor, 2010			
Sector	**EERF Revenue Requirement (1)**	**Annual kWh (2)**	**EERF (¢/kWh) (3)**
Residential	$67,085,930	$15,332,733,531	0.00438
Low Income	$2,169,482	$1,633,237,017	0.00133
Commercial & Industrial	$42,166,492	$31,119,774,724	0.00135
TOTAL	$111,421,904	$48,085,745,272	0.00232

Calculation of the Energy Efficiency Reconciliation Factor, 2011			
Sector	**EERF Revenue Requirement (1)**	**Annual kWh (2)**	**EERF (¢/kWh) (3)**
Residential	$57,092,744	$15,471,249,162	0.00369
Low Income	$674,139	$1,709,015,500	0.00039
Commercial & Industrial	$107,587,677	$31,412,462,517	0.00342
TOTAL	$165,354,561	$48,592,727,179	0.00340

[27] The Program Administrators note that this Plan is not establishing the details of the EERF or LBR recovery. Details of the EERF formula and amount will be determined in separate proceeding(s).

Calculation of the Energy Efficiency Reconciliation Factor, 2012			
Sector	**EERF Revenue Requirement (1)**	**Annual kWh (2)**	**EERF (¢/kWh) (3)**
Residential	$69,987,319	$15,717,772,846	0.00445
Low Income	$1,043,386	$1,815,292,365	0.00057
Commercial & Industrial	$154,357,821	$32,584,829,040	0.00474
TOTAL	$225,388,525	$50,117,894,250	0.00450

K. Mid-Term Revisions

Although the Program Administrators have endeavored to anticipate and analyze a wide range of possibilities in devising the Plan, it is not only inevitable, but indeed desirable, that the Program Administrators retain flexibility to make ongoing revisions and enhancements to the Plan during its three-year term ("Term") in order to reflect in-the-field conditions, actual achievements, technological advances and state-of-the-art techniques. During the Term, the Program Administrators will monitor and evaluate the effectiveness of various programs, and may determine that certain enhancements, reallocations, or modifications are appropriate to best achieve the Plan's energy efficiency goals. Likewise, the Program Administrators need to be able to incorporate technological or financing advances as they become available without being unduly inhibited by the need to seek advance regulatory review and approval (with accompanying administration costs and implementation delays). While the Program Administrators propose to retain significant flexibility to make ongoing revisions and refinements, the Program Administrators also appreciate the importance of transparency and oversight.

The Department has balanced these interests in formulating the governing guidelines for Plan modifications, as set forth in its Order in D.P.U. 08-50-A. As stated in D.P.U. 08-50-A, the Department "expect[s] that Program Administrators will make minor modifications as a matter of course but that significant modifications will require Department review and approval."

D.P.U. 08-50-A at 61. More specifically, D.P.U. 08-50-A expressly authorizes the Program Administrators to make modifications, reallocations and enhancements to their individual plans during the Term (including, without limitation, budgetary reallocations and additions or subtractions of program measures). However, any such modification, reallocation or enhancement shall be submitted to the Department (with a copy to the Council) for the Department's review and approval (with the advance opportunity for the Council to comment and work with the Program Administrators) if the contemplated modification, reallocation or enhancement meets any of the following prescribed conditions:

> (1) the addition of a new program or the termination of an existing program; (2) a change in a program budget of greater than 20 percent; (3) a program modification that leads to an adjustment in savings goals that is greater than 20 percent; or (4) a program modification that leads to a change in performance incentives of greater than 20 percent.

D.P.U. 08-50-A at 64.

With specific respect to the process for material modifications that fall within the D.P.U. 08-50-A standards, the Program Administrators propose to utilize the exact process set forth in D.P.U. 08-50-A, with one clarification/adjustment as highlighted below:

> A Program Administrator that seeks to make such a modification shall submit its proposal for review by the Council and submit a request for approval as part of its annual energy efficiency report filing to the Department *or, if appropriate under the circumstances on account of timing concerns, through a separate proposal filed in advance of its annual energy efficiency report filing*. Any such request must be accompanied with (1) a justification for why the modification is appropriate, and (2) a description of how the modification was reviewed and decided upon by the Council.

D.P.U. 08-50-A at 64 (italicized materials added).

This clarification/adjustment is appropriate in order to accommodate, in special circumstances, requests for program modifications that may be time sensitive or necessary to

address potential lost opportunities and that, therefore, should not be delayed pending the filing of a Program Administrator's annual report (which typically is made in the summer); the adjustment also provides flexibility for potential savings or budget updates for 2011 and 2012 as further described below. This limited clarification/adjustment to the process set forth in D.P.U. 08-50-A adds a reasonable degree of flexibility for unique circumstances, ensuring that customers can benefit in a timely fashion from material enhancements (as opposed to delaying the implementation of such enhancements until after an annual report filing). The Program Administrators expect that any usage of this timing exception would be finite. The Program Administrators would also recommend that the Council and the Department each adopt a 45-day standard timeframe (that can be exceeded as may be necessary) for a decision on any proposed mid-course modification. Such a 45-day standard timeframe seeks to balance the need for prudent review with the need for implementation of material program enhancements on as timely a basis as reasonably practicable.

The Program Administrators note that, in adopting the appropriate flexibility provided by the Department in D.P.U. 08-50-A, they are not proposing that such flexibility apply to any of the mandatory low-income program funding levels established in G.L. c. 25, § 19(c). Any modification of such levels would only be undertaken with advance approval from the Department after an opportunity for Council participation and after discussions with LEAN.

The Program Administrators believe that the 20 percent bandwidth adopted by the Department will permit the Program Administrators to make the sort of on-the-ground assessments and refinements that are necessary to promote innovation and efficiency. Indeed, retaining the flexibility to make changes and reallocations within that bandwidth is critical. Further, requiring review for all modifications would carry a substantial administrative cost and

would have the unfortunate effect of inhibiting valuable innovation. The balance struck by the Department in D.P.U. 08-50-A ensures regulatory oversight while permitting the Program Administrators to remain agile and responsive in implementing state-of-the-art energy efficiency programs for the benefit of customers during the Term.

Of special note regarding mid-course revisions to the Plan, it is an essential element of this Plan that in the event that targets for outside funding are not achieved by certain dates as set forth in this Plan, the Program Administrators are permitted reasonable flexibility to modify savings goals and budgets by specific stipulated dates (September 30, 2010 and September 30, 2011, respectively[28]) in order to reflect the actual outside funding levels achieved, in order to prevent excessive bill impacts. *See* Section II.B.2.iv. Additionally, as the Program Administrators gain experience with new programs under the Act, it may become appropriate to update savings goals and budgets for 2011 or 2012 for other reasons, in addition to modifications based on outside funding levels. In particular, the Program Administrators will examine actual 2010 experience in the field as the new programs set forth in this Plan are rolled out and implemented and, if appropriate after consultation with the Council, submit any updated savings goals or budgets based upon such experience for 2011 and 2012 on or about September 30, 2010. It is the Program Administrators' goal that such a filing would not be necessary, but given the nature of many of the new initiatives undertaken pursuant to the Act, it is foreseeable that such a filing may be appropriate.

[28] The Program Administrators will strive to meet these target dates in 2010 and 2011, but retain flexibility to account for holidays and in-the field experience.

III. GREEN COMMUNITIES ACT – DEPARTMENT OF PUBLIC UTILITIES

A. Acquisition of All Available Cost Effective Energy Efficiency

Please refer to the discussion in Section II.A above in this Plan.

B. Allocation of Funds

1. *Minimum Requirement for Low Income*

The Act requires that electric energy efficiency funds be allocated to customer classes in proportion to their contributions to those funds. G.L. c. 25, § 19, requires "…that at least 10 per cent of the amount expended for electric energy efficiency programs… shall be spent on comprehensive low-income residential demand side management and education programs." Based on the budget figures set forth in this Plan, 12.4 percent of the total budget will be allocated to the low-income residential subclass in 2010, and 11.1 percent in both years 2011 and 2012. See the table below for more detail.

Electric Minimum Allocation to Low Income for 2010				
Sector	**SBC Collections**	**% of Total SBC Collections**	**Budget**	**% of Total Budget (1)**
Residential	$38,333,633	31.9%	$92,034,414	33.3%
Low Income (1)	$4,084,028	3.4%	$34,366,472	12.4%
Commercial & Industrial	$77,796,702	64.7%	$150,143,440	54.3%
TOTAL	**$120,214,363**	**100.0%**	**$276,544,325**	**100.0%**

Electric Minimum Allocation to Low Income for 2011				
Sector	**SBC Collections**	**% of Total SBC Collections**	**Budget**	**% of Total Budget (1)**
Residential	$38,679,929	31.8%	$116,113,190	28.3%
Low Income (1)	$4,273,478	3.5%	$45,606,235	11.1%
Commercial & Industrial	$78,528,411	64.6%	$248,352,797	60.6%
TOTAL	**$121,481,818**	**100.0%**	**$410,072,223**	**100.0%**

Electric Minimum Allocation to Low Income for 2012				
Sector	**SBC Collections**	**% of Total SBC Collections**	**Budget**	**% of Total Budget (1)**
Residential	$39,296,245	31.4%	$140,318,177	26.8%
Low Income (1)	$4,539,174	3.6%	$58,101,264	11.1%
Commercial & Industrial	$81,459,316	65.0%	$324,323,012	62.0%
TOTAL	**$125,294,736**	**100.0%**	**$522,742,452**	**100.0%**

Electric Minimum Allocation to Low Income for Three Years				
Sector	**SBC Collections**	**% of Total SBC Collections**	**Budget**	**% of Total Budget (1)**
Residential	$116,309,808	31.7%	$348,465,781	28.8%
Low Income (1)	$12,896,680	3.5%	$138,073,970	11.4%
Commercial & Industrial	$237,784,429	64.8%	$722,819,248	59.8%
TOTAL	**$366,990,917**	**100.0%**	**$1,209,359,000**	**100.0%**

C. Minimization of Administrative Cost

General Laws c. 25, § 19(a) requires the Department, when authorizing energy efficiency programs, to ensure that such programs minimize administrative costs to the fullest extent practicable. Administrative costs, also commonly referred to as PP&A costs, have traditionally been defined as all in-house and outsourced costs associated with planning activities and program administration. These include costs associated with developing program plans, and day-to-day program administration, including labor, overhead costs, and any regulatory costs associated with energy efficiency activities.

As has been their historical practice, each of the Program Administrators is fully committed to pursuing both internal and external opportunities to streamline the administration of their energy efficiency programs and thus their associated administrative costs. To that end, and within the context of the D.P.U. 08-50 Working Group, the Program Administrators, the Department, the DOER, the Attorney General's Office, and other interested parties have begun discussions to review the definition of administrative costs and the classification of the costs in

this category to ensure that all Program Administrators report such costs consistently. The results of this effort will allow all interested stakeholders to review administrative costs in an objective manner.

The Program Administrators also emphasize that, especially in light of the increased levels of activity contemplated under the Act, it is necessary and appropriate for all Program Administrators to maintain a skilled and dedicated administrative staff in order to ensure that: programs are delivered successfully; that the Act is complied with; that the directives of the Council, Department, and DOER are all responded to in a timely manner; and that substantial savings are achieved and documented. In sum, the Program Administrators seek to balance the need to minimize administrative costs to the extent prudent with the need to maximize program quality and oversight.

D. Competitive Procurement Process

As set forth in Section IV.A.4 above, the programs shall be administered by the electric distribution companies and by municipal aggregators with energy plans certified by the Department under G.L. c. 164, § 134(b). In authorizing such programs, the Department shall ensure that they are delivered in a cost-effective manner capturing all available efficiency opportunities, minimizing administrative costs to the fullest extent practicable and utilizing competitive procurement processes to the fullest extent practicable.

The Program Administrators are committed to utilizing the competitive procurement process to the fullest extent possible. Historically, the Program Administrators have utilized the competitive procurement process for retaining third-party contractors and vendors for activities including but not limited to program delivery, quality control, monitoring and evaluation, marketing and website design. Therefore, consistent with past practice in the procurement of

energy efficiency services, the Program Administrators anticipate that they will issue RFPs to engage the appropriate third-party contractors and vendors to provide energy efficiency programs and services, will consider the input and direction of the Council and its Consultants with respect to the retention of necessary Consultants, and where necessary will work collaboratively to ensure that energy efficiency services have been procured in a manner that minimizes cost to the ratepayers while maximizing the associated return on that investment. The Program Administrators recognize, however, that there are firms which may be qualified to perform some, but not all of the tasks generally included in the contracts for program delivery services. To further the job growth/retention goals of the Act, the Program Administrators will work to expand the pool of qualified program vendors to promote the entry of new market actors into subcontractor roles and make transparent the subcontractor bidding process and selection criteria used to evaluate proposals.

E. Energy Efficiency Reconciliation Factor

Pursuant to G.L. c. 25, § 19, prior to the approval of any EERF recovery factor within an energy efficiency plan, the Department shall consider: (a) the effect of any rate increases on residential and commercial customers; (b) the availability of other private or public funds for use towards energy efficiency or demand resources; and (c) whether past programs have lowered the cost of electricity to residential and commercial customers. Pursuant to this series of factors and considerations for Department evaluation in its review and findings relative to the additional funding required for energy efficiency measures, consistent with the Act and the Department's own precedent in D.P.U. 08-50-A at 56-60, the Program Administrators have prepared (and will supplement) customer bill impacts with this Plan, as discussed above in Section II.E. Also, each PA-specific Plan contains detailed PA-specific billing analyses as required in D.P.U. 08-50-A.

Additionally, the Program Administrators have analyzed and continue to fully analyze the availability of potential revenue sources other than those from the SBC, RGGI, or FCM related proceeds. Lastly, the Program Administrators have amply demonstrated that the BCRs associated with the Plan are robust and well above the prescribed levels. Therefore, the Program Administrators have amply met the requirements in G.L. c. 25, § 19. Further, on the issue of cost effectiveness and lowering the cost of electricity, the Program Administrators have shown that implementation of energy efficiency programs in the past has lowered the total, long-term costs paid for electricity by its customers in the aggregate, and that approval of this Plan would further reduce total, long-term costs under this three-year term. As a result, the Program Administrators have ample record to rely upon to show that they have met all considerations for the review and approval of an EERF pursuant to G.L. c. 25, § 19.

IV. GREEN COMMUNITIES ACT – ENERGY EFFICIENCY ADVISORY COUNCIL

A. Additional Benefits

1. *Reduction in Peak Load*

Please refer to discussion in Section II.A.5 above.

2. *Economic Development and Job Growth/Retention*

The economic development and job creation benefits of energy efficiency are well documented. In developing this three-year Plan to meet the ambitious goals set forth in the Green Communities Act, the Program Administrators recognize the importance of thoughtful planning in ensuring that these benefits are fully realized by the Commonwealth and its citizens.

In its April 2007 report, "Massachusetts Saving Electricity: A Summary of the Performance of Electric Efficiency Programs Funded by Ratepayers Between 2003 and 2005," the DOER provided a compelling overview of the fact that the benefits that accrue as a result of

these programs are many times the initial investment. Indeed, the report indicates that for an investment of $371 million in ratepayer funds over the three-year period DOER reviewed (2003-2005), the lifetime economic impacts of the efficiency investments made during those years will stimulate over 11,000 job years, increase personal disposable income by $650 million and will add almost $1.4 billion to the Gross State Product.

The 2009 Study "Avoided Energy Supply Costs in New England" ("2009 AESC Study") confirms the economic impacts from expenditures in energy efficiency. "Exhibit A-1 - 1: Economic Development Impacts of Massachusetts Electric and Gas Energy Efficiency (EE) (Net Impact Multipliers per $1 million)" of the August 21, 2009 final report indicates that each $1 million in gas energy efficiency expenditures will create employment impacts of 22.9 job-years[29] and value added (or gross domestic product in the state) of $1,478,300.

Assuming the energy efficiency programs accrue economic development benefits at the rate projected in the 2009 AESC study, the economic development benefits of this three-year plan are 31,005 job years (which equates to approximately 3,100 jobs) and approximately $2,000,000,000 in Gross State Product.

Energy efficiency puts cash in the pockets of consumers and helps free up capital for local businesses in multiple ways. First, customers who implement measures may see an immediate impact in terms of bill savings. In this Plan, the Program Administrators have proposed a number of measures to help defray upfront investment costs and deliver net savings from the beginning. One important example is the Small Business Services delivery model—which includes both direct installation and innovative financing practices that limit or reduce up-

[29] The employment impacts are a combination of jobs retained and jobs created. There is no indication how the impacts are split between these two categories. The jobs affected will be in energy efficiency, allied fields, as well as industries that consume energy across the whole economy.

front cost share—has been held up as a national model to address the deep and broad savings potential in this market. Second, load reductions contribute to lower wholesale energy prices. According to the DOER analysis, over the three years analyzed, Massachusetts efficiency programs delivered a cumulative benefit of $19.5 million. As a result, funds that were going primarily to pay for natural gas and other fuels (a majority of which were likely left the state and even the country) are available to contribute to local economic development. Energy efficiency investments save money for the consumers, who can reapply those savings to other investments, which impact the economy.

One of the most important economic impacts of energy efficiency is job growth and job retention. States that pursue energy efficiency spur job growth. Energy efficiency investments create jobs most directly through the work required to produce and install energy-efficiency products. A majority of the workforce needed to implement energy efficiency by necessity is local, as much of the work involved requires on-site construction and installation.

In Massachusetts, for example, an annual growth rate of 20 percent is expected in industries related to clean energy. The largest sector of this industry is jobs associated with energy efficiency and demand response, representing 44 percent of the sector.[30] The Clean Energy Census performed by the Massachusetts Renewable Energy Trust and Global Insight notes that the job creation is quite broad-based, with a number of clean energy businesses in the Berkshires, around Springfield and Worcester, and up and down the Massachusetts coastline. Moreover, this study notes that the job creation associated with clean energy requires workers at

[30] Massachusetts Clean Energy Industry Census; prepared by Global Insight, Inc. for the Massachusetts Technology Collaborative Renewable Energy Trust, August 2007, p. 1.

every level of the economic spectrum, from Ph.D. researchers to solar panel installers, energy auditors, and maintenance technicians for wind turbines.[31]

This three-year Plan represents a tremendous opportunity for job growth in Massachusetts. While this is one of the most highly anticipated positive results of the significant ramp up in energy efficiency spending, Program Administrators recognize that significant effort will be needed to ensure that demand for talent is consistently matched with supply of available labor.

Initial analysis indicates there is indeed potential for a labor shortfall over the next three years. Data suggest the largest sector impacted by job growth will be the construction trades.[32] The Governor's task force on the *Mobilization for Federal Recovery Infrastructure Investment Report* cautioned of the potential for short-term workforce shortages in energy efficiency contractors in place to do construction.[33] In order to better understand these trends, support has been provided to the New England Clean Energy Council's workforce development task force which is currently conducting a state assessment of job demands and job availability. The results of this study will help Program Administrators target workforce development initiatives at appropriate target markets.

One of the key roles played by Program Administrators is to interface with the energy efficiency service provider community (*e.g.*, builders, contractors, electricians and other trade allies) to communicate growing demand in specific areas and work together to identify and address potential gaps. Indeed, the Program Administrators have been participating in this type

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31 New England Clean Energy Council's Energy Workforce Summit Focused on Meeting Demand for the Fast-Growing Regional Clean Energy Industry.

32 *Mobilization for Federal Recovery Infrastructure Investment Report*, February 2009.

33 *Id.*

of dialogue to ensure sufficient infrastructure is in place to meet the savings targets included in the Program Administrators' respective 2009 plans.

Furthermore, the Program Administrators recognize that training will be essential to ensuring the availability of a highly qualified and well staffed network of efficiency providers. Many in the workforce will need to have skills upgraded or developed. The Program Administrators look forward to cooperating with the DOER and other state agencies interested in job training and workforce development over the three-year term of the Plan. The Program Administrators will also partner with union-supported training programs to ensure that both the experience of the training providers and associate curriculum will allow for meeting the safety and quality standards currently being met through the delivery of existing programs. The Program Administrators recognize this workforce challenge and have accordingly addressed it in this Plan by supporting and allocating funds for workforce growth and training initiatives. Indeed, Program Administrators have already opened a training center in Fitchburg, and a second center will be opened in Springfield.

The Program Administrators believe that a three-year planning horizon will make it much easier to forecast and communicate demand relative to the previous one-year planning process (for electric Program Administrators). Without adequate assurances that work will be available over a significant period of time, individuals will be reluctant to invest in training and businesses will be slow to hire for fear of needed to turn around and downsize in the next season.

Job retention will be achieved with consistent, sustainable funding of energy efficiency programs. A sustainable level of programs refers to programs which do not run out of either markets to serve or energy efficiency products with which to serve those markets for a reasonable long-term timeframe. Achieving a sustainable level of programs and associated

spending for a three-year period helps ensure that a consistent work flow can be achieved and maintained for an extended term.

This three-year Plan represents a rapid growth in energy efficiency savings and programs. It is important to note that for job retention, a sustainable level of spending on energy efficiency programs is imperative. Inconsistent program spending creates uncertainly in the marketplace, leading to workforce and material shortages and oversupplies associated with spending that goes up and down unpredictability. Hence, a foundation for job retention will be to reach a sustainable level of program activities which signal on-going work demand to the marketplace.

V. APPENDICES

A. Glossary of Defined Terms

APPENDIX A

GLOSSARY OF DEFINED TERMS	
ABS	Advanced Buildings Systems
Act	An Act Relative to Green Communities, Chapter 169 of the Acts of 2008. Signed into law on July 2, 2008.
ACCA	Air Conditioning Contractors of America
AESC	Avoided Energy Supply Component
AESP	Association of Energy Service Professionals
ACEEE	American Council for Energy Efficient Economy
AFUE	Annual Fuel Utilization Efficiency
APS	Alternative Portfolio Standards
ARRA	American Recovery and Reinvestment Act
Assessment	Assessment of All Available Cost-Effective Electric and Gas Savings: Energy Efficiency and CHP adopted by the Council on July 14, 2009
BBRS	Massachusetts Board of Building Regulations and Standards
BCRs	Benefit/Cost Ratios
BFM	Brushless Fan Motors

GLOSSARY OF DEFINED TERMS	
BOC	Building Operator Certification
BPI	Building Performance Institute
CAP	Community Action Program
CC	Conservation Charge
CDC	Community Development Corporations
CEC	Clean Energy Center
CEE	Consortium for Energy Efficiency
CFL	Compact Fluorescent Light
CHP	Combined Heat and Power
C&I	Commercial and Industrial
CMI	Community Mobilization Initiatives
Consultants	Consultants employed by the Energy Efficiency Advisory Council
Council	Energy Efficiency Advisory Council
Department	Massachusetts Department of Public Utilities
DHCD	Massachusetts Department of Housing and Community Development
DHW	Domestic Hot Water

GLOSSARY OF DEFINED TERMS	
DOER	Massachusetts Department of Energy Resources
D.P.U. 08-50-A	Investigation by the Department of Public Utilities on its own Motion into Updating its Energy Efficiency Guidelines Consistent with An Act Relative to Green Communities issued on March 16, 2009.
D.P.U. 08-50-B	Investigation by the Department of Public Utilities on its own Motion into Updating its Energy Efficiency Guidelines Consistent with An Act Relative to Green Communities issued on October 26, 2009.
DR	Demand Response
DRIPE	Demand Reduction Induced Price Effect
DSM	Demand-Side Management
ECM	Electronically Commutated Motor
EER	Energy Efficiency Rating
EERF	Energy Efficiency Reconciliation Factor
EISA	Energy Independence Security Act
EM&V	Evaluation, Monitoring, and Verification
ENERGY STAR®	Brand name for the voluntary energy efficiency labeling initiative sponsored by the U.S. Environmental Protection Agency and Department of Energy.
EPA	U.S. Environmental Protection Agency
ERVs	Energy Recovery Ventilation Units

GLOSSARY OF DEFINED TERMS	
ESCos	Energy Service Companies
ESQI	ENERGY STAR Quality Installation standards.
EPA	Environmental Protection Agency
FCM	Forward Capacity Market
GCEC	Governor's Clean Energy Challenge
GHGs	Greenhouse Gas Emissions
GJC	Green Justice Coalition
Green Communities Act	An Act Relative to Green Communities, Chapter 169 of the Acts of 2008. Signed into law on July 2, 2008.
GWSA	Global Warming Solutions Act
HSPF	Heating Season Performance Factor
HERS	Home Energy Rating System
HVAC	Heating, Ventilation, and Air Conditioning
IAPMO	International Association of Plumbing and Mechanical Officials
ISO-NE	Independent System Operation – New England
JMC	Joint Management Committee
LEAN	The Low-Income Energy Affordability Network

GLOSSARY OF DEFINED TERMS	
July 28th Resolution	Resolution adopted by Council on July 28, 2009 concerning statewide plans
LED	Light Emitting Diode
LBR	Lost Base Revenue
MSSC	Multi-family Statewide Steering Committee
NATE	North American Technician Excellence
NCPs	Negotiated Cooperative Promotions
NEEC	Northeast Energy Efficiency Council
NEEP	Northeast Energy Efficiency Partnerships
Network	Low-Income Weatherization and Fuel Assistance Program Network
October 6th Resolution	Resolution adopted by the Council on October 6, 2009
OBF Working Group	On-bill Financing Working Group
OTF	Office of the Future
PAs or Program Administrators	Utilities and municipal aggregators that offer energy efficiency programs. Electric Program Administrators in Massachusetts include: Cape Light Compact, Unitil, National Grid, NSTAR Electric Company and Western Massachusetts Electric Company.
PHA	Public Housing Authority

GLOSSARY OF DEFINED TERMS	
PHCC	Plumbing Heating Cooling Contractors Association
Plan	Statewide electric efficiency investment plan submitted to the Energy Efficiency Advisory Council on April 30, 2009.
PP&A	Program Planning and Administration
Priorities Resolution	The Energy Efficiency Advisory Council's "Resolution Concerning Priorities to Guide the Development, Implementation and Evaluation of the PA Efficiency Plans" dated March 24, 2009.
QC	Quality Control
QIV	Quality Installation and Verification
RCS	Residential Conservation Services
RFP	Request For Proposal
RGGI	Regional Greenhouse Gas Initiative
RMC	Residential Management Committee
SBC	System Benefit Charge
SBS	Small Business Services
SEER	Seasonal Energy Efficiency Rating
SSL	Solid State Lighting
STC	Standing Technical Committee

GLOSSARY OF DEFINED TERMS	
T&D	Transmission and Distribution
Term	Three-year term of the energy efficiency plan
TBC	Thermal Bypass Inspection Checklist
TIPS	Treasury Inflation Protected Securities
TRC	Total Resource Cost
UDRH	User Defined Reference Home
USGBC	US Green Buildings Council
WBA	Whole Building Approach
Website	Refers to the website www.ma-eeac.org

B. Proposed Council Timeline: Remaining Dates

Appendix B

*Note: This is a working draft of the planning schedule

Electric and Gas Energy Efficiency Plan Filings, 2010-2012

Development of Program Administrator-Specific Plans: Remaining Key Dates

(Note: Program Administrators expect Council input and guidance on the development of the individual PA Plans, from its ongoing review of the statewide Plan from which the individual PA Plans will flow, ongoing participation in program and other working groups, and/or Council (or its consultants) review and comment on a draft of each of the PA-specific Plans prior to the Plans being filed with the DPU. This interactive and iterative process will be filled out at a later date.)

October 27, 2009	-	Council Meeting.
October 30, 2009	-	PA-specific Plans filed at the Department.
October 30, 2009	-	Updated, integrated statewide Plans (Electric and Gas) filed that include any updated information revised through the process of developing the separate PA-specific October 30 Plans filed by the Program Administrators.
January 1, 2010	-	PA-specific three-year Plans go into effect, pending Department approval.

Notes:

1) Department review of the October 2009 filings is being addressed by the Department separately and is beyond the scope of this draft timeline.

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D. Evolving Trends in Cost/Budgets

1. *Market EE Activity Table*

Electric PA's EE Activities													
Year	Sector	Benefits ($)						TRC Costs ($)			TRC B/C Ratio	Net Benefits
		Capacity	Energy	DRIPE (Capacity & Energy)	Non-Elec. Resource	Non-Resource	Total Benefits	PA	Customer	TOTAL (1)		
	Residential	$30,866,457	$96,890,111	$34,092,252	$169,067,632	$5,908,531	$336,824,984	$97,234,368	$16,402,611	$113,636,979	2.96	$60,579,169
	Low Income	$2,983,739	$24,736,361	$5,808,449	$22,724,250	$40,428,380	$96,681,180	$36,037,008	$64,865	$36,101,873	2.68	$589,181,189
	C&I	$107,470,377	$522,549,780	$148,809,154	-$10,908,019	$16,001,230	$783,922,522	$160,540,636	$34,200,077	$194,740,714	4.03	$872,949,120
2010	**Total**	**$141,320,574**	**$644,176,253**	**$188,709,855**	**$180,883,864**	**$62,338,141**	**$1,217,428,687**	**$293,812,012**	**$50,667,554**	**$344,479,566**	**3.53**	**$1,522,709,479**
	Residential	$47,567,215	$130,171,930	$46,775,006	$294,613,134	$6,562,041	$525,689,326	$121,381,914	$22,137,546	$143,407,624	3.67	$382,298,839
	Low Income	$3,957,108	$34,603,090	$7,922,521	$31,583,504	$51,450,379	$129,516,601	$47,220,619	$71,821	$47,087,574	2.75	$82,434,260
	C&I	$156,229,357	$798,881,654	$221,775,763	-$18,756,125	$24,398,265	$1,182,528,915	$260,374,047	$120,810,286	$381,143,862	3.10	$802,021,456
2011	**Total**	**$207,753,680**	**$963,656,673**	**$276,473,291**	**$307,440,513**	**$82,410,685**	**$1,837,734,842**	**$428,976,580**	**$143,019,653**	**$571,639,059**	**3.22**	**$1,266,754,555**
	Residential	$60,925,044	$168,562,472	$52,532,290	$378,739,431	$7,991,227	$668,750,464	$145,447,703	$24,917,607	$170,165,364	3.93	$498,633,127
	Low Income	$5,288,593	$45,035,330	$8,349,743	$43,591,450	$65,245,192	$167,510,308	$59,444,736	$140,887	$59,093,268	2.84	$108,430,732
	C&I	$194,123,707	$1,020,061,409	$234,963,998	-$24,114,985	$31,786,802	$1,456,820,932	$336,092,420	$155,501,430	$491,541,913	2.96	$965,405,946
2012	**Total**	**$260,337,343**	**$1,233,659,211**	**$295,846,032**	**$398,215,897**	**$105,023,220**	**$2,293,081,703**	**$540,984,859**	**$180,559,925**	**$720,800,546**	**3.18**	**$1,572,469,805**
	Residential	$139,358,715	$395,624,513	$133,399,548	$842,420,198	$20,461,799	$1,531,264,774	$364,063,985	$63,457,764	$427,209,967	3.58	$1,104,120,727
	Low Income	$12,229,440	$104,374,781	$22,080,714	$97,899,204	$157,123,951	$393,708,090	$142,702,363	$277,574	$142,282,716	2.77	$251,444,162
	C&I	$457,823,442	$2,341,492,843	$605,548,915	-$53,779,128	$72,186,297	$3,423,272,369	$757,007,103	$310,511,794	$1,067,426,489	3.21	$2,356,608,591
GRAND TOTAL		**$609,411,597**	**$2,841,492,137**	**$761,029,177**	**$886,540,274**	**$249,772,047**	**$5,348,245,232**	**$1,263,773,451**	**$374,247,132**	**$1,636,919,171**	**3.27**	**$3,712,173,481**

Electric PA's EE Activities														
Savings								Avg Measure Life (yrs.)	TR Summer Demand Cost ($/Lifetime kW)	TR Energy Cost ($/Lifetime-mWh saved)	GHG Reductions (Tons) (1)			Participants
Capacity (kW)		Energy (mWh)		Gas (Therms)		Other Fuels (MMBTU)					Nox	Sox	CO2	
Annual (Summer)	Lifetime	Annual	Lifetime	Annual	Lifetime	Annual	Lifetime							
22,838	297,183	152,491	1,175,961	91,259	703,756	309,019	2,383,052	7.7	$382.38	$96.63	43	89	371,604	475,438
2,262	31,912	21,788	294,942	1,204	16,299	53,264	721,025	13.5	$1,131.29	$122.40	11	22	93,202	23,112
75,178	998,598	449,568	5,936,274	(34,630)	(457,263)	14,735	194,563	13.2	$195.01	$32.81	216	450	1,875,863	5,987
100,277	**1,327,693**	**623,847**	**7,407,176**	**57,833**	**262,792**	**377,018**	**3,298,641**	**11.9**	**$259.46**	**$46.51**	**270**	**561**	**2,340,668**	**504,537**
31,792	433,088	206,062	1,491,424	153,085	1,107,986	512,611	3,710,144	7.2	$331.09	$96.14	54	113	471,290	742,139
2,928	41,338	28,950	390,966	1,479	19,981	73,132	987,655	13.5	$1,138.96	$120.43	14	30	123,545	31,342
110,377	1,458,277	660,367	8,678,595	(46,934)	(616,807)	22,069	290,038	13.1	$261.33	$43.91	316	658	2,742,436	8,434
145,098	**1,932,703**	**895,379**	**10,560,985**	**107,630**	**511,159**	**607,813**	**4,987,837**	**11.8**	**$295.74**	**$54.12**	**384**	**801**	**3,337,271**	**781,915**
39,527	538,248	261,385	1,831,887	194,840	1,365,512	622,863	4,365,256	7.0	$316.06	$92.86	67	139	578,876	1,011,547
3,660	52,512	35,485	484,460	1,938	26,460	98,326	1,342,412	13.7	$1,125.07	$121.95	18	37	153,089	40,967
135,953	1,785,346	809,505	10,599,588	(65,016)	(851,320)	24,567	321,673	13.1	$275.25	$46.36	386	803	3,349,470	10,181
179,139	**2,376,105**	**1,106,375**	**12,915,935**	**131,762**	**540,653**	**745,755**	**6,029,340**	**11.7**	**$303.27**	**$55.79**	**470**	**979**	**4,081,435**	**1,062,695**
94,156	1,268,518	619,939	4,499,271	439,183	3,177,254	1,444,493	10,458,451	7.3	$336.73	$94.94	164	341	1,421,770	2,229,124
8,850	125,762	86,222	1,170,367	4,622	62,739	224,722	3,051,093	13.6	$1,131.21	$121.55	43	89	369,836	95,421
321,507	4,242,221	1,919,439	25,214,457	(146,580)	(1,925,390)	61,371	806,274	13.1	$251.58	$42.33	918	1,911	7,967,768	24,602
424,514	**5,636,501**	**2,625,600**	**30,884,096**	**297,225**	**1,314,604**	**1,730,586**	**14,315,818**	**11.8**	**$290.37**	**$52.99**	**1,124**	**2,341**	**9,759,374**	**2,349,147**

Notes:

GHG for information purposes only; it is not included in TRC test

Total TRC Costs do not exactly equal Program Admininstrator costs plus customer costs because TRC costs are NPV, and Program Administrator/Customer Costs are in 2010$.

F. Assessment of All Available Cost-Effective Electric and Gas Savings: Energy Efficiency and CHP

1. *Assessment*

Assessment of

All Available Cost-Effective Electric and Gas Savings: Energy Efficiency and CHP

Submitted to the MA EEAC by its Consultants

July 9, 2009

Based on the data collected and presented to the Council on May 26, 2009 (memo attached as Appendix A) and considering the limitations of energy efficiency potential studies (described in more detail in Appendix A), the Consultants have estimated that a reasonable long-term value for all available cost-effective electric energy savings from the combination of energy efficiency programs and combined heat and power (CHP) is about 3 percent per year.[1] This is composed of at least 2.5 percent per year from electric efficiency programs and about 0.3 to 0.5 percent per year from CHP. For natural gas, the Consultants estimated that a long-term value for all available cost-effective energy efficiency program savings is about 2 percent per year. These values reflect average annual potential over a ten year horizon and therefore are longer term values. It would take several years for the Massachusetts energy efficiency programs to ramp up to these levels of annual energy savings.

Range	Electric Programs	CHP	Total Electric Savings	Natural Gas Programs
Low	2.5%	0.3%	2.8%	2.0-%
High	2.5+%	0.5%	3.0+%	2.0+%

It should be noted that the longer it takes to ramp up to these savings levels, the higher future savings would need to be to capture all available cost-effective savings. In addition, we believe that for retrofit

[1] The level of about 3% annual energy savings would be reached at the end of the initial ramp up period, not immediately in 2010.

and early retirement markets it is possible to expedite savings acquisition and exceed these annual figures.[2]

See the sections below for the derivation of the individual estimates for electric energy efficiency programs, CHP, and gas energy efficiency programs.

All Available Cost-Effective Electric Energy Efficiency Program Savings

Based on the data collected and presented to the Council on May 26th, the Consultants have estimated that a reasonable value for all available cost-effective electric energy efficiency savings is at least 2.5 percent per year.

The Consultants selected three studies, all from New England, from the thirteen studies reviewed and summarized for the Council (Appendix A) as most representative of the likely available cost-effective savings in Massachusetts. These are summarized in the following table:

State	Year of Study	Analysis Period (yrs.)	Achievable* (% of total forecast load)	Average Annual Achievable** (% of total forecast load)	Source	Notes
Connecticut	2009	10	22.5%	2.3%	KEMA	Total achievable potential estimated at 31% including codes & appliance/lighting standards. Accounted for the impact of federal lighting standards in 2012-2014 to reduce the program achievable savings.
New Hampshire	2009	10	22.7%	2.3%	GDS	Ignored most retrofit (early retirement) savings, so viewed as substantially low.
Vermont	2007	10	22.0%	2.2%	GDS	Constrained analysis to 50% of incremental cost incentive levels. For some markets, estimate of achievable was already being exceeded by Efficiency VT at the time of the study. In 2008 EVT achieved 2.5% savings statewide and 4.5% in geotargetted areas (unevaluated results).
Averages		**10.0**	**22.4%**	**2.24%**		Mean of data available.

Of the ten studies not included in the table above:

- Four did not present an estimate of achievable potential,
- Two were from mid-Atlantic states,
- Two others were older studies (one of which has been superseded by a newer study showing a lower potential), and

[2] For example, Efficiency Vermont captured approximately 4.5% electric efficiency savings in 2008 among geo-targeted areas by aggressively pursuing retrofit opportunities.

- Two (the study for NSTAR and the study of New England for NEEP) were not primary data studies, but were high-level assessments (similar to this assessment) drawing from a compilation of other, older studies, some of which have been superseded by more recent studies.

The three studies listed above:

- Cover a New England setting,
- Include an estimate of achievable potential,[3] and
- Were performed by different entities.

The average annual achievable potential reported by these studies is approximately 2.24% per year, all over a ten year horizon. This is very close to the 2.2% average of all nine studies in the list in Appendix A that presented an estimate of achievable potential. Therefore, whether the three studies in the table above or the longer list of studies in Appendix A are used, the studies report average achievable potential of about 2.2%.

There are several reasons why these studies are likely to have understated the available cost-effective savings in Massachusetts.

As stated in the May 26 memo (Appendix A) and summarized directly below, potential studies generally underestimate the true potential for many reasons, including:

- Many studies are arbitrarily constrained in scope.
- Many studies ignore technology advancement.
- Economic analyses tend to exclude all benefits.
- Studies are limited by time and resources, and thus simplified by exclusion of many measures and/or categories of measures.
- Interactions that magnify opportunities and systems that treat whole buildings comprehensively are often ignored.
- Studies stretch out early replacement opportunities throughout the full analysis period.

In addition to these general conservatisms, we note below some specific issues with the above studies that would lead them to be low estimates of the true achievable potential.

At least one entity in the region (Efficiency Vermont) has *already achieved statewide electric efficiency program savings of 2.5%*, higher than the estimate of achievable potential in the Vermont study, thus establishing this is possible. Note that only two (out of 13) studies have implied annual achievable potential that meets or exceeds Vermont's 2008 statewide

[3] The Consultants consider the achievable potential values in these studies to be equivalent to "all available cost effective energy efficiency savings" because achievable potential includes only those savings that are cost-effective and available or achievable.

achievement. Further, EVT achieved 4.5% electric efficiency savings across several geographical targeted areas in 2008. [4]

The New Hampshire study excluded most retrofit measures, and is therefore considered a highly conservative estimate of potential.

The Vermont study was widely criticized as conservative. In some markets, the potential estimate was lower than actual achievements by Efficiency Vermont. A prior VT study completed in 2003 estimated 30% achievable potential, or roughly 36% greater potential.

Because the studies are likely to understate achievable potential, the Consultants estimated that the value for all available cost-effective savings in Massachusetts is *at least* 10 to 15 percent greater than the 2.24 percent per year average from the studies above. The Consultants therefore believe that a target of at least 2.5 percent savings per year from electric energy efficiency programs is a reasonable long-term estimate of all available cost-effective savings.

Combined Heat and Power

The Consultants previously reviewed two studies that estimated achievable CHP savings of 0.3 and 1.1 percent of load annually. We have reviewed additional efforts to estimate cost-effective electric savings from CHP in Massachusetts, one conducted by KEMA on behalf of the Massachusetts Renewable Energy Trust and one conducted by NESCAUM.[5] The two studies have been added to the table below. Because the number of available studies is limited, none was removed from consideration of the available cost-effective savings. Note that experience in large scale CHP programs and experience relating actual CHP program savings to prior estimates of CHP achievable potential are limited, relative to such work for electric and gas energy efficiency programs.

[4] *Efficiency Vermont (EVT) Preliminary Annual Report*, March 2009

[5] KEMA, *The Market Potential for Combined Heat and Power in Massachusetts,* prepared for the Massachusetts Technology Collaborative, June 2006; and NESCAUM, *The Economic Potential for Combined Heat and Power in Massachusetts,* November 2007.

State	Year of Study	Analysis Period (yrs.)	Achievable Potential (% of total forecast load)	Average Annual Achievable* (% of total forecast load)	Source	Notes
Massachusetts (NSTAR Only)	2007	10	3.2%	0.3%	OEI	Constrained potential recognizing no programs existed at the time, no clear ability to coordinate with gas utilities, or assumptions about improved stand-by or interconnection policies.
New York	2002	10	10.5%	1.1%	Energy Nex	Estimates are net of expected natural market adoption. The study did not estimate achievable potential. "Achievable" estimate represents assumed market penetration without any state or utility programs but with reduction by 50% of stand-by charges and a 10% federal tax credit only. Figures are based on installed load estimates, 65% of electricity used on-site (Study estimate for existing NY CHP load) and assumed 80% load factor.
Massachusetts	2008	see notes	4.3%	0.4%	KEMA/RET	Study extended through 2026, but figures here are based on reported results from 2010 through 2019. Figures are based on installed capacity estimate, assuming load factor of 80%.
Massachusetts	2007	see notes	5.7%	0.6%	NESCAUM	Study extended through 2026, but figures here are interpolated to the period 2010 through 2019. Figures are based on installed capacity estimate, assuming load factor of 75%.
Averages		**10**	**5.9%**	**0.6%**		Mean of data available.

The two newly-listed Massachusetts state-wide studies are both based on the Massachusetts technical potential study conducted by the University of Massachusetts Amherst in 2006 and included in the previous memo (Appendix A). Both studies assessed the economic feasibility of CHP installations, and the NESCAUM study included the effect of policy actions to encourage CHP installations. The potential estimates reported here are net of baseline installations assumed to occur in the absence of any changes to current conditions or policies.

The Consultants also considered the effect of the Alternative Portfolio Standard (APS) on CHP installations. The APS calls for 25% of load to come from "clean energy" by 2020, with 20% coming from renewables. This leaves 5% for three specific non-renewable clean energy technologies: CHP, flywheel storage, and IGCC with carbon capture and sequestration. The latter two technologies are not commercially viable at this time. Given that CHP is a commercially viable technology with an extensive installed base, it is extremely likely that the entire 5% non-renewable APS will need to be met with CHP within the next 11 years, rather than the other technologies. This translates to 0.45% per year for 11 years (2010-2020). As a result, in order to meet the APS standards, PAs would need to capture roughly half a percent of load per year on average from CHP.

Given these data points, the Consultants feel that the cost-effective electric energy savings available from CHP is about 0.3 to 0.5 percent per year for the next 10 years. The low end of this range is lower than the average of the quantitative studies available, and the high end of the range is comparable to the

requirements of the APS, which can be viewed as a minimum level of effort. A range for available cost-effective CHP energy savings is appropriate given the limited experience with large scale CHP programs and CHP potential studies,

All Available Cost-Effective Gas Energy Efficiency Program Savings

Based on the data collected and presented to the Council on May 26th, the Consultants have determined that a reasonable estimate for available cost-effective gas savings from energy efficiency programs is about 2.0 percent per year.

The Consultants selected three of the four studies reviewed and summarized for the Council as most representative of the available savings in Massachusetts. These are summarized in the following table:

State	Year of Study	Analysis Period (yrs.)	Achievable * (% of total forecast load)	Average Annual Achievable** (% of total forecast load)	Source	Notes
Connecticut	2009	10	17.0%	1.7%	KEMA	Final draft. Gas efficiency only. Total achievable including codes & standards estimated at 22%.
New Hampshire	2009	10	21.1%	2.1%	GDS	Ignored most retrofit (early retirement) savings. Typically retrofit measures account for a large portion of EE opportunities over 10 years.
New York	2006	10	19.0%	1.9%	OEI	Conservative estimate of max achievable based on 67% of economic, without detailed analysis.
Averages		**10.0**	**19.0%**	**1.9%**		Mean of data available.

The only study excluded from those initially considered did not present an achievable potential estimate. The remaining studies:

- Included achievable potential[6] estimates, though we believe the studies understate the potential rather than overstate it, based on known factors discussed above and in Appendix A, and
- Were performed by three different entities.

The average annual achievable potential reported by these studies is approximately 1.9 percent per year. In addition to the general discussion above and in Appendix A about study results tending to be conservative, there are several specific reasons why these studies are likely to have understated the efficiency potential.

[6] The Consultants consider the achievable potential values in these studies to be equivalent to "all available cost effective energy efficiency savings" because achievable potential includes only those savings that are cost-effective and available or achievable.

- The New Hampshire study excluded most retrofit measures, and is therefore likely highly conservative, as retrofit opportunities typically account for the majority of potential.
- The New York Study reported only economic potential, from which the Consultants derived achievable potential using a conservative factor of 67 percent. This is the same ratio of achievable potential to economic potential estimated by the Connecticut gas potential study, and lower than that from the three electric potential studies which reported both economic and achievable potential (i.e., 80, 78 and 68 percent).

Because these studies are likely to understate achievable potential, the Consultants estimated that about 2.0 percent per year is a reasonable estimate of all available cost-effective natural gas savings from energy efficiency programs in Massachusetts.

Note that the Consultants have not estimated the amount of natural gas that will be used in CHP projects (thereby increasing natural gas consumption). The Consultants recommend that the gas savings from the energy efficiency programs be tracked specifically, distinct from the impacts of the CHP projects, and therefore have estimated the 2.0% gas savings for the energy efficiency programs specifically.

Appendix A

Assessment of All Available Cost-Effective Energy Efficiency and Combined Heat and Power Resources: Regional Findings

Submitted to the MA EEAC by its Consultants

May 26, 2009 (Revised)

Introduction and Caveats

The Green Communities Act requires the electric and gas program administrators to assess the available energy efficiency and combined heat and power (CHP) cost-effective potential as a part of establishing their statewide and individual goals. The assessments need to demonstrate that Program Administrators are seeking to acquire all available cost effective efficiency over the life of each three year plan. Correctly determining the assessment is an iterative process, a significant part of which is reviewing past work in Massachusetts and other states. All assessments are estimates, subject to many variables which are discussed in this paper.

This document provides the EEAC with historic results from relatively recent electric and gas energy efficiency and combined heat and power (CHP) potential studies. We also provide a summary of current efficiency program goals or legislative mandates in various states. Below are tables summarizing the results. It should be noted that many energy analysts believe that virtually all studies tend to produce conservative (*i.e.*, low) estimates of potential for a variety of reasons. Indeed, some studies have estimated achievable potential for some markets that were already being exceeded by reported results in the same area. There are many reasons why studies tend to estimate low potential.[7] Below are some of the major biases:

- **Many studies are arbitrarily constrained in scope.** For example, some studies have only considered efficiency opportunities from "lost opportunity" markets (driven by natural investments in buildings and equipment over time), thus eliminating large opportunities for early

[7] See, for example, Goldstein, David, *Extreme Efficiency: How Far Can We Go if We Really Need To?*, Natural Resources Defense Council, ACEEE Summer Study, 2008 for a more comprehensive list of reasons studies tend to be biased on the low side.

retirement (retrofit) of equipment and systems. Other studies constrain overall funding available, program designs, incentive levels, policies and other parameters. Where possible, we have tried to note major constraints.

- **Many studies ignore technology advancement.** Advances in technology can range from reductions in costs and improvements in performance over time, as well as dramatic new technologies that have potentially large impacts on future efficiency opportunities (*e.g.,* LED lighting). Even those studies that attempt to include emerging technologies typically only include a very limited set.
- **Economic analyses tend to exclude all benefits.** For example, rarely are demand induced price effects considered. It is also common to omit non-electric benefits from electric studies (and non-gas benefits from gas studies). Many analyses of retrofit opportunities (early retirement) do not take full accounting of the long term cost savings from deferral of the natural equipment replacement cycle and often substantial O&M benefits.
- **Studies are limited by time and resources, and thus simplified by exclusion.** An analyst can never include a fully comprehensive assessment of all possible technologies and practices. As a result, any exclusions are implicitly valued at zero, simply because they are not researched and analyzed. Rather than including approximate estimates for their inclusion, they are completely eliminated. For example, many studies omit measures that do not address the major end uses such as lighting, HVAC and refrigeration. As a result, things like plug load and other miscellaneous measures may be ignored. Some studies also do not fully address industrial process opportunities.
- **Interactions that magnify opportunities and systems that treat whole buildings comprehensively are often ignored.** Most studies do a good job of reducing savings from one measure as a result of prior assumed measures (*e.g.,* if a building shell is improved, it can reduce the savings from an efficient air conditioner). However, they nonetheless consider discrete measures rather than using a more systems-based approach. These approaches can often take advantage of significant synergies that may allow for dramatic down-sizing or even eliminating of major capital equipment, thus rendering a much greater package of measures with deeper savings cost-effective.
- **Studies stretch out early replacement opportunities throughout the full analysis period.** Many studies do not consider the ability to fast-track early retirement savings, but simply spread the estimated achievable participation rates across the whole timeframe. In some cases, with unconstrained funding programs could target and capture these opportunities faster.

Indeed, the mean of annual achievable program electric efficiency potential shown in the table below is 2.2%. However, Efficiency Vermont has already exceeded this level in 2008 with statewide savings of 2.5%.[8] Further, EVT captured 4.5% of the current electric load from efficiency savings in specifically targeted geographic areas in 2008.[9]

One should not view efficiency potential as a finite amount that goes away once captured. Indeed, experience has shown that technologies have generally at least kept pace with past improvements in codes & standards, public efficiency program investments, and naturally adopted efficiency. For example, in 1989 the American Council for an Energy Efficient Economy (ACEEE) estimated the economic potential in New York to be approximately 30% of forecast load. After more than two decades of significant

[8] Efficiency Vermont 2008 Annual Report, March 2009. These figures are not yet fully verified by the VT DPS and are subject to adjustment. Past adjustments based on VT DPS EM&V process have ranged from 2% to 12% reduction in tracking estimates.

[9] Ibid. Analysis of geo-targeted loads based on 2006 actual electric loads and assumed 1.5% annual underlying (*i.e.,* without efficiency programs) growth.

electric DSM program delivery in NY, a team led by Optimal Energy in 2003 (which included ACEEE) re-estimated the efficiency economic potential at 32.7% of forecast load, or approximately the same level. Thus, in a state that has been a leader in efficiency programs throughout the 1990s and 2000s, roughly the same proportional electric efficiency opportunities exist now as did when programs began. As a result, studies with longer time horizons tend to result in conservative implied annual achievable potential estimates.

Potential Results

The tables below provide summaries of results from available studies throughout the Northeastern U.S. -- most within the past decade. While we report, where available, the estimates of technical and economic potential, our focus is on achievable potential, as that should most closely align with Massachusetts' goal of capturing all *available* cost-effective efficiency. All figures should reflect *net* savings, excluding naturally occurring efficiency and codes & standards.

While definitions can vary from one study to the next, in general *technical* potential is defined as the net savings from all technically feasible efficiency opportunities without regard to economics or a customer's willingness to adopt them. *Economic* potential refers to the subset of technical potential that is cost-effective based on an economic screening. The cost-effectiveness test used varies among jurisdiction. However, the prevailing cost-effectiveness criteria in the region is the total resource cost test (TRC), which is also used in MA. However, rarely if ever is DRIPE included. *Achievable* potential is generally defined as the maximum amount of efficiency that can be expected to be captured with fully funded, well designed programs. However, in some cases, estimates reflect achievable potential subject to various economic, programmatic, budgetary, or other constraints. As such, the average results for achievable potential can be viewed as a low estimate of true maximum achievable potential.

Electric Efficiency

Achievable electric efficiency potential estimates range from a low in Maine (14%)[10] to a high in the Mid-Atlantic (37%). The mean from these studies is 24.3% of the forecasted future load (at the end of the analysis period) assuming no other interventions in the market. The study periods range from 5-20 years, with an average of 12. The implied *annual* achievable potential is shown by dividing the ultimate achievable potential by the analysis period. This ranges from 1.4% to 3.1%, with a mean of 2.2%. It should be noted that only two (out of 13) studies have implied annual achievable potential that meets or exceeds Vermont's 2008 statewide achievement, and none that approach EVT's 2008 geo-targeting achievement. These numbers do not include any savings potential from CHP.

Note that the New England study for NEEP was a meta-analysis that relied on several older studies that reported relatively low potential, typically as a result of a limited scope.[11] For example, a 2005 study for Connecticut (that was also applied to Rhode Island) estimated only 13.5% achievable potential savings. However, this study has been superseded by the newer KEMA study shown above estimating 22.5%. Given the significant share of New England electric load represented by these two states, this single

[10] The Maine study excluded some major efficiency markets, including low income retrofit and all new construction opportunities.

[11] For instance, a potential study for Maine that was included in the meta-analysis excluded all low-income retrofit opportunities and the entire new construction market.

change to the estimated CT and RI potential would have dramatically increased the NEEP study findings for the region.

Also note that the 2007 study for NSTAR was not a primary data study, but was a high-level assessment (similar to the assessment developed by the Council's Consultants) drawing from a compilation of other, older studies, some of which have been superseded by more recent studies.

Electric Efficiency Potential

State	Year of Study	Analysis Period (yrs.)	Technical Potential (% of total forecast load)	Economic Potential (% of total forecast load)	Achievable * (% of total forecast load)	Average Annual Achievable** (% of total forecast load)	Source	Notes
Connecticut	2009	10	36.4%	33.1%	22.5%	2.3%	KEMA	Total achievable potential estimated at 31% including codes & appliance/lighting standards. Accounted for the impact of federal lighting standards in 2012-2014 to reduce the program achievable savings.
Maine	2002	10	N/A	18.0%	14.0%	1.4%	Exeter/ OEI	Simplified analysis based on prior utility data. Did not include low income retrofit (early retirement) nor all new construction markets.
Maryland	2008	17	N/A	N/A	29.0%	1.7%	ACEEE	
Mass (Nstar only)	2007	10	N/A	N/A	17.9%	1.8%	OEI	High level analysis, electric efficiency only figure. With CHP estimate is 21.1%.
Massachusetts	2001	5	N/A	24.0%	N/A		RLW	
Mid-Atlantic (NY/NJ/PA)	1997	14	N/A	N/A	37.0%	2.6%	ACEEE	Represents approximate weighted average of sector-specific estimates of 35% Residential, 35% Commercial and 41% Industrial.
New England	2004	10			23.0%	2.3%	OEI	Meta-analysis for NEEP. Older relatively low CT and ME estimates drove result down. CT study was also assumed to apply to RI. More recent CT and RI studies would have resulted in significantly higher estimate.
New Hampshire	2009	10	27.6%	N/A	22.7%	2.3%	GDS	Ignored most retrofit (early retirement) savings, so viewed as substantially low.
New Jersey	2003	17	N/A	17.0%	N/A		KEMA	
New York	2003	20	35.1%	32.7%	N/A	N/A	OEI	Forthcoming update with achievable potential has initially estimated about18% over 7 years, or approximately 2.5%/yr. Still in draft.
Rhode Island	2008	10	28.0%	24.0%	N/A		KEMA	Phase 1 high level study. Detailed study forthcoming in 2009.
Vermont	2003	10	N/A	38.4%	30.7%	3.1%	OEI	
Vermont	2007	10	34.6%	N/A	22.0%	2.2%	GDS	Constrained analysis to 50% of incremental cost incentive levels. For some markets, estimate of achievable was already being exceeded by Efficiency VT at the time of the study. In 2008 EVT achieved 2.5% savings statewide and 4.5% in geotargetted areas (unevaluated results).
Averages		**11.8**	**32.3%**	**26.8%**	**24.3%**	**2.18%**		Mean of data available.

* "Achievable potential" definitions can vary significantly. In some cases this is estimated as the maximum amount of EE that can be achieved from programs, with no constraints. However, many studies only analyze what could be achieved for a particular set of programs, incentive levels, or budget or rate impact constraints. In addition, some studies exclude some major EE markets completely. For example, some studies have excluded new construction, industrial process, early retirement, fuel switching, or other major opportunities. As a result, these figures should generally be viewed as conservative estimates. Finally, none of the these studies any savings from CHP.

** Average Annual Achievable represents the total estimated achievable potential percent divided by the planning period.

Combined Heat and Power

In MA the goal is to capture all available cost-effective energy efficiency *and* combined heat and power opportunities. As a result, it is useful to also consider estimates of CHP opportunities. There is less available experience and research on CHP achievable potential. CHP has generally not been promoted by efficiency programs. Rather, the installed CHP capacity now existing in the region has been mostly developed through natural market forces, and in some cases very limited incentives or tax breaks. As a result, the ability to dramatically influence CHP adoption with MA programs is unclear. However, a review of studies in NY and MA indicate *technical* CHP potential of between 40% and 62% of total electric load, with a mean of 51%.[12] Thus, it seems clear that the theoretical opportunities for CHP in MA are very large.

The NY study estimated "market potential" assuming a halving of current NY stand-by charges and a federal tax credit of 10% of installed cost, however, no other interventions in the market. Based on these assumptions it projected 10.5% CHP market potential, or 1.05% of total electric load per year. Certainly, well funded aggressive CHP programs in MA would presumably have been estimated by this study's authors to exceed this limited intervention scenario. In addition, a study for NSTAR that considered whether it was feasible to meet all load growth with EE and CHP made a high level estimate that, starting from scratch and assuming no changes to policies such as stand-by rates or interconnection agreements, could provide 3.2% of total load savings in 10 years, or 0.32%/yr. The mean implied annual achievable CHP potential from the two studies that provide estimates is 0.7%. Because the CHP studies are limited, and the range of estimated potential is large, more research is needed on CHP opportunities and likely customer adoption from well designed programs. This is being undertaken in RI, and will also be further analyzed in MA this year.

[12] The studies estimated installed capacity rather than energy production. Estimates assume 65% of electric generation is used on-site (thus reducing line losses, based on the historic CHP installed in NY) and an average load factor for CHP systems of 80%.

Electric CHP Potential

State	Year of Study	Analysis Period (yrs.)	Technical Potential (% of total forecast load)	Economic Potential (% of total forecast load)	Achievable Potential (% of total forecast load)	Average Annual Achievable* (% of total forecast load)	Source	Notes
Massachusetts	2006	Instan-taneous	62.0%	N/A	N/A	N/A	U of MA, Amherst	Figure based on installed load estimate, 65% of electricity used on-site (NY Study estimate for existing NY CHP load) and assumed 80% load factor. Based on fraction of current MA load.
Massachusetts (NSTAR Only)	2007	10	N/A	N/A	3.2%	0.3%	OEI	Constrained potential recognizing no programs existed at the time, no clear ability to coordinate with gas utilities, or assumptions about improved stand-by or interconnection policies.
New York	2002	10	40.4%	N/A	10.5%	1.1%	Energy Nexus	Estimates are net of expected natural market adoption. The study did not estimate achievable potential. "Achievable" estimate represents assume market penetration without any state or utility programs but with reduction by 50% of stand-by charges and a 10% federal tax credit only. Figures are based on installed load estimates, 65% of electricity used on-site (Study estimate for existing NY CHP load) and assumed 80% load factor.
Averages		**10**	**51.2%**	**N/A**	**6.9%**	**0.7%**		Mean of data available.

Total Electric Efficiency and CHP Potential

The mean implied annual achievable potential estimates for both electric efficiency and CHP sum to 2.9%. The range of annual levels is from a low of 1.7% to a high of 4.2%.[13]

Gas Efficiency

As with CHP, gas energy efficiency has not benefited from as long or as aggressive efficiency efforts as the electric sector. As a result, there are fewer studies for the region, and less experience with fully funded programs and portfolios. The table below includes 4 studies done in the past 6 years. The achievable potential ranges from a low in Connecticut 17% to a high in New Hampshire of 21%. The mean is 19%. Implied annual achievable potential from these studies is a mean of 1.9%, with a range of 1.7% to 2.1%. The 4 studies have substantially less variation than the electric studies, despite the fact that one study excluded all but a few retrofit (early retirement measures) because the policy focus was on capturing savings only at the time of natural customer investment in equipment and systems, and another study excluded new construction and other opportunities related to new load growth. The one study (NJ) that did not provide *achievable* potential had a slightly higher *economic* potential estimate than any of the other studies, indicating it likely would have found achievable potential to be equal or higher than the mean.

[13] Summing the lowest efficiency and CHP values for the low range and the highest for the high range.

Gas Efficiency Potential

State	Year of Study	Analysis Period (yrs.)	Technical Potential (% of total forecast load)	Economic Potential (% of total forecast load)	Achievable * (% of total forecast load)	Average Annual Achievable** (% of total forecast load)	Source	Notes
Connecticut	2009	10	29.0%	25.0%	17.0%	1.7%	KEMA	Final draft. Gas efficiency only. Total achievable including codes & standards estimated at 22%.
New Hampshire	2009	10	29.2%	N/A	21.1%	2.1%	GDS	Ignored most retrofit (early retirement) savings. Typically retrofit measures account for a large portion of EE opportunities over 10 years.
New Jersey	2003	17	N/A	30.0%	N/A		KEMA	Constrained to existing load, so excluded new construction opportunities and other efficiency from load growth.
New York	2006	10	N/A	28.3%	19.0%	1.9%	OEI	Conservative estimate of max achievable based on 67% of economic, without detailed analysis.
Averages		**11.8**	**29.1%**	**27.8%**	**19.0%**	**1.9%**		Mean of data available.

* "Achievable potential" definitions can vary significantly. In some cases this is estimated as the maximum amount of EE that can be achieved from programs, with no constraints. However, many studies only analyze what could be achieved for a particular set of programs, incentive levels, or budget or rate impact constraints. In addition, some studies exclude some major EE markets completely. For example, some studies have excluded new construction, industrial process, early retirement, fuel switching, or other major opportunities. As a result, these figures should generally be viewed as conservative estimates. Finally, none of the these studies any savings from CHP.

** Average Annual Achievable represents the total estimated achievable potential percent divided by the planning period.

Energy Efficiency Resource Standards

In addition to the above data on regional potential studies, shown below are recent state regulatory or legislative goals set for electric and (where noted) gas efficiency. This is based on *Laying the Foundation for Implementing a Federal Energy Efficiency Standard,* ACEEE, March 2009, report no. E091. The far right column provides the "implied annual efficiency savings target" as a percentage of the ultimate years load. For some EERS, goals were set based on reducing load to a portion of current load. In this case, average annual underlying growth in the load forecast net of energy efficiency programs was assumed to be 1.5%. In some cases, states have adopted *Renewable* Portfolio Standards (RPS) that allow some goals to be met with efficiency. In this case, EE targets are shown based on the maximum allowable use of EE to meet the RPS.[14] In some cases, goals are not clearly defined, and the table shows current plans.

Annual electric efficiency savings goals (as a percent of total electric load) range from a low of 0.4% in NC to a high of 3.25% in MD. Ten of 22 states have implied annual electric efficiency goals of 2.0% or more. Of the 9 states in the Mid-Atlantic and New England region, all but 3 have electric efficiency goals

[14] Energy efficiency is generally far cheaper to capture than renewable energy. Experience has shown that utilities generally plan to maximize use of energy efficiency in meeting RPS goals.

in excess of 2.0% per year.[15] It is likely that most if not all of these estimates exclude CHP, although a thorough analysis of whether any do include CHP has not been completed.

Annual gas efficiency goals are much more limited. Of the 5 states with established goals, all but one (IA at 0.3%) are 1.5% or greater. Within the Region's 4 states, NY has a goal of 1.5%/yr., while the others require all cost-effective achievable potential (assumed here to be 2.0% or more).

[15] Note, a number of states – including MA -- require all available cost-effective efficiency. This is assumed to equal at least 2.0%/yr.

State Energy Efficiency Resource Standards Activity

State	Date Established	Goal	Target End Date	Implied Annual % savings* (% of total forecast load)
Texas	2007	20% of load growth	2010	0.5%
Vermont	2008	2.0% per year (contract goals)	2011	2.0%
California	2004	EE is first resource to meet future electric needs[1]	2013	2.0% +
Hawaii	2004	.4% - .6% per year[2]	2020	0.5%
Pennsylvania	2008	3.0% of 2009-2010 load	2013	0.6%
Connecticut	2007	All Achievable Cost Effective[3]	2018	2.0% +
Nevada	2005	0.6% of 2006 annually[4]	n/a	0.6%
Washington	2006	All Achievable Cost Effective	2025	2.0% +
Colorado	2007	1.0% per year	2020	1.0%
Minnesota (elec & gas)	2007	1.5% per year	2010	1.5%
Virginia	2007	10% of 2006 load	2022	2.2%
Illinois	2007	2.0% per year	2015	2.0%
North Carolina	2007	5% of load[5]	2018	0.4%
New York (electric)	2008	10.5% of 2015 load[6]	2015	1.5%
New York (gas)	2009	15% of 2020 load[6]	2020	1.5%
New Mexico	2009	All achievable cost-effective, minimum 10% of 2005 load	2020	1.0% +
Maryland	2008	15% of 2007 per capita load[7]	2015	3.3%
Ohio	2008	2.0% per year	2019	2.0%
Michigan (electric)	2008	1.0% per year	2012	1.0%
Michigan (gas)	2008	0.75% per year	2012	0.8%
Iowa (electric)	2009	1.5% per year	2010	1.5%
Iowa (gas)	2009	0.85% per year	2013	0.3%
Massachusetts	2008	All Achievable Cost Effective		2.0% +
New Jersey (electric & g	2008	20% of 2020 load[8]	2020	≤2.0%
Rhode Island	2008	All Achievable Cost Effective		2.0% +

Source: ACEEE, Laying the Foundation for Implementing a Federal Energy Efficiency Standard, March 2009, report no. E091.

Notes:

* Implied annual reduction for targets based on current year loads assumes average underlying load growth (not accounting for EE) of 1.5% per year. Texas based on recent load growth of 3%/yr.

1 CA programs exceeded 1.5%/yr. in 2007. While current mandated goals are lower, CA policy requires investment in efficiency whenever it is less costly than alternative new supply.

2 HI established a renewable portfolio standard that includes efficiency as a resource and requires 20% savings by 2020, or approximately 2.8%/yr. However, this can come from efficiency or renewable resources. Current efficiency savings has ranged from 0.4% - 0.6%/yr.

3 CT requires capture of all available cost-effective efficiency resources. Current utility plans reflect goals of about 1.5%/yr.

4 NV has an RPS requiring 15-20% of load and allows EE to meet 25% of the goal. Utilities are ramping up to meet the maximum level of 5% of load from efficiency. Figure reflects 2006 program achievements.

5 NC RPS ramps up to 12.5% of load in 2021, with EE capped at 40% of this target, or 5%.

6 NY established a 15% savings goal (July 2008) for electric efficiency by 2015, however this includes an estimated 4.5% savings from codes & standards. Electric figure is for efficiency programs only. NY just established a 14.7% goal for gas efficiency by 2020. However, it is unclear whether this includes any savings that might come from codes & standards.

7 MD goal is set as a reduction off of 2007 per capita load. Implied annual goal assumes underlying load growth per capita (net of efficiency programs) of 0.75%.

8 NJ legislature recently authorized the BPU to set electric and gas goals of 20% savings each by 2020. Goals still under development.

2. *Resolution*

Assessment of
All Available Cost-Effective Electric and Gas Savings from
Energy Efficiency and Combined Heat & Power (CHP)

Resolution of the Massachusetts Energy Efficiency Advisory Council

Adopted July 14, 2009

Be it resolved:

The attached *Assessment of All Available Cost-Effective Electric and Gas Savings* provides a useful and appropriate estimate of the level of all available cost-effective energy efficiency and combined heat and power (CHP) in the Commonwealth; serves the purpose of helping all stakeholders to prepare and optimize the 2010-2012 plans; is appropriate for inclusion in the plans; and, for the first three-year plans developed under the Green Communities Act (GCA), reasonably satisfies the requirement of the GCA to perform such an assessment. The estimates in the Assessment are summarized below.

Estimates of All Available Cost-Effective Annual Energy Savings				
Range	**Electric Programs**	**CHP Electric Savings**	**Total Electric Savings**	**Natural Gas Programs**
Low	2.5%	0.3%	2.8%	2.0-%
High	2.5+%	0.5%	3.0+%	2.0+%

These estimates are reasonable approximations of high end, aggressive levels of all available cost-effective savings from energy efficiency and CHP. The levels of electric and gas savings potential in the Assessment are distinct from the savings goals that will be set forth in the still-developing 2010-2012 energy efficiency plans, and the 2010-2012 savings goals will take into account a number of additional factors, including, but not limited to, the ramp up to higher

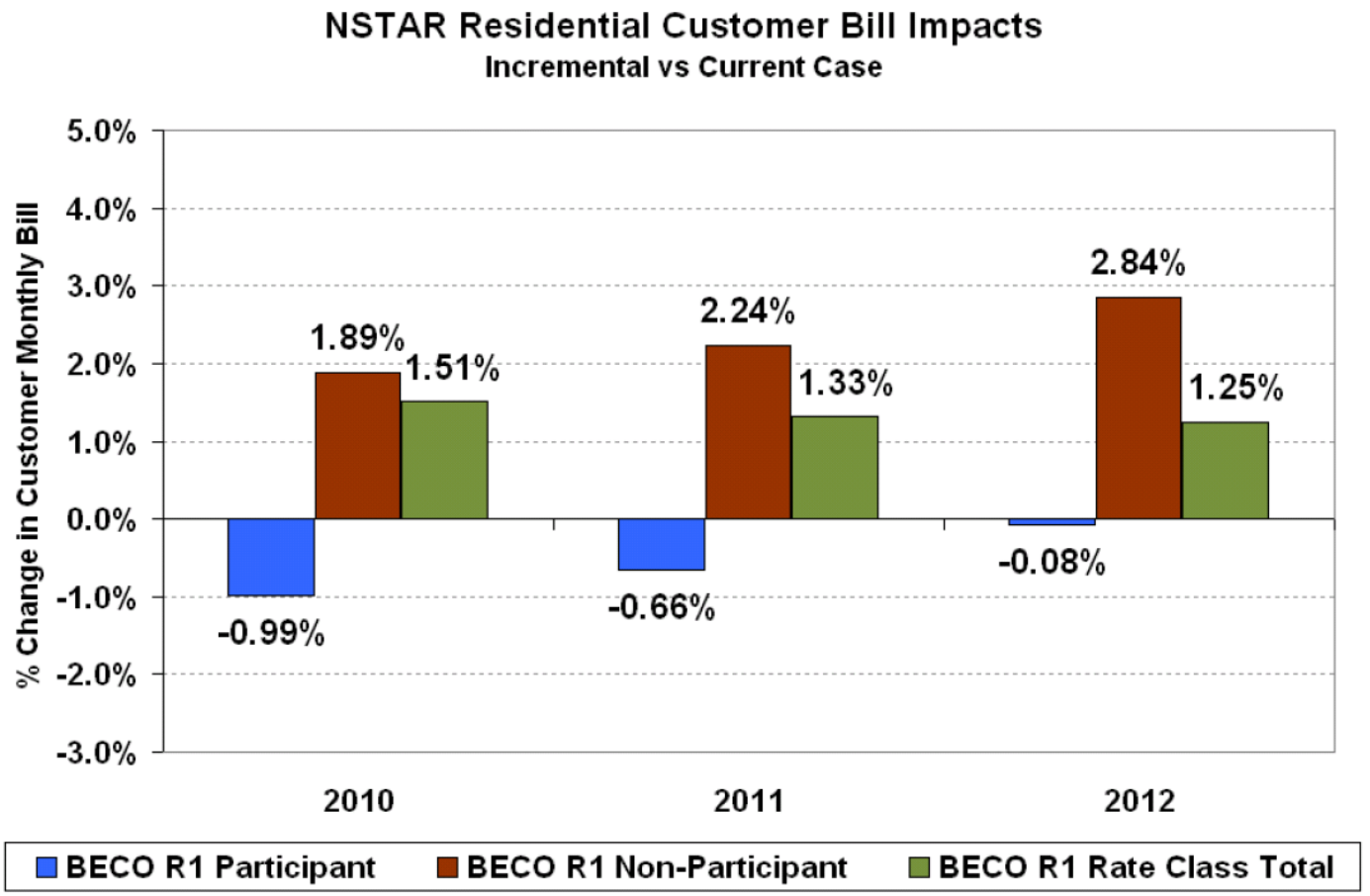
savings levels, the benefits and net benefits provided by achieving higher savings levels, and the consideration of rate and bill impacts associated with additional ratepayer funding.

The Council (including voting members and Program Administrators) agrees that a detailed potential study or set of targeted studies, as appropriate, will be performed in 2011, during the course of the initial three-year Plan period, and that an updated assessment of all available cost-effective energy efficiency will be prepared in connection with the next three-year plan to take effect in 2013. The detailed potential study will be informed by the actual experience of enhanced programs in the field in Massachusetts and other states implementing programs to acquire higher energy savings approaching all available cost-effective potential.

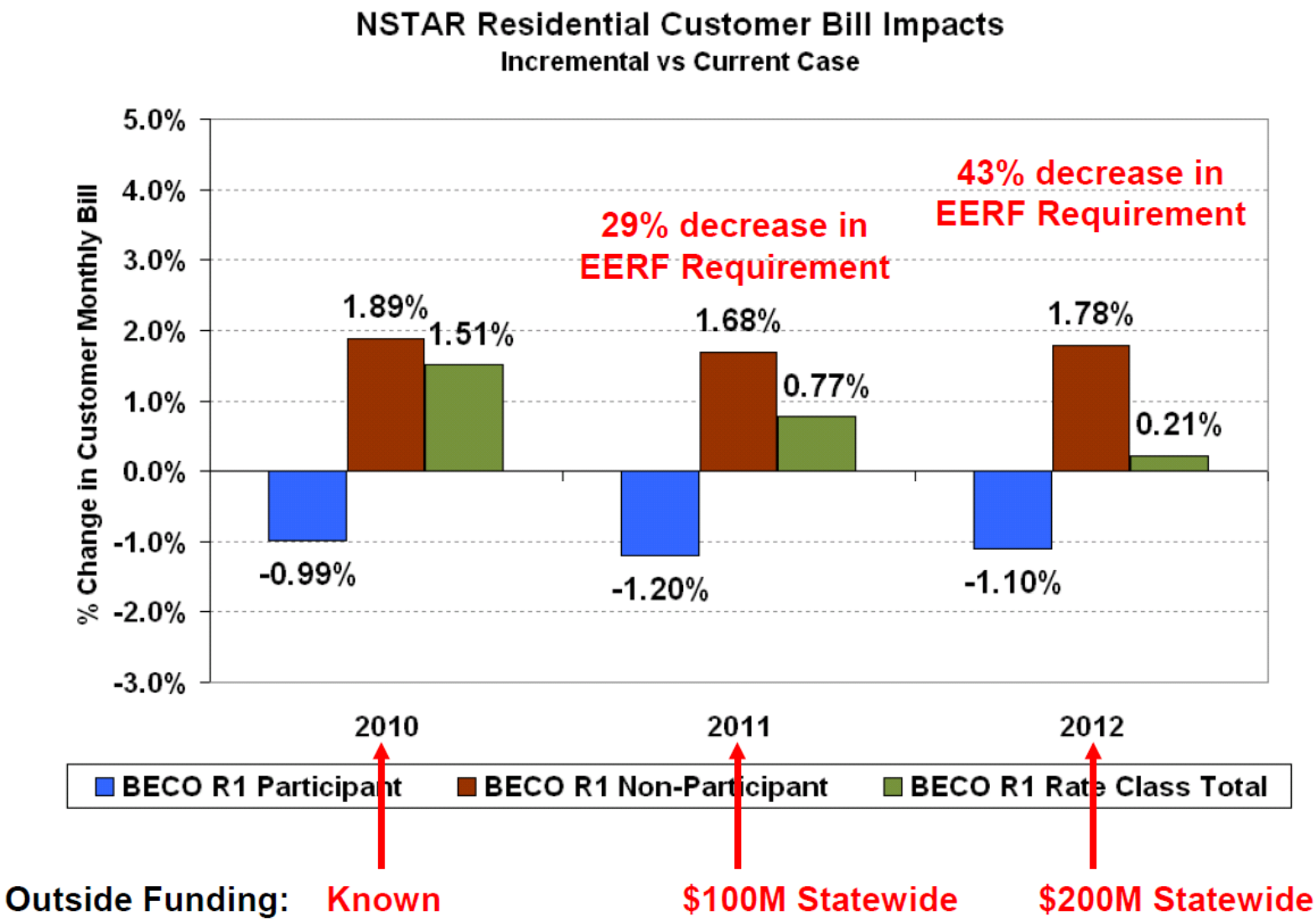
Requirements of the Green Communities Act, Section 21:
"(2) A plan shall include: (i) an assessment of the estimated lifetime cost, reliability and magnitude of all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply"

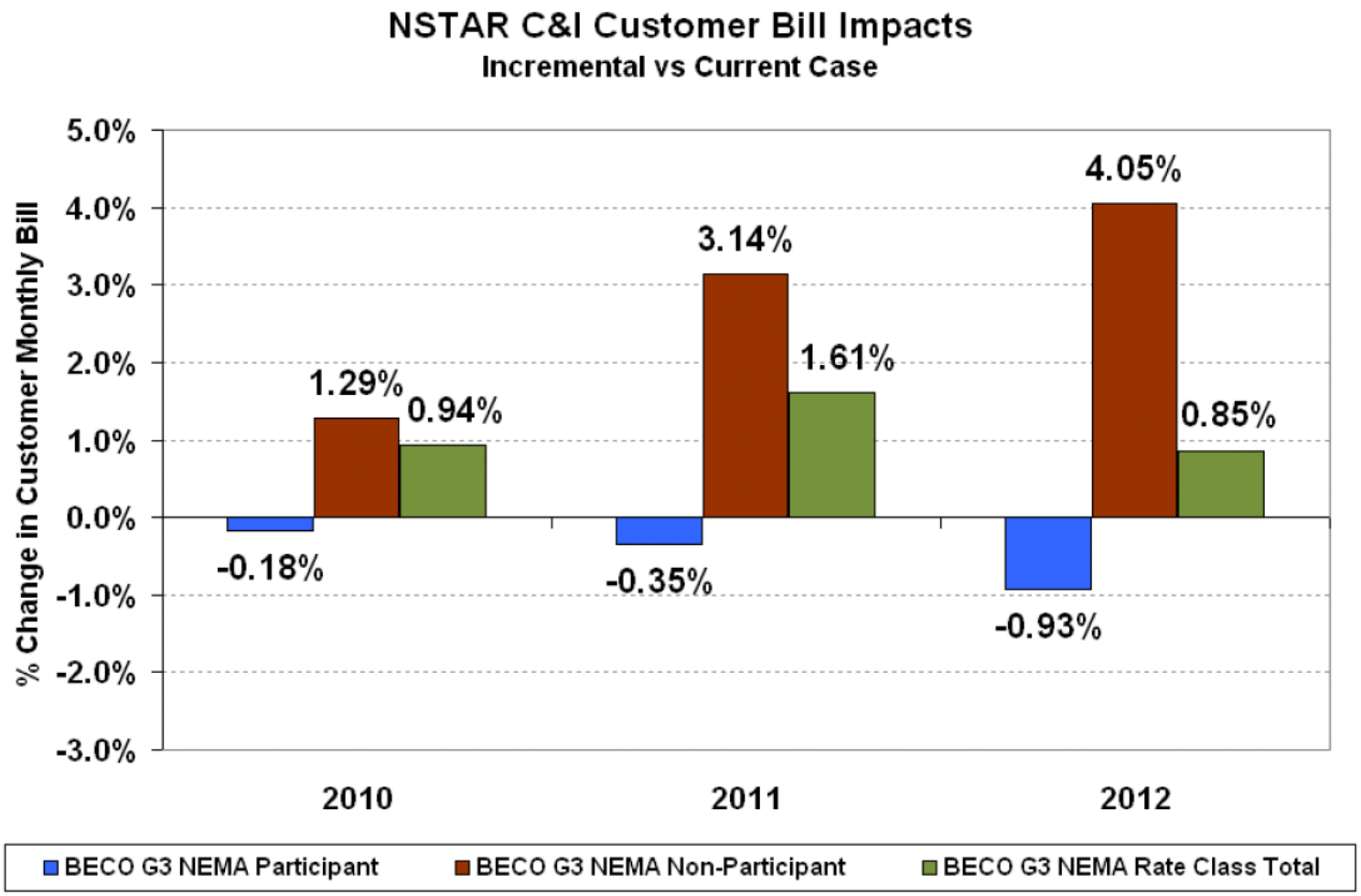
G. Sample Residential Rate and Bill Impact Analyses

1. *NSTAR*

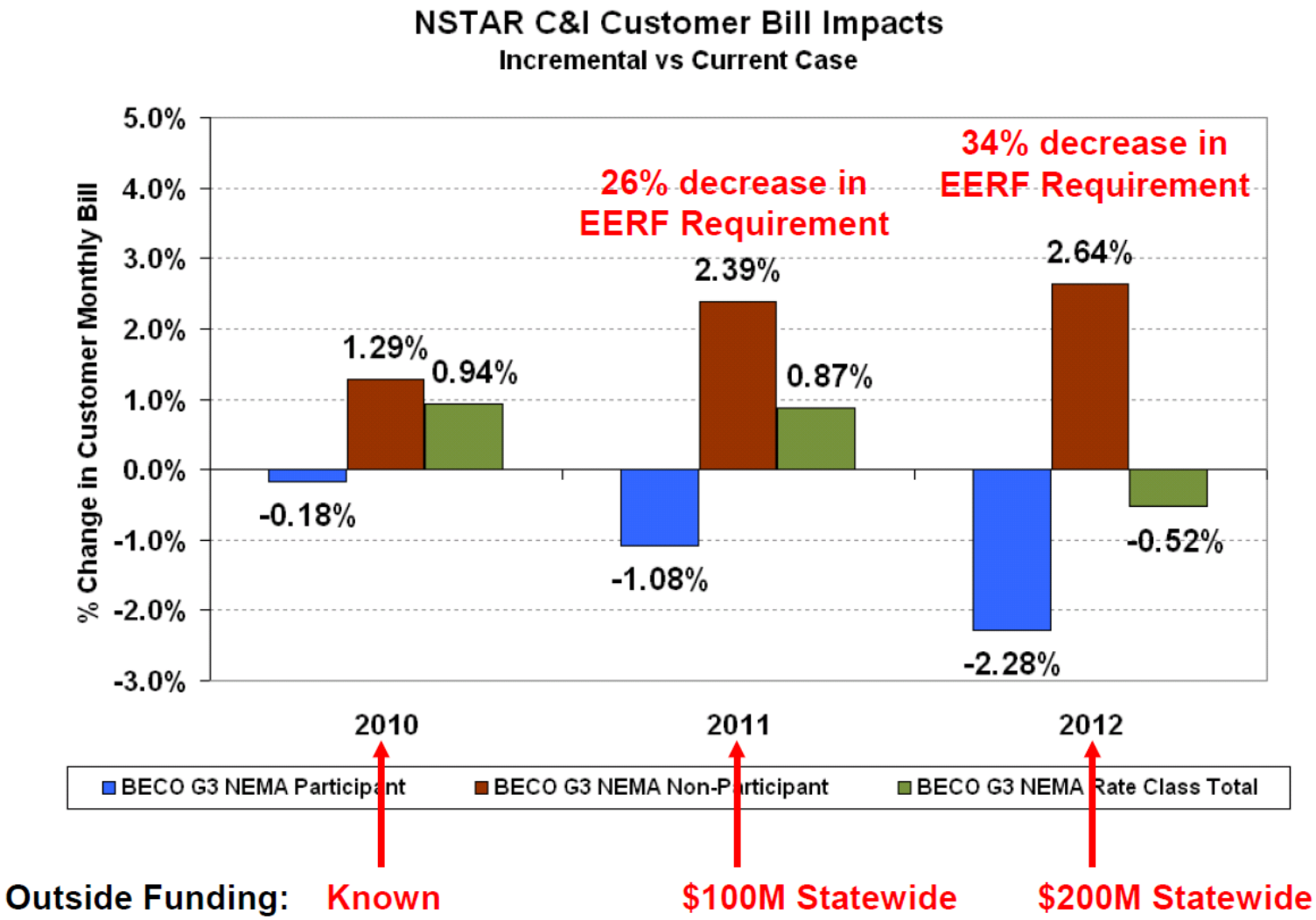


Outside Funding Scenario




NSTAR C&I Customer Bill Impacts
Incremental vs Current Case
% Change in Customer Monthly Bill
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
-1.0%
-2.0%
-3.0%
1.29%
0.94%
3.14%
1.61%
4.05%
0.85%
-0.18%
-0.35%
-0.93%
2010
2011
2012
BECO G3 NEMA Participant
BECO G3 NEMA Non-Participant
BECO G3 NEMA Rate Class Total

Outside Funding Scenario



Outside Funding: Known $100M Statewide $200M Statewide

H. Massachusetts New Homes with ENERGY STAR®: Program Theory 2010-2012, Final Report

MASSACHUSETTS New Homes with ENERGY STAR®

PROGRAM THEORY

2010-2012

Final Report

July 13, 2009

Submitted to:

The Joint Management Committee

Submitted by:
Dorothy Conant, Consultant

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1 Introduction

An effective Program theory needs to be firmly grounded in the reality of the market it targets. It needs to recognize the dynamics of that market and be ready to capitalize on changes in market conditions that provide increased opportunities for getting market players to change their behavior and to produce sustainable changes in the market. It also needs to address the roles of all key players in the market. The first step in presenting the theory behind the Massachusetts New Homes with ENERGY STAR® Program (Program) plans for 2010 through 2012 is describing where the Program stands today. This need is met by providing a history of Massachusetts residential new construction programs, their achievements to date, and a current picture of the residential new construction market in Massachusetts.

2 Program History

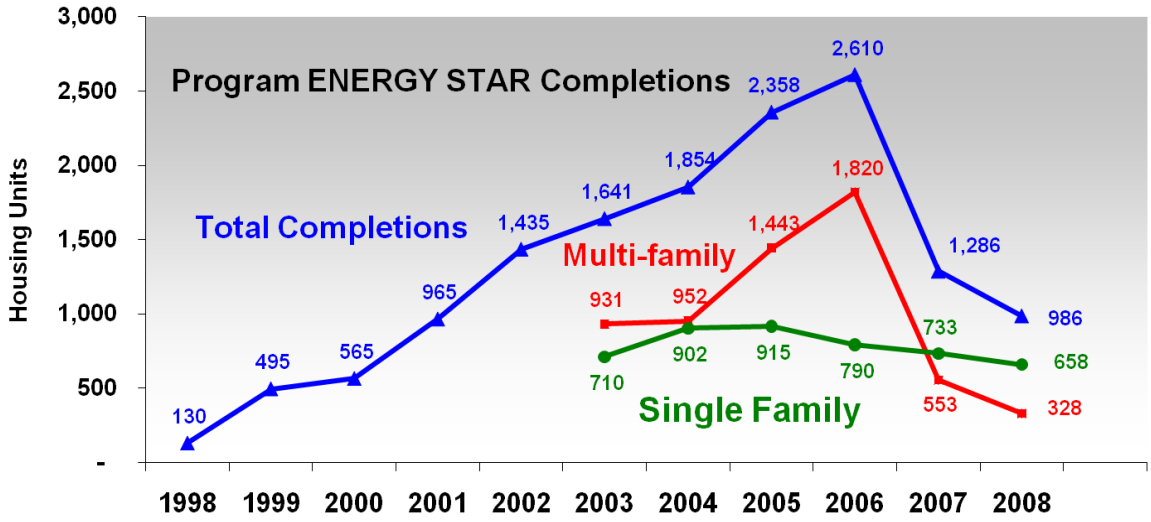
Residential new construction programs in Massachusetts began in 1991 with The Energy Crafted Homes (ECH) Program. The ECH Program, sponsored by a consortium of New England electric utilities and the Joint Management Committee (JMC), promoted state-of-the-art construction for electrically heated homes. The ECH Program provided leading edge technical information to builders and was successful in getting participating builders to incorporate the best building science and energy efficiency approaches in their homes. However, the market for new electrically heated homes in New England is small, and the potential for a program focused on only electrically heated homes to produce significant and sustainable energy-efficiency advances in the broader residential new construction market was negligible.

In April of 1998 the ECH Program was retired, and the Massachusetts ENERGY STAR Homes Program was introduced. Opening the Program to multi-family building projects and switching to fuel-neutral incentives greatly increased the number of new construction projects eligible to participate. In addition, fuel-neutral based incentives enabled gas utility participation. Greater emphasis on energy-efficient lighting and the introduction of incentives for installing energy-efficient appliances increased potential savings per home. Use of the national ENERGY STAR name and logo took advantage of existing brand name recognition. Basing ENERGY STAR-qualification criteria on Home Energy Rating System (HERS) performance made the Program accessible to all builders. The Program is a fully integrated gas and electric program managed by the JMC, a consortium of electric and gas Program Sponsors.

Figure 2-1 shows that the number of housing units qualified annually through the Program grew steadily from 130 housing units in 1998 to 2,610 units in 2006, and then dropped sharply in 2007. In 2006, Environmental Protection Agency (EPA) requirements for ENERGY STAR qualification changed. The new standards went into effect on January 1, 2007 and most multi-family buildings over three stories became ineligible for ENERGY STAR qualification. In addition, all qualifying homes had to meet new duct leakage standards and pass a strict Thermal Bypass Checklist (TBC) inspection. The drop in the number of housing units qualified through the Program in 2007 primarily reflects the fact that most multi-family buildings over three stories

became ineligible for ENERGY STAR qualification; one-third of all housing units qualified in 2006 were multi-family units in four-story or higher buildings. A second factor contributing to fewer housing units being qualified in 2007 and 2008 is the overall slowdown in residential new construction activity; the number of housing permits issued in Massachusetts in 2008 was half (50%) the number issued in 2006. As of the end of 2008, more than 14,300 housing units had been ENERGY STAR qualified through the Program.

Figure 2-1: Program ENERGY STAR Completions



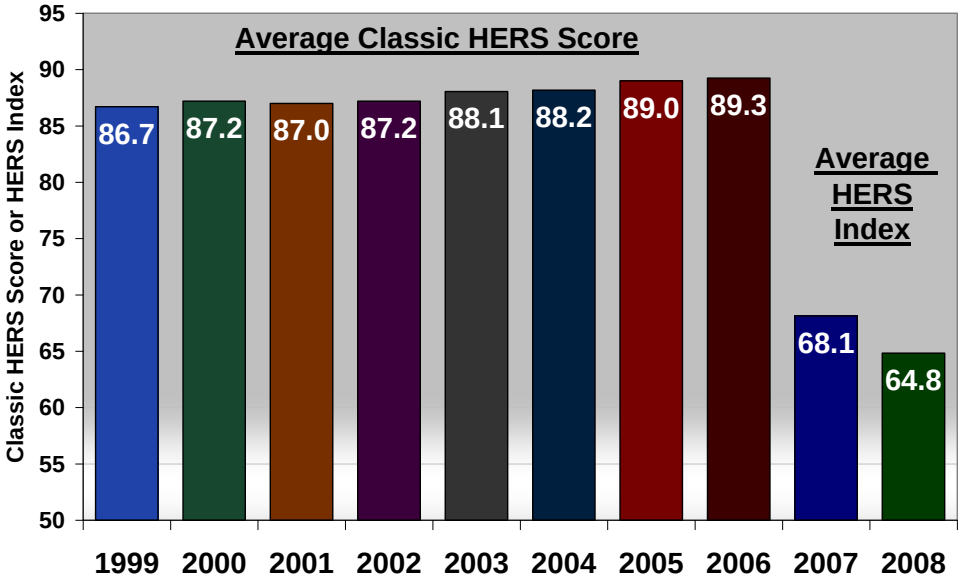
The average HERS rating of ENERGY STAR-qualified housing units has improved each year. Through 2006, ENERGY STAR-qualified housing units were rated using the classic HERS score[1]. Homes completed in 2007 and 2008 were rated using the HERS index[2] approach. Figure 2- shows the average classic HERS score for housing units ENERGY STAR qualified in 1999 through 2006 and the average HERS index for housing units ENERGY STAR qualified in 2007 and 2008. As shown, the average classic HERS score of housing units qualified in 1999 was 86.7 and by 2006 climbed to 89.3; this 2.6 point increase in the average classic HERS score equates to an increase of 13% in energy efficiency. The average classic HERS score of 89.3 achieved in 2006 corresponds to a home 46.5% more energy efficient than the 1993 Model

[1] The classic HERS Score is a scoring system established by the Residential Energy Services Network (RESNET) in which a home built to the specifications of the HERS Reference Home (based on the 1993 Model Energy Code) has a HERS Score of 80. Each 1-point increase in a HERS Score is equivalent to a 5% increase in energy efficiency. Source: http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_HERS

[2] The HERS Index is a scoring system established by RESNET in which a home built to the specifications of the HERS Reference Home (based on the 2006 International Energy Conservation Code) scores a HERS Index of 100, while a net zero energy home scores a HERS Index of 0. The lower a home's HERS Index, the more energy efficient it is in comparison to the HERS Reference Home. Each 1-point decrease in the HERS Index corresponds to a 1% reduction in energy consumption compared to the HERS Reference Home. Source: http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_HERS

Energy Code reference home. The average HERS index improved from 68.1 in 2007 to 64.8 in 2008, representing a 3.3% increase in energy efficiency. The average 64.8 HERS index achieved in 2008 corresponds to a home 35.2% more energy efficient than the 2006 International Energy Conservation Code reference home.

Figure 2-2: 1999 – 2008 Average HERS Ratings



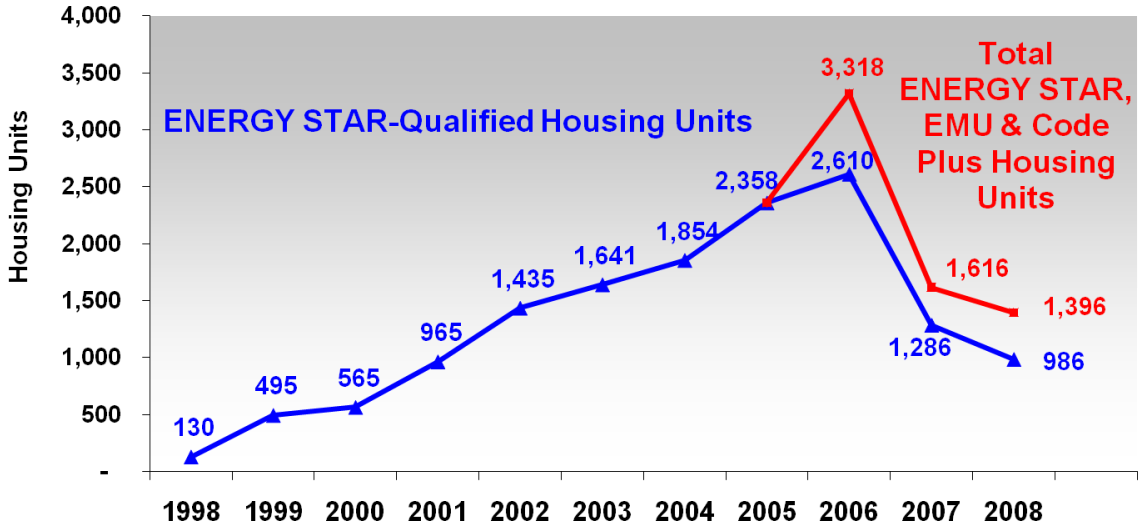
2.1 Expanded Participation Options

In response to the 2006 changes in EPA requirements for ENERGY STAR qualification, the Massachusetts Program introduced Energy Measure Upgrade (EMU) participation options designed to capture energy savings from builders who, for whatever reason, were not able to meet the new EPA ENERGY STAR requirements. The three primary goals of EMUs were:

- To keep builders who did not meet ENERGY STAR standards from dropping out of the Program entirely
- To enable the Program to work with and train builders who did not meet the new ENERGY STAR standards in their current homes to meet the new standards in their future homes
- To install compact fluorescent lamps (CFLs) to increase overall Program electric energy savings

In 2007, the Program replaced the EMU participation option with a Code Plus participation option for builders coming close to, but falling short of, meeting all requirements for ENERGY STAR certification. As of 2009, the Code Plus option is available only to builders new to the Program who strive for ENERGY STAR qualification, but fall shy of meeting all ENERGY STAR requirements; these builders may be allowed to have their first project default to the Code Plus participation path. Figure 2-3 shows the total number of housing units (ENERGY STAR, EMU and Code Plus) served annually by the Program from 1998 through 2008. Overall, more than 1,400 housing units have participated in the EMU or Code Plus options, bringing the total number of housing units served through the Program to over 15,700.

Figure 2-3: Total ENERGY STAR, EMU and Code Plus Housing Units



2.2 Market Penetration

While the number of housing units ENERGY STAR qualified annually has dropped in recent years, the number of new housing units constructed in Massachusetts has also dropped. Looking at ENERGY STAR-qualified housing units as a percentage of all new housing units completed in Massachusetts, Figure 2-4 shows that the Program consistently qualified an estimated 7% of new single family homes from 2005 through 2007, and in 2008 increased the penetration rate to 10% of new single family homes. As described earlier, the 2006 to 2007 drop in qualified multi-family units primarily reflects the Program not being able to serve most buildings over three stories. Figure 2-4 shows that multi-family units qualified in 2006 represented 35% of all multi-family units constructed. ENERGY STAR-qualified multi-family units in buildings three stories or under represented an estimated 14% of all multi-family units constructed in 2007 and 11% of all multi-family units constructed in 2008. Putting the 2007 and 2008 multi-family ENERGY STAR penetration rates into perspective, ENERGY STAR-qualified multi-family units in three

story and under buildings represented 17% of all constructed multi-family units in 2005 and 18% in 2006.

Figure 2-4: ENERGY STAR Completions as Percentage of Statewide Completions

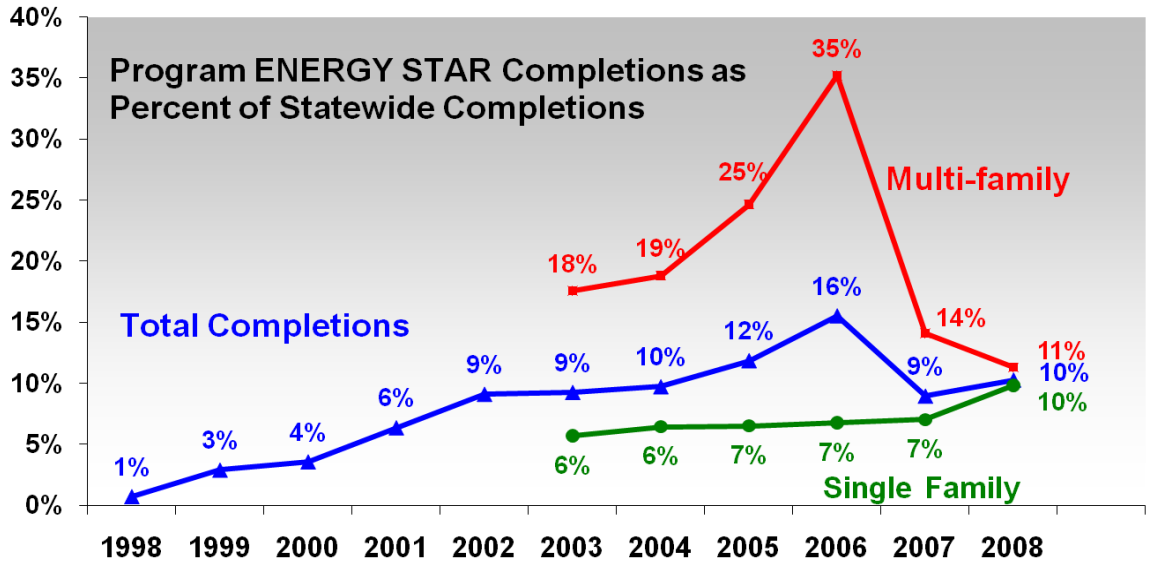
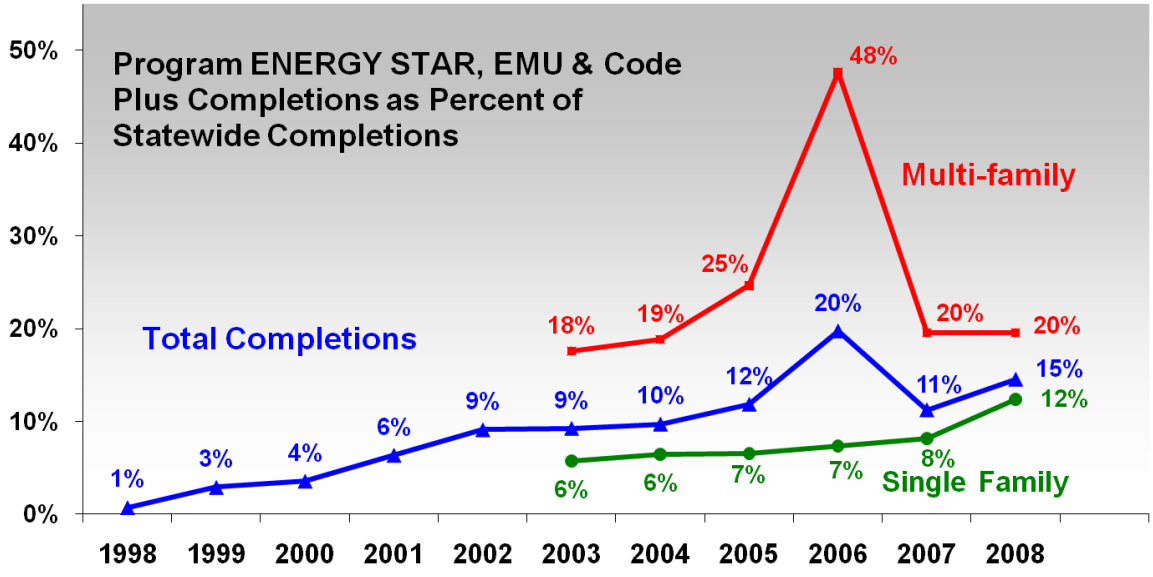


Figure 2-5 shows that including Code Plus units raises the percentages of new housing units served through the Program in 2008 from 10% to 12% of single family homes, from 11% to 20% of multi-family units and from 10% to 15% of all housing units constructed in 2008.

Figure 2-5: ENERGY STAR, EMU and Code Plus Completions as Percentage of Statewide Completions



2.3 Transition to Market-Driven Model

In 2007, the Program selected a new implementation contractor and took steps to move toward a market-driven model. The Program subcontracted independent HERS raters to work with participating builders. In 2007, the Program assigned HERS raters to builders. In 2008, the Program provided a list of qualified HERS raters from which builders choose their preferred rater. In 2009, builders can choose to work with any RESNET-certified rater for Massachusetts. Currently, the Program pays the majority of the cost of HERS rater services.

2.4 Beyond ENERGY STAR Standards

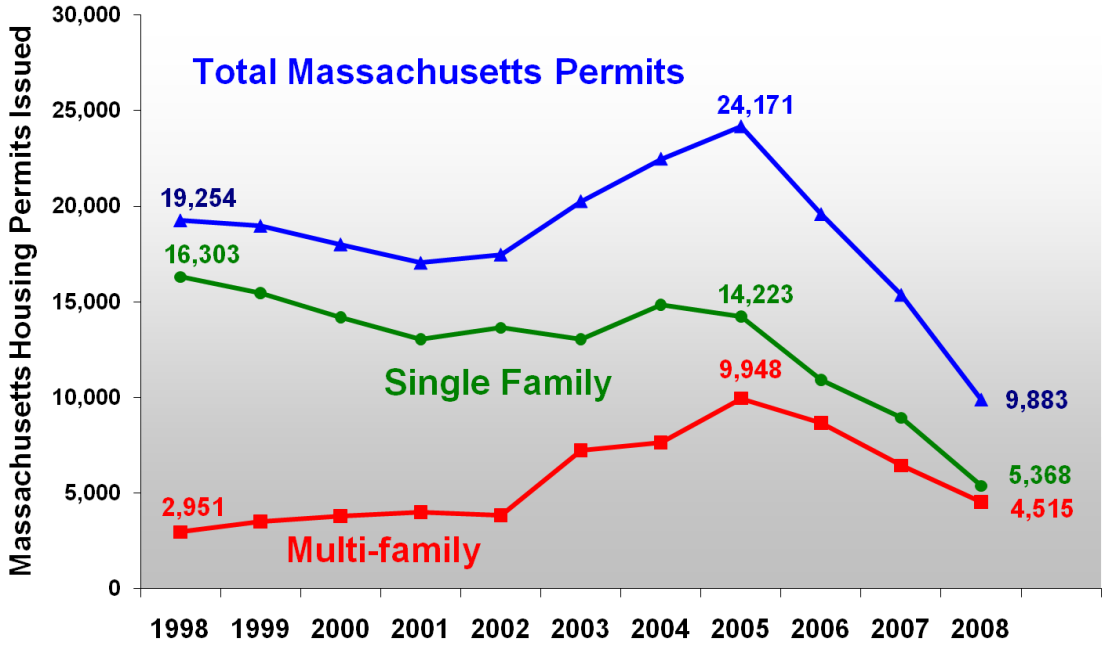
The Program consistently encourages builders to build homes that go far beyond meeting the minimum requirements for ENERGY STAR qualification and offers tiered incentives—higher incentives for more energy-efficient homes. In 2008, the Program invited builders to participate in the "***Zero Energy Challenge***" pilot program. This pilot was established to encourage builders and developers who already recognize the benefits of energy-efficient construction to design and construct homes that use considerably less energy than traditional homes. The pilot's format was competitive, providing selected builders an opportunity to compete against each other to deliver single-family detached residences with HERS indices well below 35. Five home builders competed in the pilot and were awarded prizes totaling $50,000. Two of the five completed super-energy-efficient single-family homes are market-rate homes and three are affordable homes.

3 Current Massachusetts New Residential Construction Market

For several years the demand for new homes exceeded the supply, allowing builders to more easily sell new homes regardless of energy efficiency. During this time, many builders of ENERGY STAR-qualified homes did not market the ENERGY STAR status of their homes. A survey of 100 owners of ENERGY STAR homes conducted in January 2007 showed only slightly more than one-half (55%) were aware that they lived in an ENERGY STAR-qualified home.[3]

Figure 3-1 shows that the number of housing permits issued in Massachusetts has steadily fallen since 2005; the number of housing permits issued in 2008 was less than half (41%) the number issued in 2005. Housing permits continue to fall in 2009; total permits issued January through May 2009 are 33% lower, single family permits 32% lower and multi-family permits 35% lower than in January through May 2008.

Figure 3-1: Annual Massachusetts Housing Permits Issued



With housing permits falling and the market for new homes much more competitive, builders participating in the Program gained a better appreciation of the value in marketing the ENERGY STAR status of their homes as a way to differentiate themselves and their homes. Over three-fourths (78%) of 40 ENERGY STAR builders interviewed in November and December 2007[4]

[3] Nexus Market Research, Inc. *2006 ENERGY STAR® HOMES NEW HOME BUYER SURVEY REPORT.* Submitted to Joint Management Committee, March 2007.

[4] Nexus Market Research Inc. and Dorothy Conant. *2007 Massachusetts ENERGY STAR® Homes Builder Interview Report.* Submitted to the Joint Management Committee of the Massachusetts New Homes with ENERGY STAR® Program, April 2008.

said they thought it was very important for the Program to market to end users, educating them about the benefits of living in an ENERGY STAR home and encouraging them to look for an ENERGY STAR home when shopping for a new home. In general, interviewed builders said that homebuyers are aware of ENERGY STAR-qualified appliances and lighting, but not ENERGY STAR homes. Almost three-fourths (73%) of interviewed builders reported they would be more likely to use ENERGY STAR in their marketing, or to increase the emphasis on ENERGY STAR in their marketing, if the Program marketed directly to end users.

Thirty ENERGY STAR builders interviewed in December 2008 and January 2009[5] were asked, "How important, or valuable, is it to you to build ENERGY STAR homes and be able to market them as ENERGY STAR-qualified homes in the current housing market?" Almost all of the interviewed builders (28 of 30) responded it was valuable. Most builders (27 of 30) also said that homebuyers are showing more interest in energy efficiency. A smaller majority of interviewed builders (57% or 17 builders) report homebuyers are showing more awareness of and/or interest in buying an ENERGY STAR-qualified home. Several additional builders mentioned that once they explain what an ENERGY STAR home is, buyers are interested. Four builders say buyers came to them specifically looking for an ENERGY STAR home in 2008 and another two builders say that ENERGY STAR qualification helped sell some of their homes. Of the15 interviewed builders who say that they are taking advantage of marketing support offered by the Program, 11 (79%) say that they think it is helping them sell their ENERGY STAR homes by letting buyers know they build energy-efficient homes and moving people to ask questions about what is involved in building an ENERGY STAR home.

4 The Story

The Program will face several challenges in the next three years. Given the current recession, depressed new residential construction market, and unknown timetable for recovery, the Program will need to be flexible and prepared to adapt to changing market conditions. In addition, EPA will be implementing new requirements for ENERGY STAR qualification in 2011, which will require additional builder training and more involved compliance verification. These new requirements will also likely increase the cost of building an ENERGY STAR-qualified home, which could make it harder to retain participating builders who are already struggling in today's depressed and highly competitive new housing market.

The overall goals of the Program will not change over the next three years. The Program will continue to focus on capturing lost opportunities, encouraging energy-efficient construction, and transitioning to a market-driven model. The Program will continue its commitment to a comprehensive whole-house approach to energy efficiency, offer financial incentives for homes that meet and exceed Program standards, incorporate incentives for selected high-efficiency

[5] Nexus Market Research Inc. and Dorothy Conant. *2008 Massachusetts New Homes with ENERGY STAR® Builder Interview Report.* Submitted to the Joint Management Committee of the Massachusetts New Homes with ENERGY STAR® Program, June 2009.

appliances and HVAC equipment, provide free CFLs for all appropriate hard-wired sockets in participating homes, and provide builder training. The Program will work with eligible multi-family buildings–multi-family buildings eligible to be ENERGY STAR labeled under EPA rules–and, to maintain builder participation, will offer participation options for builders who fall short of meeting all the requirements for ENERGY STAR qualification. The Program will also explore ways to more actively support energy code activities to help pull up the energy performance of those homes that do not seek out ENERGY STAR qualification.

To achieve deeper savings going forward, the Program will encourage builders to build homes that exceed minimum ENERGY STAR standards by offering tiered incentives that reward them for building homes that achieve very high energy savings. To achieve broader participation, the Program will enhance media marketing to consumers, builders and trade allies. Participating HERS raters will also recruit new builders and projects. (Program marketing and recruiting efforts in 2008 resulted in signing up new housing units representing 49% of housing permits issued in 2008.)

Program Sponsors believe their plans for the next three years address the reality of current market conditions and will enable them to be prepared to capitalize on changes in market conditions that provide increased opportunities for getting market players to change their behavior and to produce sustainable changes in the market. Program Sponsors believe the Program can increase the penetration of ENERGY STAR Homes and achieve deeper savings in participating homes, as well as increase energy efficiency in construction not eligible for ENERGY STAR qualification, and produce measurable changes in builder and homebuyer behavior over the next three years.

4.1 ENERGY STAR Awareness

The Program will work with builders to increase homebuyer awareness of ENERGY STAR-qualified homes and the benefits of owning and living in an ENERGY STAR-qualified home. Despite ever increasing general awareness of the ENERGY STAR label, many Massachusetts homebuyers are not aware of ENERGY STAR-labeled homes or the Massachusetts New Homes with ENERGY STAR Program. At the national level, unaided recognition[6] of the ENERGY STAR label grew from 25% in 2001 to 58% in 2007 and 62% in 2008, while aided recognition[7] grew from 40% in 2001 to 74% in 2007 and 76% in 2008.[8] Awareness of the ENERGY STAR label is higher among Massachusetts homebuyers. The results of a survey of 200 Massachusetts homebuyers conducted in January 2007[9] showed that unaided recognition of the ENERGY

6 Unaided recognition of the ENERGY STAR label is when the survey respondent recalls seeing or hearing of the label before being shown the label.

7 Aided recognition of the ENERGY STAR label is when the survey respondents recall seeing or hearing of the label after being shown the label.

8 http://www.cee1.org/eval/2008_ES_survey_rep.pdf

9 Nexus Market Research, Inc. *2006 Massachusetts ENERGY STAR® Homes New Home Buyer Survey Report.* Submitted to the Joint Management Committee of the Massachusetts ENERGY STAR® Homes Program, March 2007.

STAR label was 81%. However, many fewer homebuyers were aware of ENERGY STAR homes or the Massachusetts ENERGY STAR Homes Program; only 36% had seen or heard of an ENERGY STAR-labeled home and only 13% were aware of the Massachusetts ENERGY STAR Homes Program. Almost two-thirds (66%) of 40 builders participating in the Massachusetts New Homes with ENERGY STAR Program interviewed in late 2007[10] said that fewer than half of homebuyers were aware of ENERGY STAR homes, and three-fourths of interviewed builders said that none or very few homebuyers aware of ENERGY STAR homes were aware of the Massachusetts Program.

Thirty builders participating in the Massachusetts New Homes with ENERGY STAR Program interviewed in December 2008 and January 2009[11] report an increase in homebuyer awareness of and interest in energy efficiency and ENERGY STAR homes. Almost all interviewed builders (90%) report an increase in homebuyer awareness of or interest in energy efficiency and over half (57%) report an increase in homebuyer awareness of or interest in buying an ENERGY STAR home.

Increasing homebuyer awareness of what an ENERGY STAR-qualified home is and the benefits of owning and/or living in an ENERGY STAR-qualified home is critical. Many builders tell potential homebuyers their homes are energy efficient. What many homebuyers do not know is that the only way to be sure a home is energy efficient is to have it tested. One of the most important things the Program offers to homebuyers is third-party verification that a home is energy efficient. Therefore, a key component of messaging to homebuyers is explaining that if they buy an ENERGY STAR home they will know they have an energy-efficient home—they will not have to wonder if energy-efficiency claims made by the builder or real estate agent are accurate. ENERGY STAR homes are not the only energy-efficient homes being built today, but if a home has the ENERGY STAR label potential buyers can be confident the home is energy efficient instead of relying on promises that it is energy-efficient. In addition, many owners of ENERGY STAR homes value non-energy related benefits associated with living in an ENERGY STAR home such as having a more quiet, comfortable and less drafty home; better indoor air quality; better lighting features; protection against energy bill increases; and a higher resale or rental value.[12]

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[10] Nexus Market Research, Inc. and Dorothy Conant. *2007 Massachusetts ENERGY STAR® Homes Builder Interview Report*. Submitted to the Joint Management Committee of the Massachusetts New Homes with ENERGY STAR® Program, April 2008.

[11] Nexus Market Research, Inc. and Dorothy Conant. *2008 Massachusetts ENERGY STAR® Homes Builder Interview Report.* Submitted to the Joint Management Committee of the Massachusetts New Homes with ENERGY STAR® Program, June 2009.

[12] Nexus Market Research, Inc. and Dorothy Conant. *Massachusetts New Homes with ENERGY STAR® Assessment of Non-Energy Impacts*. Submitted to the Joint Management Committee of the Massachusetts New Homes with ENERGY STAR® Program, March 2009.

4.2 More than ENERGY STAR

Over the last few years, Program offerings expanded beyond ENERGY STAR qualification to incorporate participation options, including incentives, for builders who want to increase the energy efficiency of the homes they build, but may fall short of meeting all ENERGY STAR requirements, and for developers of four-and five-story multi-family buildings not eligible under EPA rules to be ENERGY STAR labeled.

In order to maintain and grow participation in the Program over the next three years, additional non-ENERGY STAR participation options may be introduced. For example, many experienced builders are building fewer or, in some cases, no new homes in today's market; they are predominately building additions and/or doing major renovations. Large additions and major renovations, similar to new homes, offer significant opportunities for energy savings through energy-efficient construction. Depending on market conditions and participation levels, the Program will consider offering participation options for addition and renovation projects that meet ENERGY STAR standards, but are not eligible to receive the ENERGY STAR label.

4.3 Something for Everyone

To make sustainable changes in the marketplace, ENERGY STAR homes need to be available in all size and price ranges. The Program has a history of working with all types of builders, ranging from high-end custom-home builders to developers of low income and affordable housing.

4.4 Low-income and Affordable Housing

More than one-third of the housing units served by the Program in 2008 were low income (housing units built for households with income not more than 60% of estimated Massachusetts State Median Income). Affordable housing (housing that serves families and individuals with annual incomes at or below 80% of area median income) is likely to be one sector of the new housing market that will continue to initiate new projects in a depressed housing market. In addition to working with publically funded housing projects in Massachusetts, which are required to meet ENERGY STAR standards, the Program will work to recruit developers of privately funded affordable housing projects and work with Habitat for Humanity and other non-profit builders of affordable housing.

4.5 Multi-family Housing

Units in all multi-family buildings with three or fewer stories are eligible to earn the ENERGY STAR label. Through 2006, high-rise (four story or higher) multi-family buildings were grandfathered for ENERGY STAR qualification in Massachusetts, and many participated in the Program; they accounted for one-third of all of housing units ENERGY STAR qualified through the Program in 2006. In 2007 and 2008, only units in four- or five-story multi-family buildings permitted as residential structures by local building departments or units over commercial space in five-story or fewer commercial buildings could qualify for ENERGY STAR qualification using the HERS rating system. In 2009, EPA expanded the eligibility requirements for

qualifying individual multi-family units under the ENERGY STAR New Homes Program to include more over-three-story buildings. The Program will work with interested developers of any multi-family building that meets EPA eligibility requirements for ENERGY STAR qualification.

4.6 Green Building

Media coverage of environmental issues, the importance of reducing our carbon footprint, and how to become more "green" has increased homebuyer interest in incorporating green building practices in their new homes. Meeting ENERGY STAR standards is a requirement of several green building programs, including the Leadership in Energy and Environmental Design (LEED) and Green Building Rating System™ and the soon to be launched Home Builders Association of Massachusetts Build Green Massachusetts initiative. The Program will continue to work with and encourage green building programs to adopt ENERGY STAR standards.

4.7 Renewable Energy

The Program will continue to promote incorporation of renewable-energy technologies—photovoltaics and solar thermal. In addition, the Program will encourage builders to make homes "renewable ready" by siting homes to maximize solar potential and running wiring and insulated copper piping from mechanicals to the roof, which makes it easier and less expensive to add solar options at a later date.

4.8 Zero Energy and Passive House Homes

The Program will pursue deeper savings by encouraging builders to move toward building zero-energy and low-energy homes, offering more worthwhile tiered incentive levels as homes get closer to zero-energy status or Passive House standards. The Program will provide information on existing zero-energy and Passive House models that work, and promote links to building science resources, zero energy home plans and other resources that can help interested builders develop and complete a zero-energy home.

4.9 Marketing Approach

Marketing strategies to reach builders and other market players will be expanded over the next three years. The Program will market to consumers, but the main focus of marketing efforts will be on reaching as many builders as possible. The Program conducts aggressive direct builder outreach; provides information for both builders and consumers on its website (www. massenergystarhomes.com)—information will also be available on the new consolidated statewide website being developed that will provide information on all utility sponsored energy-efficiency programs; gives presentations at home builder association and other interested organization meetings; and participates in home and trade shows, builders' conferences, and other public relations activities. The Program offers energy-efficiency training to builders, architects, subcontractors and HERS raters. In addition, the Program will be offering training to real estate agents, building code officials, and other industry players.

With the number of 2008 housing permits issued at half (50%) their 2006 level, and unlikely to climb back to 2006 levels by 2012, Program Sponsors believe they can use their resources to reach a much higher proportion of the new housing market. The Program's goal is to reach out and somehow communicate with every permitted building. One of the first steps in this process is to establish relationships with local permitting departments and encourage them to hand out Program literature to all builders obtaining building permits. The Program has already established relationships with several of the local permitting offices across the Commonwealth; where relationships do not exist or are unable to be established, the Program will purchase permit information from outside services.

4.10 Transition to Market-Driven Model

In 2007, the Program subcontracted independent HERS raters to work with builders; the Program assigned a HERS rater to each project to conduct plans analysis, work with the builder to help them meet ENERGY STAR standards, conduct inspections and perform final verification testing. In 2008, the Program provided a list of accredited HERS raters and builders chose their rater. In 2009, builders can choose to work with any RESNET-certified rater for Massachusetts.

Currently the Program pays for the cost of basic HERS rater services provided to builders. The Program will continue to train and support raters in meeting Program objectives. The Program implementation contractor will continue to monitor, track and report Program activity to the Sponsors, and will also be required to conduct QA/QC of field activities and advise the Sponsors on necessary Program enhancements.

5 Market Barriers and What Can be Done About Them

There are two distinct categories of barriers the Program needs to address. In one category are barriers that are beyond the direct control of the Program but need to be taken into consideration in developing a Program theory and need to be factored into the design of an effective Program. In the other category are barriers that can be addressed directly through the Program.

5.1 Market Barriers Beyond the Program's Direct Control

The following market barriers are beyond the direct control of the Program. At the same time, they impact the ability of the Program to effect changes in the residential new construction market.

- Volatile energy prices
- Depressed housing market
- General apathy and lack of information about energy efficiency
- Lack of state tax credits for energy efficient building
- Poor building code compliance and enforcement
- New-home buyers are a very small and difficult to target consumer segment.

Volatile Energy Prices: Energy prices are totally outside the influence of the Program. However, homebuyer interest in energy efficiency is directly related to energy prices. During periods of high energy prices, homebuyers are more likely to ask their builders and/or real estate agents about energy efficiency and, if they are aware of ENERGY STAR homes, more likely to build or look for an ENERGY STAR home. However, as energy prices fall, homebuyer interest in energy efficiency wanes. Several ENERGY STAR builders interviewed in late 2008 and early 2009[13] reported that homebuyer interest in energy efficiency increased last summer when gas and oil prices reached new highs, but that by late fall, when energy prices were lower, homebuyer interest in energy efficiency had also declined.

Depressed Housing Market: The current depressed housing market offers both opportunities and challenges for the Program. On one hand, a more competitive housing market provides an opportunity for the Program to attract builders interested in finding ways to differentiate themselves and their homes. The message to these builders will be that by building ENERGY STAR-qualified homes they will be able to differentiate themselves in this tough market as builders who deliver a superior product, and that the Program provides marketing support to help them sell their ENERGY STAR homes. On the other hand, a depressed housing market makes it more difficult to attract builders who think the only way to be competitive is to keep their home prices low.

Apathy about Energy Efficiency: Public interest in energy efficiency, green building, protecting the environment and reducing our carbon footprint has clearly increased in recent years. Even so, based on builder interviews, many homebuyers are still not asking about energy efficiency when shopping for a new home and/or not willing to pay for energy-efficient options. Looking ahead, the combined impact of the recently passed Green Communities Act legislation, continued media coverage of energy and environmental issues, the Program increasing its marketing to both builders and homebuyers, ENERGY STAR builders more aggressively marketing the benefits of ENERGY STAR homes, and green building programs marketing energy efficiency as a key component of green building will likely increase consumer interest in energy efficiency over time. However, a lack of consumer interest in or awareness of the importance of making energy-efficient choices when buying or building a new home is likely to remain an issue that will need to be dealt with through 2012.

Tax Credits for Energy-Efficient Building: Tax credits or deductions for energy-efficient building increase the cost effectiveness of implementing energy efficiency upgrades. In addition, people are always looking for ways to reduce their taxes, so information on the availability of energy-efficient building tax credits on tax forms and in tax preparation software as well as in published tax preparation guides, magazine articles and newspapers could help increase the general public's awareness of energy-efficient building and the likelihood that consumers will

[13] Nexus Market Research, Inc. and Dorothy Conant. *2008 Massachusetts ENERGY STAR® Homes Builder Interview Report*. Submitted to the Joint Management Committee of the Massachusetts New Homes with ENERGY STAR® Program, June 2009.

ask about energy efficiency when shopping for a new home. The Program will endorse and support efforts to institute tax credits for energy-efficient homes.

Building Code Compliance and Enforcement: The quality of building inspections and level of code enforcement varies from inspector to inspector and town to town. The sense is that most, but not all, code officials are aware of the current energy code requirements, but are not necessarily enforcing them. Even those who are enforcing compliance with the code may not be aware of the benefits of ENERGY STAR-qualified homes. The focus for many builders and buyers is to build a home as quickly as possible and pass code inspections so the builder can be paid and the buyer can move into their new home.

Looking ahead, as Massachusetts building codes are revised and the Board of Building Regulations and Standards (BBRS) requires that certified energy inspectors enforce energy code requirements in all buildings, code compliance will improve. With BBRS using certified energy inspectors to enforce code, the demand for HERS rater services outside the Program may increase substantially. To ensure there are enough certified HERS raters available to meet both the Program and code enforcement needs, the Program's implementation contractor will be a HERS provider of last resort to help new raters become established as part of the open market structure.

The Program is also exploring mechanisms to support energy codes on many fronts (e.g. code official training, verification assistance, promoting more stringent codes) and claim savings for quantifiable efforts. The results of this research may result in more engaged code support by the Program.

New-home Buyers a Small Consumer Segment: Only a small portion of consumers are shopping for a home at any one time, and buyers shopping for newly constructed homes are a small portion of all homebuyers. Marketing efforts will include large scale multi-media advertising campaigns geared toward homebuilders, consumers and trade ally groups. The Program's multi-media campaign will include strategic television partnerships with local affiliate or cable programming providers, radio live reads and on-air interviews, print advertising in builder and trade publications, direct marketing via email/fax lists, and a very heavy online advertising presence.

5.2 Market Barriers the Program Can Address Directly

Sponsors believe that a well-designed Program will be able to make significant progress in overcoming market barriers of awareness and understanding among builders, subcontractors and homebuyers.

Builders and Subcontractors: There are still builders and subcontractors who are either unaware of energy-efficient equipment and installation practices or do not care enough to

address energy efficiency. Based on builder interviews conducted over the last several years[14], most builders who are not currently participating in the Program are aware of ENERGY STAR homes and have at least a basic understanding of what goes into building an ENERGY STAR home. However, many builders who are not participating in the Program, including some who already build very energy-efficient homes, will not be interested in building ENERGY STAR-qualified homes until buyers ask for them. Program messaging to these builders will emphasize documented increases in consumer interest in energy efficiency and awareness of ENERGY STAR homes and the advantages of building ENERGY STAR-qualified homes that will enable them to differentiate themselves in today's tight housing market as builders who deliver a superior product. Equally important to some builders will be the financial incentives, technical training and marketing support that the Program offers.

Over the years, interviewed builders say one of the biggest changes they make when they start building ENERGY STAR homes is that they supervise their subcontractors more closely to ensure their work meets ENERGY STAR standards. Builders also say that once their subcontractors know what is expected, they have no problem meeting ENERGY STAR standards. The Program has conducted on-site training and seminars for insulation and HVAC subcontractors working on ENERGY STAR homes. In 2006, when duct leakage standards were added to the requirements for ENERGY STAR qualification, many HVAC subcontractors needed training on how to meet the new standards. Follow-up interviews with subcontractors who participated in training revealed many of the subcontractors had adopted what they learned as their standard practice and in some cases they now market themselves as being able to meet ENERGY STAR standards.[15] The Program will continue to train subcontractors working on ENERGY STAR homes and also participate in training offered by trade allies.

Offering training will be particularly important in 2009 and 2010 to ensure builders and subcontractors are prepared to meet additional new EPA ENERGY STAR standards scheduled for implementation in January 2011. Part of the new standards will be an increased emphasis on Quality Installation and Verification (QIV) of HVAC systems, which will be an important aspect of saving more electricity in new homes. The Program is exploring ways to ensure that HVAC contractors will be able to meet these new higher efficiency standards, and will emphasize QIV starting in 2010.

Homebuyers: Many homebuyers do not know what energy-efficient building means when they enter the new housing market; and most builders tell homebuyers that all the homes they build are energy efficient. Homebuyers do not know what questions to ask, and many get so

[14] Builder interviews conducted by Nexus Market Research, Inc. and Dorothy Conant in 2002, 2003, 2004, 2006, 2007 and 2008.

[15] Nexus Market Research, Inc. and Dorothy Conant. *Massachusetts ENERGY STAR® Homes: Duct Sealing Process Evaluation.* Submitted to the Joint Management Committee of the Massachusetts ENERGY STAR® Homes Program, March 2007.

overwhelmed with all the decisions they are asked to make when purchasing a new home that energy efficiency and operations and maintenance cost-benefit considerations may never get addressed. Program messaging to homebuyers will focus on the importance and benefits of making energy-efficient choices and that the only way to know for sure if a home is energy efficient is to have the home's energy efficiency verified by an independent third party, and this is what the Program does. If you buy an ENERGY STAR home you know it is energy efficient. Also, by encouraging builders to more aggressively market the ENERGY STAR status of their homes, explain to potential buyers what goes into building an ENERGY STAR home, and describe the energy and non-energy benefits of living in an ENERGY STAR home, many homebuyers will become educated about what to look for and will be likely to ask more energy related questions.

6 Theory Elements in More Detail

As previously stated, an effective Program theory needs to address the reality of the market it targets and be ready to capitalize on changes in market conditions that provide increased opportunities for getting market players to change their behavior and to produce sustainable changes in the market. It also needs to address the roles of all key players in the market. The theory elements presented here build on the previous sections' discussions of the history and achievements of the Program, the current residential new construction market and Program goals for 2010 – 2012.

6.1 Marketing to Consumers and Builders

Marketing will continue to aggressively focus on builder recruiting. Influencing builders has the biggest impact on Program participation and, therefore, the Program will focus on reaching as many builders as possible.

Messaging to both consumers and builders will include promoting the benefits of building homes that go beyond minimum ENERGY STAR standards to homes that approach net-zero energy use. Several builders currently participating in the Program are building homes approaching net-zero energy use. Program marketing will include case studies of the winners of the "***Zero Energy Challenge***" pilot program. The Program will provide both technical and marketing support to participating builders and higher incentives for homes at the highest energy saving tier. Marketing support will help builders market their ENERGY STAR-qualified homes by offering sales personnel training on the benefits of ENERGY STAR-qualified homes and helping them incorporate the ENERGY STAR logo and messaging in their advertising, web sites, and model homes. Sponsors believe getting builders to aggressively market the benefits of ENERGY STAR-qualified homes is a cost-effective way to target the consumer segment in the market to buy a new home.

6.2 Impact of Depressed Housing Market

The number of building permits issued in 2008 was half the number issued in 2006 and is not projected to show significant growth over the next few years. It will be harder to convince builders to spend more money to meet ENERGY STAR standards at the same time that housing prices are falling or stagnant.

In order to maintain Program participation levels and achieve savings goals, the Program will need to reach a larger percentage of active builders and expand Program offerings to include more types of residential housing construction. The Program will work with local permitting departments to get information to all builders filing for permits on how the Program can help them build more energy-efficient homes. The message to builders will be that by building ENERGY STAR-qualified homes they will be able to differentiate themselves in this tough market as builders who deliver a superior product.

The Program's Sponsors will also work to find ways to address residential housing construction not currently eligible for ENERGY STAR certification, including major home renovations and additions. The purpose of a pilot program, introduced in 2009, is to address the gap between the Residential Conservation Services Program and the Massachusetts New Homes with ENERGY STAR Program. For new addition or major renovation projects (without a gut rehabilitation), this pilot program provides a seamless option for customers to address both the existing part of the home and the new addition. The Program's Sponsors believe substantial energy savings could be achieved cost-effectively by offering these types of construction projects ineligible for ENERGY STAR qualification the same services and support available to builders of ENERGY STAR-qualified homes.

6.3 Legislation and Codes

Recent legislation (The Green Communities Act—July 2008) requires electric and gas utilities and energy efficiency service providers to invest in all energy efficiency and demand side resources that are cost-effective or cheaper than supply. This represents a sea change in philosophy with regard to energy efficiency program funding in the Commonwealth and an opportunity to reinvent the Program. Also, Massachusetts will be adopting the latest edition of the International Energy Conservation Code (IECC), and updating code within a year of any IECC revisions. Although the exact timing of implementing and enforcing new code standards is unknown, it seems reasonable to assume Massachusetts building codes will be changing during the 2010 through 2012 planning horizon, and that Program requirements for ENERGY STAR qualification in the state will need to be revised accordingly in order to assure continued energy savings. The implementation and enforcement of new code standards will be an opportunity to position HERS raters to deliver code compliance services, which will provide a unique opportunity to use them to up-sell builders to ENERGY STAR.

6.4 Regulatory Recognition

The Program will attempt to reach out to all active builders by giving them information on how to build more energy-efficient homes and how to access non- Program resources for help on how to incorporate practices, products and equipment that will produce more energy-efficient homes. Much of the Program's work in educating and training builders and subcontractors will most likely increase the energy efficiency of homes built not only by builders who choose to participate in the Program, but non-participating builders as well. The Program will explore options with regulators for getting credit for "spillover" energy efficiency improvements in homes outside the Program. In addition, the Program will explore securing credit for additional savings due to increased code support from the Sponsors.

6.5 Recruiting

With the number of housing permits issued continuing to fall, Program Sponsors believe they can use their resources to reach a much higher market share of the new housing market. The Program's goal is to reach out to every permitted building. One of the first steps in this process will be to establish a relationship with local permitting departments and encourage them to hand out Program literature to all builders obtaining building permits—the Program already has established relationships with several of the local permitting offices across the Commonwealth.

The literature distributed would explain how the Program can help builders and would include:

- Information that lets builders know that the Program supports all residential new construction builders, from those interested in learning how to incorporate a few energy-efficient practices cost-effectively to those interested in building zero energy homes and/or incorporating renewable energy options
- Information on energy-efficient building practices and training opportunities available to builders who want to build more energy-efficient homes
- Information on incentives and participation options for builders interested in achieving different levels of energy efficiency such as:
    - Builders interested in incorporating some energy-efficient practices (HVAC equipment, lighting, etc.), but not ready to commit to building to ENERGY STAR-qualified standards
    - Builders interested in building to ENERGY STAR-qualified standards
    - Builders interested in incorporating renewable energy options
    - Builders interested in building zero energy homes
- Information on how to access additional information resources on ENERGY STAR-qualified homes, building science, zero energy homes, green building, etc.
- Information on certified energy raters who can help with all of the above

6.6 Lighting

Promoting the use of energy-efficient lighting will continue to be a key Program component. When the efficiency requirements for lighting are increased through the Energy Independence and Security Act – 2007 (EISA 2007), the Program may no longer need to require builders to install CFL bulbs in their ENERGY STAR homes and offer free products and installation in all appropriate sockets. In the meantime the Program plans to continue its efforts to increase the use of reliable energy-efficient lighting in ENERGY STAR homes by offering free CFLs through at least 2011 and incorporating solid state lighting options. Currently the Program requires all participating homes to have CFLs installed in at least 50% of available hard-wired screw-based fixtures; this percentage is likely to increase to 80% in ENERGY STAR 2011 standards.

Solid State Lighting may become an option. Right now, there are only a few products on the ENERGY STAR qualified list from the Department of Energy (DOE). As well, the products on this list are appropriate in select locations. Within the 2010-2012 timeframe, the available products list will likely grow.

6.7 Affordable Housing

The Program will continue to target affordable housing. As mentioned previously, affordable housing is likely to be one sector of the new housing market that will continue to initiate new projects in a depressed housing market. The Program will consider offering additional incentives to developers of privately funded affordable housing projects to encourage them to build to ENERGY STAR standards, and promote building these projects to higher efficiency tiers. In addition, the Program will work with and encourage Habitat for Humanity and other non-profit builders to construct all of their homes to ENERGY STAR standards.

6.8 Multi-family Buildings over Three Stories

The Program will serve all multi-family buildings eligible for ENERGY STAR qualification. Until 2006, high-rise multi-family buildings were grandfathered for ENERGY STAR-qualification in Massachusetts, and many participated in the Program. Since then, units in multi-family buildings three stories or lower, and units in some four- and five-story buildings, have been eligible for ENERGY STAR qualification. EPA recently revised the eligibility requirements for over three-story buildings, making units in more four- and five-story buildings eligible for ENERGY STAR qualification. Under current EPA rules,

> "Units in four- and five-story multi-family buildings may qualify for ENERGY STAR if: 1) the *units* are permitted as residential structures by the local building department; and 2) each residential unit has its own heating, cooling, and hot water systems, separate from other units. The phrase, "permitted as residential structures", is intended to represent units that either fall within the scope of the residential building energy code or are permitted as having a residential use-group, even under conditions where the commercial building energy code applies.
>
> "Multi-family units that are located on top of commercial spaces (e.g., retail, restaurant, etc.) may be qualified as ENERGY STAR even if the structure is

permitted as commercial, as long as: 1) the entire structure is five stories or less; and 2) each residential unit has its own heating, cooling, and hot water systems, separate from other units."[16]

Over the years, Program Administrators of electric and gas energy-efficiency programs have offered services to the multi-family sector through a patchwork of residential and commercial and industrial programs. Many multi-family projects are neither clearly residential nor clearly commercial, which led to developers being confused about what energy-efficiency programs their buildings qualified for and, consequently, some projects fell through the cracks. To ensure the needs of all multi-family projects are met going forward, electric and gas Program Administrators are proposing a common statewide program targeting up to eight-story multi-family new construction projects that are too "large" to qualify for ENERGY STAR qualification. Multi-family projects over eight stories tend to include retail and office space and have mechanical systems similar to large commercial and industrial (C&I) buildings—these projects will be served through existing C&I programs. Going forward, there will be a seamless statewide multi-family program designed to serve the majority of multi-family buildings.

6.9 Zero Energy and Passive Homes

The Program will encourage builders to move toward building zero-energy and Passive House standards by offering more worthwhile tiered incentive levels as homes get closer to zero energy status or Passive House standards. The Program will provide information on existing zero-energy and Passive House models that work, and promote links to building science resources, zero energy home plans and other resources that can help interested builders develop and complete a zero energy or home.

DOE describes a zero energy home as follows:

> "A Zero Energy Home (ZEH) combines state-of-the-art, energy-efficient construction and appliances with commercially available renewable energy systems, such as solar water heating and solar electricity. The combination results in a home that produces its own energy—as much or more than it needs. Even though the home might be connected to a utility grid, it has net zero energy consumption from the utility provider."[17]

Passive House Institute US (PHIUS) describes a Passive House as follows:

> "A Passive House is a very well-insulated, virtually air-tight building that is primarily heated by passive solar gain and by internal gains from people, electrical equipment, etc. Energy losses are minimized. Any remaining heat demand is provided by an extremely small source. Avoidance of heat gain

[16] http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_multifamily_units (Accessed July 2009)
[17] http://apps1.eere.energy.gov/consumer/your_home/designing_remodeling/index.cfm/mytopic=10360

through shading and window orientation also helps to limit any cooling load, which is similarly minimized. An energy recovery ventilator provides a constant, balanced fresh air supply. The result is an impressive system that not only saves up to 90% of space heating costs, but also provides a uniquely terrific indoor air quality."[18]

Sponsors believe that encouraging builders to build ever more energy-efficient homes is a key role of ENERGY STAR residential new construction programs. Interest in the 2008 ***Zero Energy Challenge*** revealed that many builders are very interested in building super-efficient homes and incorporating renewable energy and/or passive solar options, and that several builders found reaching near zero energy status more achievable than they had anticipated. Sponsors believe that once builders see something that works, then they are more likely to consider incorporating it into their homes.

6.10 Builder Training and Education

A key role for ENERGY STAR residential new construction programs is providing the information builders and subcontractors need to be able to build homes that meet and exceed ENERGY STAR standards. Participating builders praise the training they have received through the Program, whether through group seminars or one-on-one on-site training. Going forward, both the implementation contractor staff and HERS raters will provide appropriate group trainings and seminars as well as on-site training to builders and their subcontractors as needed to ensure builders meet ENERGY STAR standards. Builders also have the option to contract directly with their HERS rater to get additional specific training on a pay-for-service basis. EPA offers training resources that the Program can tap into to leverage ongoing training efforts, and the Program will leverage training provided by other organizations (home builder associations, product manufacturers, lumber yards, etc.) by working with them to incorporate ENERGY STAR requirements into their training. A list of subcontractors—trained subcontractors who have proven that they understand the ENERGY STAR standards—will be developed and made available to builders. As mentioned earlier, offering training will be particularly important in 2009 and 2010 to ensure builders and subcontractors are prepared to meet additional new EPA ENERGY STAR standards scheduled for implementation in January 2011.

6.11 Incorporating New Technologies

As a trusted source of information on energy-efficient construction, the Program will conduct research and development (R&D) pilots to test the in-field performance of new technologies before promoting them to builders. The Program will also look for opportunities to demonstrate new approaches for lighting design, and incorporating passive solar options. R&D and demonstration projects will not produce Program savings and will be a very small portion of the Program budget. Therefore, the Program intends to look for opportunities to leverage R&D spending by pursuing DOE grants and keeping up to date on findings from other programs',

[18] http://www.passivehouse.us/passiveHouse/PassiveHouseInfo.html

states' and organizations' work with new technologies, such as EPA's heat pump water heater monitoring work.

6.12 HERS Raters

HERS raters play a critical role in the Program. HERS raters are the main contact with participating builders, providing support and on-site training as well as conducting inspections. In 2008, the Program introduced an open market process under which participating builders are able to choose their preferred HERS rater. All HERS raters working with participating builders will receive training on new technologies incorporated into the Program, thus ensuring raters are not only able to explain and promote these technologies, but also able to teach builders how to best incorporate them into their building process. The demand for HERS rater services outside the Program may increase substantially as Massachusetts building codes are revised, and BBRS requires that certified energy inspectors enforce energy code requirements in all buildings. To ensure there are enough certified HERS raters available to meet both the Program and any future code enforcement needs, the Program's implementation contractor will be a HERS provider of last resort to help new raters become established as part of the open market structure. Additionally, the Program will continue to play the important role of providing tight quality control over the HERS raters in an effort to ensure the highest standards and consistency of service across the state.