

NSTAR ELECTRIC

2009 ENERGY EFFICIENCY ANNUAL REPORT

EXECUTIVE SUMMARY

INTRODUCTION

During 2009, NSTAR Electric Company (“NSTAR Electric” or the “Company”) continued, as it has for over two decades, to offer a wide variety of well-established and successful energy efficiency programs designed to serve the needs of its residential, low-income, and commercial and industrial (“C&I”) customers. These high-quality, cost-effective programs promoted energy efficiency, assisted in transforming energy efficiency markets, and helped customers achieve permanent energy savings. In doing so, the Company continued to build upon established marketplace relationships, refined the focus of its programs to meet market-oriented objectives, and coordinated its activities with other regional Program Administrators (“PAs”) and market players.¹ In addition, the Company’s energy efficiency programs and services maximized the usage of competitive procurement processes and supported the development of an enhanced energy services delivery infrastructure in Massachusetts. In implementing and administering these programs and services, NSTAR Electric’s overall goal continues to be to help its customers understand their energy consumption and use energy more efficiently.

Also during 2009, the Company, together with the other Massachusetts PAs and a diverse group of regulatory agencies and interested parties in the Commonwealth, began an unprecedented effort to expand its current programs and develop a comprehensive plan to procure deeper and broader energy savings through the implementation of its 2010 – 2012 Energy Efficiency Plan. These efforts were undertaken in direct response to the

¹ Electric Program Administrators in Massachusetts include: NSTAR Electric; Fitchburg Gas and Electric Light Company; National Grid; Western Massachusetts Electric Company; and the Cape Light Compact.

requirements of the Green Communities Act² and culminated in collaboratively-developed statewide electric and gas energy efficiency plans for 2010 through 2012 that were approved by the Department of Public Utilities (the “Department”) on January 28, 2010.

Report Organization

NSTAR Electric’s 2009 Energy Efficiency Annual Report (the “Report”) documents the performance of the Company’s energy efficiency programs and services approved by the Department in NSTAR Electric, D.P.U. 08-117 (May 29, 2009). The Report provides information on the Company’s (1) spending levels; (2) energy and capacity savings; (3) electric and non-electric benefits; (4) evaluation studies; (5) cost-effectiveness; and (6) shareholder incentives.

This Executive Summary provides a high-level Summary of Results for calendar year 2009. The next section provides an Overview of Evaluation Methodologies used in preparing this Report. Program Impacts and a summary of Shareholder Incentives follow. Appendices 1-11, listed below, present detailed information on all of these topics. In particular, the Company would like to direct the Department’s attention to Appendices 9 and 10 which are provided in response to the Department’s directives in NSTAR Electric, D.P.U. 09-120 and a June 22, 2010 Hearing Officer Memorandum regarding contents of the 2009 Energy Efficiency Annual Reports.

Appendix 1: Glossary of Terms and Abbreviations

Appendix 2: Impact Factors

Appendix 3: Detailed Benefits and Costs by BCR Activity

Appendix 4: Comparison of Planned and Reported Outsourced and In-house Expenditures

² An Act Relative to Green Communities, Chapter 169 of the Acts of 2008 (“Green Communities Act”) was signed into law by Massachusetts Governor Deval Patrick on July 2, 2008.

- Appendix 5: Calculation of the Company's Incentive
- Appendix 6: Energy Efficiency Evaluations & Studies
- Appendix 7: Performance Metric Documentation
- Appendix 8: Detailed Savings Calculations of the 2009 Programs
- Appendix 9: Progress Report/Updates on Compliance Items Consistent with the Department's Order in D.P.U. 09-120
- Appendix 10: Variance Analysis Consistent with a Hearing Officer Memorandum dated June 22, 2010
- Appendix 11: 2009 Summary of Annual MWh Saved

SUMMARY OF 2009 RESULTS

Table 1 summarizes savings and expenses for the 2009 programs and compares 2009 evaluated results (the "Amount" column) to preliminary year-end projections and filed targets. The Company's targets were approved in accordance with NSTAR Electric's 2009 Energy Efficiency Plan.³

TABLE 1				
SAVINGS AND EXPENSES FOR 2009				
Measurement	Amount	Units	Percent Change Comparison	
			Preliminary	Filed Target
Program Implementation Expenses	\$65	\$ - Millions	0%	4%
Total Expenses	\$90	\$ - Millions	0%	2%
Annual Energy Savings	191	GWh	-22%	-12%
Annual Summer Demand Savings	29.61	MW	-8%	5%
Annual Winter Demand Savings	24.38	MW	-37%	-19%
Lifetime Energy Savings	2,326	GWh	-13%	-4%
Lifetime Demand Savings	394.16	MW	-4%	7%
Total Resource Cost Test - with DRIPE	4.36	Benefit / Cost	-9%	-1%
Performance Incentive - After Taxes	\$3.64	\$ - Millions	0%	6%

³ See NSTAR Electric's 2009 Energy Efficiency Plan, as approved in NSTAR Electric Company, D.P.U. 08-117 (May 29, 2009).

The Company's Department-approved incentive mechanism for achieving performance goals related to its 2009 energy efficiency programs has three components: (1) a savings mechanism, (2) a value mechanism, and (3) performance metrics. The savings component provides an incentive to the Company for achieving portfolio-level lifetime energy (MWh) savings, demand (kW) savings, and non-electric benefits ("NEBs") goals. The value component provides an incentive for achieving cost-effective program implementation. Performance metrics provide an incentive to the Company for achieving other objectives related to program efforts. Of the \$3,635,944 the Company earned in after-tax incentives for its 2009 energy efficiency programs, \$1,577,614, or 43 percent, was earned from the savings incentive component; \$1,165,663, or 32 percent, was earned from the value incentive component; and \$892,667, or 25 percent, was earned from the performance incentive component. *See Appendix 5 for details of the incentive calculation.*

Residential Programs

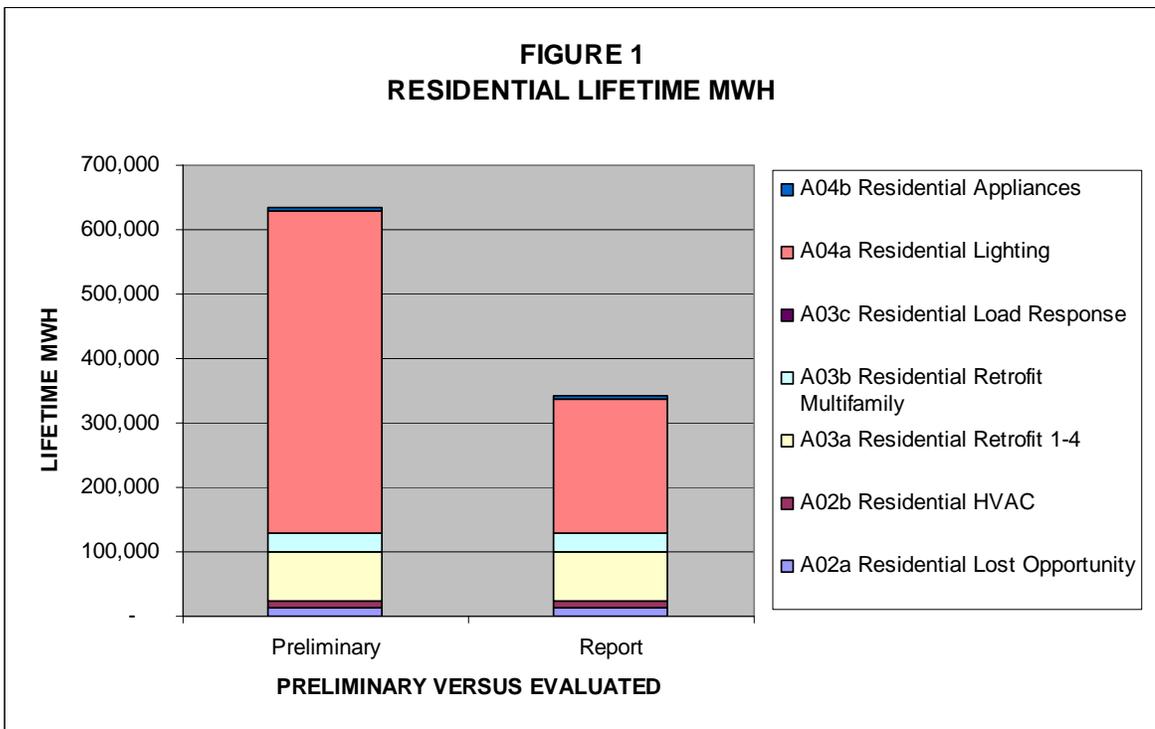
For 2009, NSTAR Electric has reported the results of its residential energy efficiency programs and services for six Benefit-Cost Ratio ("BCR") Activities as follows: lost opportunity; HVAC; retrofit 1-4; retrofit multi-family; lighting; and appliances. Table 2 below summarizes lifetime energy and demand savings, lifetime NEBs,⁴ and the total resource benefits and costs associated with the Company's 2009 residential energy efficiency programs. Benefits from NSTAR Electric's residential programs were three

⁴ Negative lifetime NEBs provided in Table 2 for the Residential HVAC BCR Activity are due to increased gas usage associated with electronic commutated motors ("ECM"). An ECM is an ultra-high efficiency, programmable, brushless DC motor utilizing a permanent magnet rotor and a built-in inverter. DC motors are significantly more energy-efficient than conventional split capacitor motors. Power loss due to magnetic, thermal and frictional effects are dramatically reduced at all loads. At low speed the ECM is over 30 percent more efficient than a standard induction motor. Improving the motor and fan systems of residential furnaces and heat pumps results in significant, cost-effective efficiency gains. The electricity it uses is a heat source for the house thereby augmenting the gas burned. If the furnace is to provide the same comfort level, wasting less high-cost electricity means burning slightly more gas.

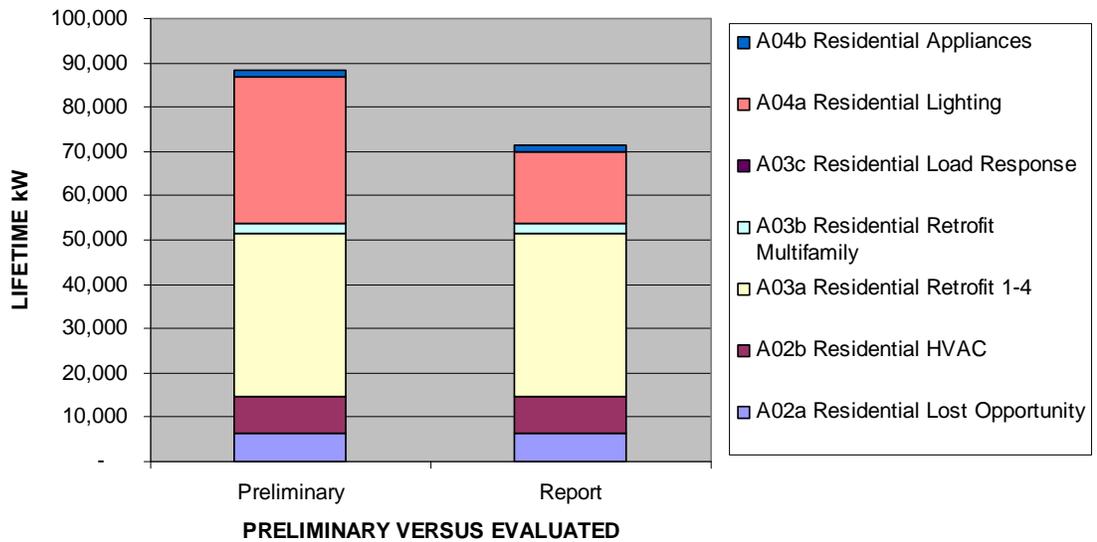
times greater than the associated costs, resulting in an overall BCR of 3.19 in this customer sector.

Benefit-Cost Ratio Activity	Lifetime MWH		Lifetime kW		Lifetime \$ NEB		TRC Values	
	Preliminary	Report	Preliminary	Report	Preliminary	Report	\$-Benefits	\$-Costs
A02a Residential Lost Opportunity	12,266	12,266	6,415	6,415	\$5,313,875	\$5,313,875	\$8,372,609	\$2,782,539
A02b Residential HVAC	10,754	11,512	8,347	8,347	(\$157,592)	(\$157,592)	\$3,665,170	\$2,558,284
A03a Residential Retrofit 1-4	76,762	76,762	36,929	36,929	\$23,238,653	\$23,238,653	\$41,910,104	\$13,649,149
A03b Residential Retrofit Multifamily	29,431	29,431	2,028	2,028	\$1,646,273	\$1,646,273	\$5,141,135	\$2,697,560
A03c Residential Load Response	NA	NA	NA	NA	NA	NA	NA	NA
A04a Residential Lighting	499,287	206,545	33,159	16,367	\$3,647,954	\$1,695,926	\$28,381,155	\$5,220,853
A04b Residential Appliances	6,306	6,306	1,386	1,386	\$0	\$0	\$1,058,840	\$820,135
Total	634,806	342,821	88,264	71,472	\$33,689,163	\$31,737,134	\$88,529,013	\$27,728,520

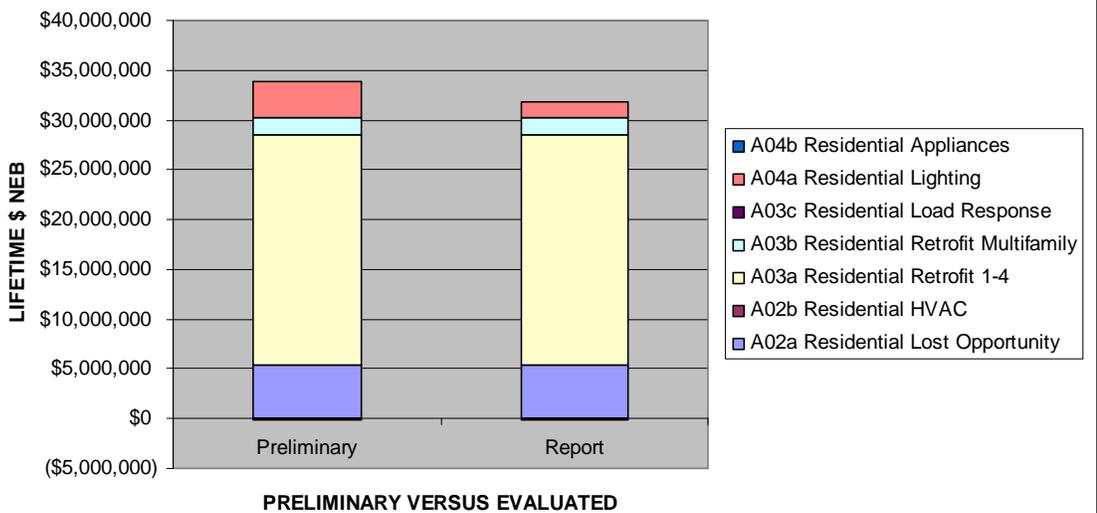
Figures 1 through 4 show the contribution by residential BCR Activity to: total lifetime energy savings (Figure 1); total lifetime summer demand savings (Figure 2); total lifetime NEBs (Figure 3); and Total Resource Cost (“TRC”) values (Figure 4). Energy impacts, demand impacts, and NEBs are compared to preliminary year-end estimates. Total costs are compared to total benefits.

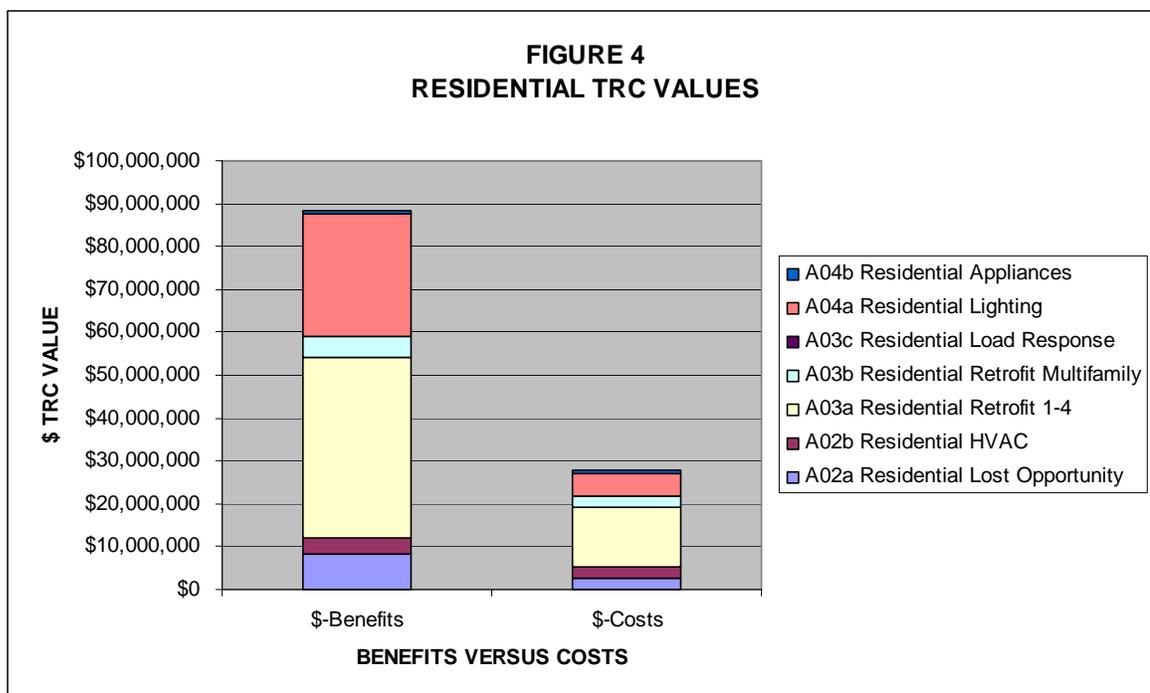


**FIGURE 2
RESIDENTIAL LIFETIME kW**



**FIGURE 3
RESIDENTIAL LIFETIME \$ NEB**





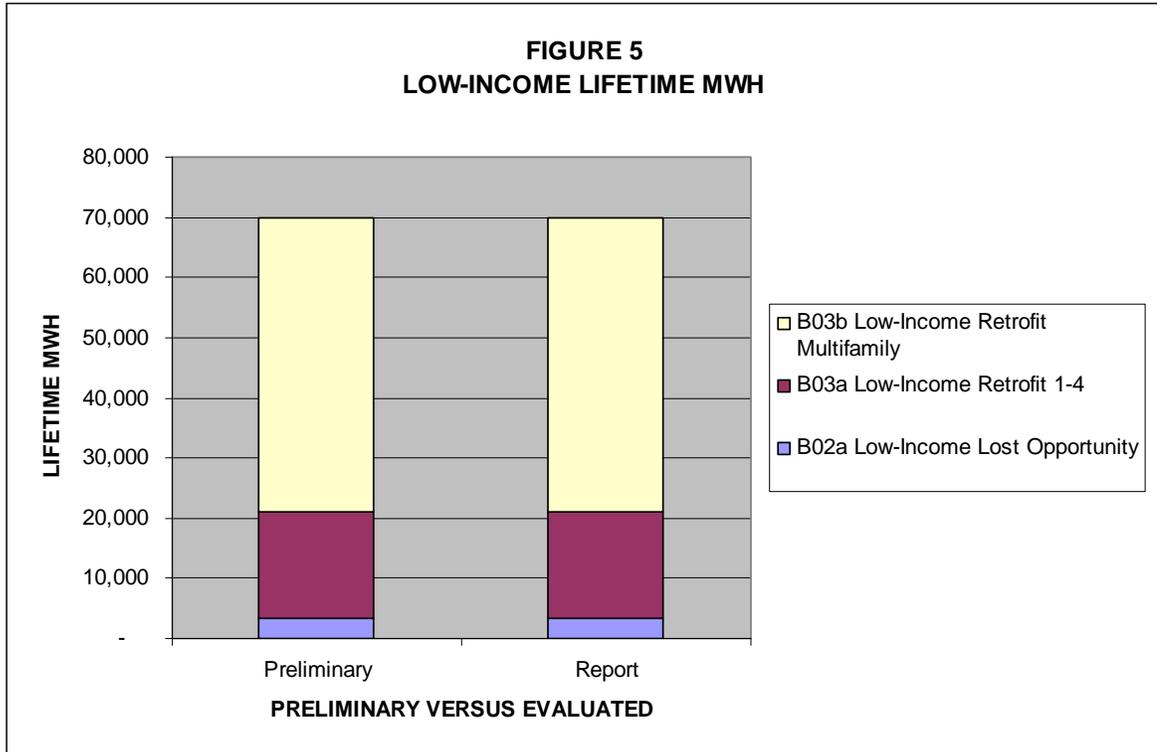
Low-Income Programs

For 2009, the Company has reported the results of its residential low-income energy efficiency programs and services for three BCR activities: lost opportunity; retrofit 1-4; and retrofit multi-family. Table 3 summarizes lifetime energy and demand savings, lifetime NEBs, and the total resource benefits and costs associated with the Company's 2009 low-income energy efficiency programs. Benefits from NSTAR Electric's low-income programs were more than three times greater than the associated costs, resulting in an overall BCR of 3.57 for this customer sector.

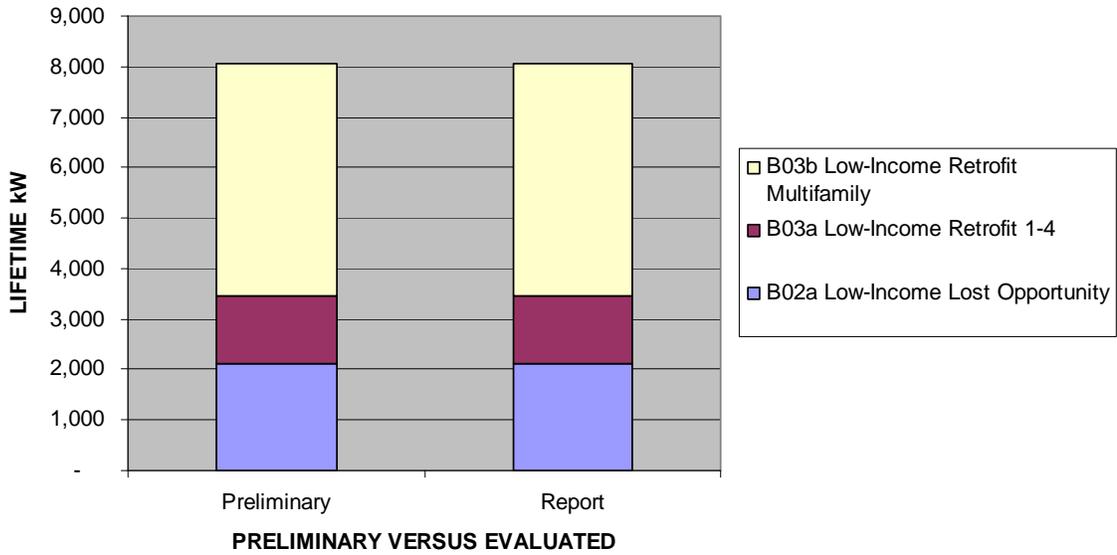
Benefit-Cost Ratio Activity	Lifetime MWH		Lifetime kW		Lifetime \$ NEB		TRC Values	
	Preliminary	Report	Preliminary	Report	Preliminary	Report	\$-Benefits	\$-Costs
B02a Low-Income Lost Opportunity	3,404	3,404	2,103	2,103	\$1,974,972	\$1,974,972	\$2,891,873	\$979,670
B03a Low-Income Retrofit 1-4	17,731	17,731	1,373	1,373	\$11,496,727	\$11,496,727	\$13,594,805	\$3,506,441
B03b Low-Income Retrofit Multifamily	48,758	48,758	4,575	4,575	\$2,043,307	\$2,043,307	\$7,792,579	\$2,306,056
Total	69,893	69,893	8,050	8,050	\$15,515,005	\$15,515,005	\$24,279,256	\$6,792,168

Figures 5 through 8 show the contribution by low-income BCR Activity to: total lifetime energy savings (Figure 5); total lifetime summer demand savings (Figure 6); total lifetime

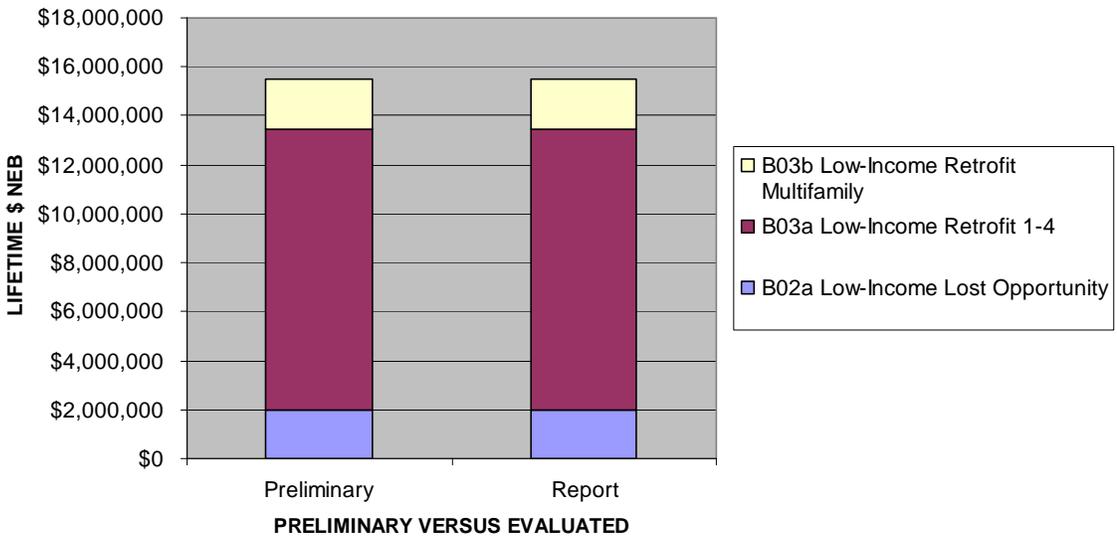
NEBs (Figure 7); and TRC values (Figure 8). Energy impacts, demand impacts, and NEBs are compared to preliminary year-end estimates. Total costs are compared to total benefits.

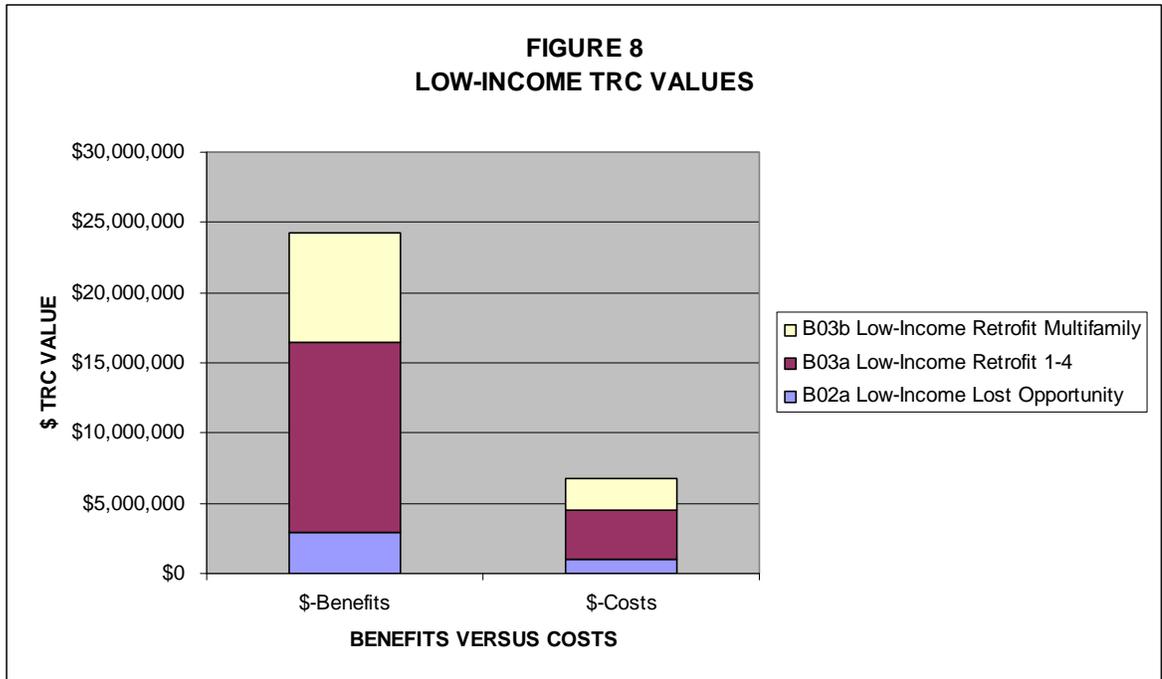


**FIGURE 6
LOW-INCOME LIFETIME kW**



**FIGURE 7
LOW-INCOME LIFETIME \$ NEB**





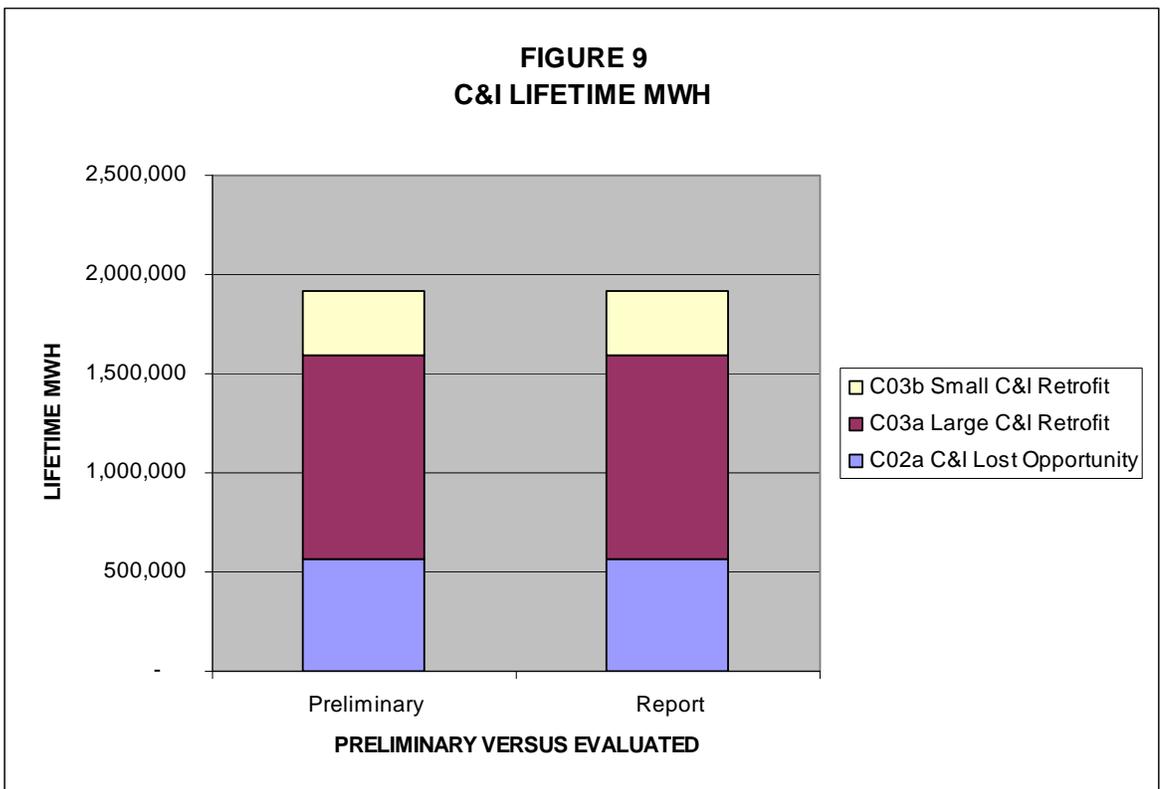
Commercial & Industrial Programs

For 2009, the Company has reported the results of its C&I energy efficiency programs and services for three BCR activities: lost opportunity; large retrofit; and small retrofit. Table 4 summarizes lifetime energy and demand savings, lifetime NEBs, and the total resource benefits and costs associated with the Company’s 2009 C&I energy efficiency programs. Benefits from NSTAR Electric’s C&I programs were approximately five times greater than the associated costs, resulting in an overall BCR of 4.97 for this customer sector.

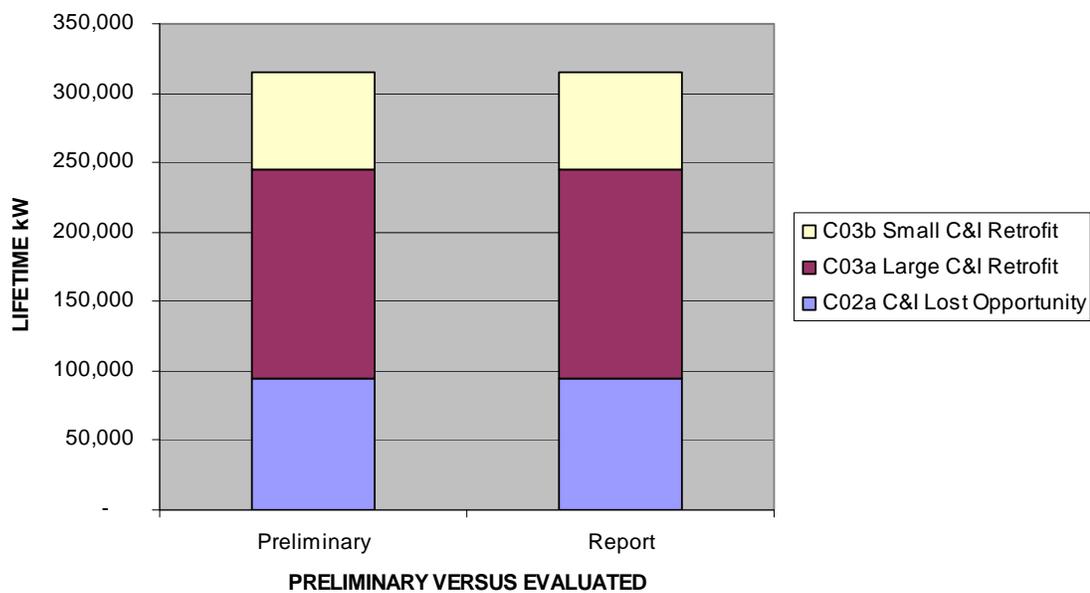
Negative lifetime NEBs in Table 4 for the C&I Lost Opportunity BCR Activity are due to a change in lighting from incandescent to fluorescent bulbs. This change results in less heat being generated by the bulbs, and as a result heating systems run more to offset the heat traditionally associated with incandescent bulbs. Therefore, the negative NEBs value accounts for this increased gas usage.

Benefit-Cost Ratio Activity	Lifetime MWH		Lifetime kW		Lifetime \$ NEB		TRC Values	
	Preliminary	Report	Preliminary	Report	Preliminary	Report	\$-Benefits	\$-Costs
C02a C&I Lost Opportunity	566,649	566,649	94,006	94,006	\$365,542	\$365,542	\$89,232,555	\$11,075,896
C03a Large C&I Retrofit	1,023,579	1,023,579	151,504	151,504	(\$945,112)	(\$945,112)	\$157,026,506	\$28,133,145
C03b Small C&I Retrofit	322,640	322,640	69,132	69,132	\$2,957,299	\$2,957,299	\$58,835,236	\$22,161,979
Total	1,912,869	1,912,869	314,641	314,641	\$2,377,729	\$2,377,729	\$305,094,297	\$61,371,021

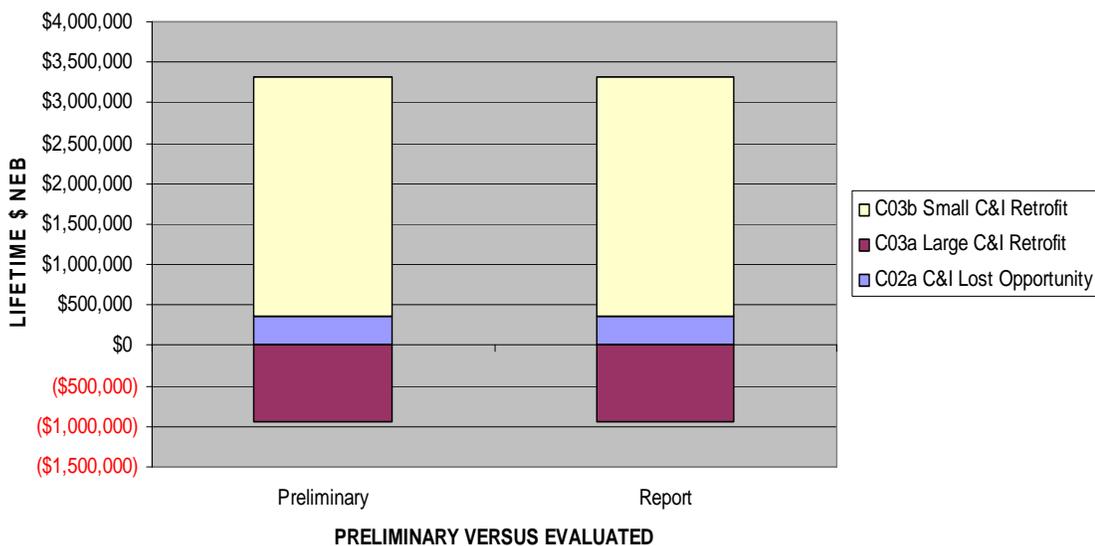
Figures 9 through 12 show the contribution by C&I BCR Activity to: total lifetime energy savings (Figure 9); total lifetime summer demand savings (Figure 10); total lifetime NEBs (Figure 11); and TRC values (Figure 12). Energy impacts, demand impacts, and NEBs are compared to preliminary year-end estimates. Total costs are compared to total benefits.



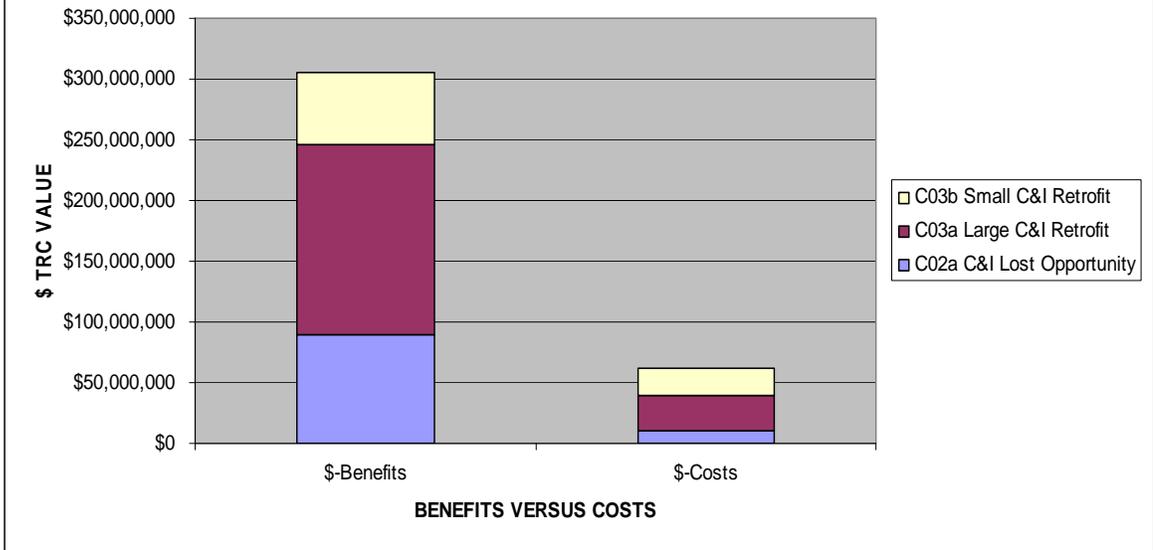
**FIGURE 10
C&I LIFETIME kW**



**FIGURE 11
C&I LIFETIME \$ NEB**



**FIGURE 12
C&I TRC VALUES**



OVERVIEW OF EVALUATION METHODOLOGY

TYPES OF EVALUATION

The evaluation of NSTAR Electric's 2009 energy efficiency program impacts reflects the Company's efforts to apply appropriate methodologies and adjust these methodologies for individual program characteristics. The diverse nature of the programs, including the magnitude of preliminary kW and kWh impacts, the number of customers served and the end-uses affected, calls for the adoption of different evaluation approaches. For program year 2009 ("PY09"), the Company utilized process and market progress evaluations, site-specific gross measurement and verification ("M&V") evaluations, and net impact evaluations. Evaluations of some programs used several methodologies to develop overall impact results and provide meaningful feedback on program delivery and direction.

Evaluation results are used to report evaluated savings and to inform future planning. The methods utilized by the Company to incorporate the evaluations into its analysis of evaluated results varied by program and end-use.

Process and Market Progress Evaluations

Process and market progress evaluations review energy efficiency program design and implementation and recommend modifications to program delivery. The scope of these evaluations includes all aspects of the program including administrative efficiency, the quality of service provided, and the databases used for program tracking and reporting. Process evaluations assess the early stages of energy efficiency programs. They specifically provide an assessment of: (1) whether or not actual operations resemble the intended program design and operation plan; and (2) whether or not real world experience shows that the original program design and implementation plan are appropriate given the existing field conditions.

Site-Specific Gross Measurement and Verification Evaluations

Impact evaluations for some of the programs covered in this report rely on engineering estimates that are based on site-specific M&V of measure performance and persistence.

Survey Based Net Impact Evaluations

Survey-based impact studies focus on the analysis of information collected through customer surveys. They are generally used to measure the net factors of free-ridership and spillover, and to collect information on customer experience. These studies thus provide timely feedback to program managers as well as input to the impact evaluations.

CURRENT EVALUATION ACTIVITIES

During 2009 and early 2010, NSTAR Electric conducted a number of evaluations, many in collaboration with other Massachusetts PAs. These evaluations include both traditional process and impact evaluation methodologies, as well as market progress and assessment studies for both the residential and C&I sectors. An executive summary of each of the evaluations listed below is included in Appendix 6 of this report.

- Study 1 - *Evaluation of the Massachusetts New Homes with ENERGY STAR[®] Program, 2009 Findings and Analysis*, NMR Group Inc., May 26, 2010.
- Study 2 - *Massachusetts New Homes with ENERGY STAR 2009 COOL SMART Quality Installation Verification Evaluation Report*, ICF International, February 24, 2010.
- Study 3 - *Energy Savings Analysis for the Massachusetts New Homes with ENERGY STAR Program*, ICF International, June 4, 2009.
- Study 4 - *The Massachusetts New Homes with ENERGY STAR[®] Program, 2009 Progress Report*, Dorothy Conant, May 26, 2010

- Study 5 - *Residential Central AC Regional Evaluation*, ADM Associates, Inc., October 2009.
- Study 6 - *Energy Pay and Save Pilot Program Survey & Analysis*, Black & Veatch, March 2010.
- Study 7 - *2009 Massachusetts Multi-Family Program Assessment*, Nexus Market Research, Inc., October 16, 2009.
- Study 8 - *The Market for CFLs in Massachusetts*, NMR Group, Inc., January 28, 2010.
- Study 9 - *Results of the Multistate CFL Modeling Effort*, NMR Group, Inc., February 4, 2010.
- Study 10 - *Market Assessment and Best Practices for Delivering Plug-Load Energy Efficiency in Business – Final Report*, PA Consulting, June 14, 2010.

GENERIC IMPACT EQUATIONS

The general form of the impact equation for most measures installed is:

$$\text{Net Impacts} = \text{Gross Impacts} * \text{Realization Rate} * (1 - \text{Free ridership} + \text{Spillover})$$

Realization rates are study-specific parameters which compare the energy or demand performance of installed equipment to initial estimates of performance. They are typically based on M&V studies. Realization rates are summarized in Appendix 2. Note that as unit estimators or new algorithms are adopted, realization rates will be reset from year-to-year to reflect the revised evaluated estimator.

Free-ridership and spillover rates are determined on a regular basis and are required by the Department of Public Utilities' Order Promulgating Final Guidelines to Evaluate and Approve Energy Efficiency Programs, D.T.E. 98-100 (2000) ("D.T.E 98-100" or the "Guidelines"). In 2003, NSTAR Electric participated in the statewide C&I free-ridership and spillover study which developed a consistent methodology and survey instrument across electric PAs.

The Company has since calculated free-ridership and spillover in a manner consistent with this approach. Free-ridership and spillover rates for all programs are also summarized with their sources in Appendix 2. As required in D.T.E 98-100, free-ridership includes both partial and pure free-ridership.

In 2010, under the Special and Cross-Sector evaluation research area there is a statewide effort to revisit the C&I free-ridership and spillover study. NSTAR Electric is participating in this research effort.

FUTURE EVALUATION ACTIVITIES

During 2009, the Energy Efficiency Advisory Council (“Council”) and the Massachusetts PAs adopted a new framework for conducting evaluation, monitoring and verification (“EM&V”) activities for the 2010 through 2012 program period. Based on principles of the EM&V Resolution approved by the Council on September 8, 2009, several specific research areas, based primarily on target markets, have been delineated for the three-year period. The research areas are: 1) Residential Retrofit and Low Income, 2) Residential Retail Products, 3) Residential New Construction, 4) Non-Residential Large Retrofit and New Construction, 5) Non-Residential Small Retrofit, and 6) Special and Cross-Sector Studies.

As a result of this new EM&V framework, the Council began assuming an oversight role for the EM&V activities of the PAs, with research area managers and the Council’s evaluation consultants jointly preparing evaluation plans and budgets. Electric and gas evaluation efforts became integrated to the maximum extent possible and consideration was to be given to regional EM&V activities and Forward Market Capacity evaluation requirements.

Under the new evaluation framework, impact evaluations, and other studies, were to be performed at a statewide rather than an individual PAs level to the maximum extent possible, and the PAs were to transition their current individual evaluation efforts to the

new approach as soon possible. For the most part, residential evaluations were already conducted either statewide or regionally, so this transition impacted the C&I sector the most. To conform to the newly established resolution, NSTAR Electric worked within the new framework and as such, did not conduct any C&I Company-specific evaluations which normally would have been filed with this report.

IMPACTS BY BENEFIT-COST RATIO ACTIVITIES & END-USES

The following sections provide high-level program descriptions and summarize the impact evaluations conducted for the Company's energy efficiency programs in 2009. Detailed benefit and cost information is provided by BCR Activity in Appendix 3. Correspondingly, detailed savings calculations by program are provided in Appendix 8.

RESIDENTIAL

Impact by BCR Activity

Table 5 highlights the net impact of the Company's residential energy efficiency programs by six BCR Activities: lost opportunity; HVAC;⁵ retrofit 1-4; retrofit multi-family; lighting; and appliances.

Benefit-Cost Ratio	Participant	Annual				Lifetime			Cost		Benefit-Cost
		kWh	kWh per Cust	kW	\$-NEB	MWH	kW	\$-NEB	Activity	per Cust	TRC (with DRIPE)
A02a Residential Lost Opportunity	595	1,183,598	1,989	301.88	\$223,766	12,266	6,415	\$5,313,875	\$2,782,539	\$4,677	3.01
A02b Residential HVAC	2,829	723,325	256	675.57	(\$8,755)	11,512	8,347	(\$157,592)	\$2,558,284	\$904	1.43
A03a Residential Retrofit 1-4	7,174	8,994,550	1,254	1,943.12	\$1,260,598	76,762	36,929	\$23,238,653	\$13,649,149	\$1,903	3.07
A03b Residential Retrofit Multifamily	3,982	2,975,288	747	195.27	\$121,347	29,431	2,028	\$1,646,273	\$2,697,560	\$677	1.91
A03c Residential Load Response	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
A04a Residential Lighting	149,755	26,749,344	179	2,106.53	\$231,574	206,545	16,367	\$1,695,926	\$5,220,853	\$35	5.44
A04b Residential Appliances	6,318	523,349	83	114.68	\$0	6,306	1,386	\$0	\$820,135	\$130	1.29
Total	170,653	41,149,454	241	5,337.05	\$1,828,530	342,821	71,472	\$31,737,134	\$27,728,520	\$162	3.19

⁵ The negative lifetime NEBs for the Residential HVAC BCR Activity are due to increased gas usage associated with ECMs as described in footnote 4 above.

LOST OPPORTUNITY

Residential New Construction

The Residential New Construction program promotes energy efficiency in the design and construction of new homes, regardless of heating fuel, by establishing ENERGY STAR Homes' building performance standards for energy consumption and efficiency. It targets homebuyers and builders involved in the construction of single- and multi-family homes. The program offers technical assistance, quality assurance inspections, and financial rebates.

Program Evaluation

Savings attributed to the Residential New Construction program come from two main areas: (1) those associated with heating, cooling, and water heating in the home; and (2) those associated with appliances and lighting installed in the home.

Heating, Cooling, Water Heating Savings - As part of the ENERGY STAR certification process, projected energy use is calculated for each ENERGY STAR home and a User Defined Reference Home ("UDRH") (a geometrically matching baseline home) using REM/rate software. The REM/rate software, a detailed residential simulation tool, is also the tool used to determine compliance with ENERGY STAR standards. This process was used to calculate both electric and fossil fuel energy savings due to heating, cooling, and water heating for all homes, both single-family and multi-family, certified in 2009. The UDRH was last updated in 2005. Information garnered from a 2005 baseline study, combined with the revisions to the ENERGY STAR Homes specification for 2006, was used to create a new UDRH. The new UDRH is the basis for determining the energy savings for ENERGY STAR Homes completed in 2009.

Under the Residential New Construction research area there is a statewide effort to update the baseline study.

Appliance and Lighting Savings – Unit savings for ENERGY STAR appliances and lighting installed in certified homes are consistent with the unit savings used in the ENERGY STAR Appliance program and lighting offered in the various programs.

There were several evaluation studies conducted for PY09. The first report, *Evaluation of the Massachusetts New Homes with ENERGY STAR® Program* (see Appendix 6, Study 1) included the following:

- An evaluation of California’s mechanisms for claiming savings from code-related activities and proposed attribution framework for Massachusetts;
- Recommendations for streamlining the process by which builders participate in the Massachusetts New Homes with ENERGY STAR program;
- Identification of lessons learned from the Zero Energy Challenge Pilot;
- Other approaches to estimating whole house savings for homes undergoing major renovations or additions.

There was also a study conducted to evaluate the quality of installations for central air conditioning systems as well as adherence to the Massachusetts New Homes with ENERGY STAR guidelines in a select number of homes. Results of these activities are summarized in *the Massachusetts New Homes with ENERGY STAR®, 2009 COOL SMART Quality Installation Verification Evaluation Report*. See Appendix 6, Study 2.

The Joint Management Committee undertook an analysis that resulted in expanding the tier structure from three to four tiers, and identifying new criterion for achieving various tier levels. The new criterion is based on a percentage savings above the UDRH baseline. The new Tier levels are being structured as follows: Code+, HERS 85, HERS 85 plus

30% improvement over the UDRH baseline, and HERS 85 plus 60% improvement over the UDRH baseline. This analysis can be found in the *Energy Savings Analysis for the Massachusetts New Homes with ENERGY STAR®* report. See Appendix 6, Study 3.

In addition to the work mentioned above, a progress report for this program was also completed. See Appendix 6, Study 4 - *The Massachusetts New Homes with ENERGY STAR® Program, 2009 Progress Report*. This report documents and summarizes program activity that occurred across Massachusetts during 2009. Program performance information includes historical as well as current information to show the growth of the program over time.

Results

Preliminary and final evaluation impact factors are identical.

RESIDENTIAL HVAC

ENERGY STAR® HVAC

NSTAR Electric, together with other electric PAs in Massachusetts, began offering the COOL SMART program in 2004. The program seeks to raise consumer awareness of recent improvements in HVAC product technologies, increase market share for ENERGY STAR-labeled furnaces and central air conditioners through market transformation based initiatives, and encourage customers to choose higher efficiency standards when purchasing HVAC equipment. The program is also designed to reduce kWh and peak demand created by the use of residential heating and central air conditioning equipment.

The COOL SMART program offers mail-in rebates for customers who purchase qualifying equipment, and also reimburses North American Technical Excellence certified technicians who install such qualifying equipment. In addition, the program offers incentives for contractors who perform Quality Installation Verification procedures

on newly installed air conditioners and heat pumps. The program is administered by NSTAR Electric and coordinated with the Company's Residential New Construction and Mass Save/Residential Conservation Services ("RCS") programs, other PAs, and energy service providers whenever possible.

Program Evaluation

In 2008 and 2009, NSTAR Electric participated in a residential Central Air Conditioning ("CAC") evaluation. As part of a regional effort, an impact evaluation was completed in October 2009. This evaluation was conducted to assess energy savings and demand impacts associated with the installation of efficient central air conditioning systems. Data for the assessment were collected through post installation monitoring of the operation of CAC systems installed by a sample of 96 households that received rebate incentives for purchasing high efficiency central air conditioning systems or heat pumps. The study found that the average hours of operation for these cooling systems increased from 250 to 360 hours. See Appendix 6, Study 5 for the *Residential Central AC Regional Evaluation*.

Results

Evaluated Lifetime MWh savings are approximately 7% higher than the preliminary savings due to a change in annual kWh saved, resulting from the increase to the average hours of operation for the central AC systems.

RETROFIT 1-4

Mass Save/RCS

Initially offered in 1980, the Mass Save/RCS program is a state mandated, fuel-blind residential audit program available to any residential customer upon request. The DOER provides statewide oversight for this program, and the Company is responsible for implementation of the program in its service territory.

The program is divided into Tier One and Tier Two services. Tier One enables customers to receive low-cost educational assistance and access to technical information, self-audit tools, and on-line resources during their initial telephone contact. This educational screening process also determines a customer's need for an in-home energy audit and other services. Low-income customers are referred to the appropriate low-income agency for further assistance as part of this process.

Tier Two is the Home Energy Assessment ("HEA"), which focuses on delivering on-site services to the customer and motivating the customer to implement recommended energy efficiency measures. During the HEA, the building's heating and domestic hot water systems, shell insulation, and appliances are examined.

Program Evaluation

From April 2009 through December 2009, NSTAR Electric offered an Energy Pay and Save ("EPS") pilot program to provide customers installing energy efficiency measures the opportunity to obtain on-bill financing. Upon completion of the pilot, a statewide evaluation study was done to determine the extent to which on-bill financing motivates customers to install energy efficiency measures. The pilot was offered to residential and small commercial customers. The findings will be used to inform financing options in future program years. See Appendix 6, Study 6 for the *Energy Pay and Save Pilot Program Survey and Analysis*.

Results

Preliminary and final evaluation impact factors are identical.

RETROFIT MULTI-FAMILY

Residential Multi-Family Assessment

NSTAR Electric's Residential Multi-Family Assessment program, first introduced in the summer of 2005, serves the Company's non low-income residential customers. The program is designed to reduce the energy consumption of multi-family buildings through the provision of comprehensive, whole-house retrofit services. Eligible customers receive an energy assessment, education on energy savings opportunities, direct installation of low-cost measures, and the opportunity to install major measures at a reduced cost.

Program Evaluation

On March 24, 2009 the Council issued a "Priorities Resolution" to support the development of statewide electric and natural gas efficiency investment plans. In response to the Council's resolution, a Multifamily Program Design Workshop was held in April 2009. The purpose of the workshop was to obtain key stakeholder feedback on the design elements of a successful multifamily program. The workshop was attended by customers, Council members and their consultants, vendors providing service for Massachusetts multifamily programs, and PA staff. Customers that attended the workshop were primarily from the low-income/affordable housing sector. Subsequently, an Assessment of the Multi-Family Program was performed. The purpose of this assessment was to obtain further data to inform the program design effort including:

- Confirm or disconfirm, as well as augment, the findings and recommendations from the workshop;
- Understand the progress made to date on overcoming technical barriers;
- Identify successful strategies for delivering a program that is fuel and rate class blind, takes a "whole building" approach to identifying energy

efficiency opportunities, and encourages customers to achieve “deeper savings” within multifamily properties.

The following tasks were completed in support of this assessment:

- Four focus groups with multi-family building owners, managers and landlords;
- Eight interviews with program administrators in other states;
- A review of available literature and a review of the April 2009 workshop results.

Findings indicate that the same barriers identified in 1995 and 2001 hold true in 2009, suggesting continuing challenges in penetrating this market. Key strengths of the existing program include, technical assistance offered, customer service, labeling and brand recognition, the whole building approach and quality assurance. Key weaknesses include: (1) the inability to operate blind to fuel type; (2) poor uptake of tenant training services; (3) insufficient market research; (4) lack of funding for additional training services, and (5) not keeping up with client expectations. The principal barriers continue to be the split incentive issue, uncertainty of equipment performance, financial constraints and lack of program awareness. *See Appendix 6, Study 7 – 2009 Massachusetts Multi-Family Program Assessment.*

Results

Preliminary and final evaluation impact factors are identical.

LIGHTING

ENERGY STAR® Lighting

The ENERGY STAR Lighting program is administered jointly by the Massachusetts PAs. The program is designed to increase the overall penetration of energy-efficient lighting technologies and to transform the market for high efficiency light bulbs and fixtures.

ENERGY STAR is a voluntary labeling program established by the United States Department of Energy (“DOE”) and the Environmental Protection Agency (“EPA”). Manufacturers and retailers of high efficiency lighting products can use the ENERGY STAR labels and point of purchase materials for qualifying products, and receive other marketing assistance to educate customers about the energy and environmental benefits of efficient technologies.

Customers are able to purchase efficient lighting products via three different channels: (1) mail order catalog; (2) instant rebates at participating retail stores; or (3) the Industry Initiative Proposals or “buy down” process. In 2009, PAs continued to enhance promotional campaigns by leveraging manufacturer and retailer efforts as well as national ENERGY STAR campaigns by DOE and EPA. These activities seek to increase customer awareness of the ENERGY STAR label and to encourage increased sales of qualifying products.

Program Evaluation

An evaluation entitled *The Market for CFL’s in Massachusetts* was completed in January 2010. See Appendix 6, Study 8. This study reports on the state of the market for compact fluorescent light bulbs (“CFLs”) in Massachusetts as a result of secondary research, random digit dial telephone surveys, and on-site socket inventories of sample Massachusetts residents. The findings indicate there are some opportunities for

penetration of CFLs into households and substantial opportunities for increasing the saturation of CFLs. Targeted recommendations for the remaining opportunities include providing incentives to retailers based on increased year-to-year sales, additional market segmentation and targeting to consumers, and increased focus on specialty bulbs. Additional findings include increased advertising as a tool for social marketing and continued monitoring to address rapid market changes.

The Massachusetts PAs also participated in an evaluation effort to assist in determining the best approach to calculating the CFL net-to-gross (“NTG”) adjustment factor. This report summarizes the analyses conducted in support of the multi-state CFL modeling effort, highlighting the results as they pertain to the NTG for the Massachusetts ENERGY STAR[®] Lighting Program. Thirteen companies in seven states sponsored 9,300 household phone surveys and 1,400 on-site visits in 15 states to estimate the NTG ratio of sales and penetration of CFLs. The 15 surveyed states ranged from four states with established CFL programs to seven states with no CFL program. The working penetration/market transformation model is that each CFL sold via a program would induce several non-program CFL sales in the early years. As the market matured, and as sales spilled over into other states, according to plan, the ratio of non-program sales to program sales would fall, eventually to zero.

Utilizing a variety of regression models it was determine that the Massachusetts PAs should use a 41% NTG ratio. See Appendix 6, Study 9 – *Results of the Multistate CFL Modeling Effort*.

Results

Evaluated lifetime savings and benefits are approximately 58% percent lower than the preliminary savings due to a change in impact factors provided in the study noted above.

APPLIANCES

ENERGY STAR® Appliances

The ENERGY STAR Appliances program is administered jointly by the Massachusetts PAs. The program is designed to increase the overall penetration of energy-efficient technologies and to transform the market for high efficiency appliances.

ENERGY STAR is a voluntary labeling program established by the DOE and the EPA. Manufacturers and retailers of high efficiency electric and gas appliances and other products can use the ENERGY STAR labels and point of purchase materials for qualifying products, and receive other marketing assistance to educate customers about the energy and environmental benefits of efficient technologies.

In 2009, PAs continued to enhance promotional campaigns by leveraging manufacturer and retailer efforts as well as national ENERGY STAR campaigns by DOE and EPA. These activities seek to increase customer awareness of the ENERGY STAR label and to encourage increased sales of qualifying products.

Program Evaluation

In 2008 and early 2009, NSTAR participated in a state-wide residential appliance saturation survey. The study effort consisted of a mail/internet survey of approximately 3,000 Massachusetts residential customers and an in-home verification of customer-provided data in 118 of the survey respondents' residences. One of the primary purposes of this study was to determine the penetration and saturation of Massachusetts homes with certain appliances and other energy using equipment. High level results of this survey are presented in the Executive Summary of the final report for this study. This report was included in the Company's 2008 Energy Efficiency Annual Report.

Under the new Residential Retail Products research area, discussions are currently underway to formulate an evaluation plan for the statewide appliance program.

Results

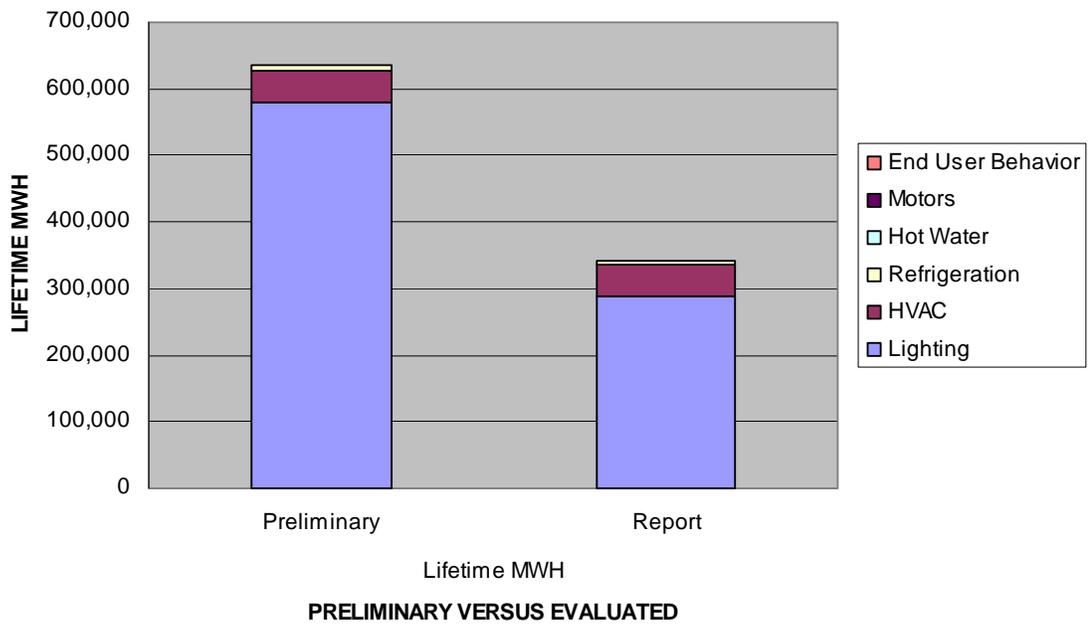
Preliminary and final evaluation impact factors are identical.

Impact by End-Use

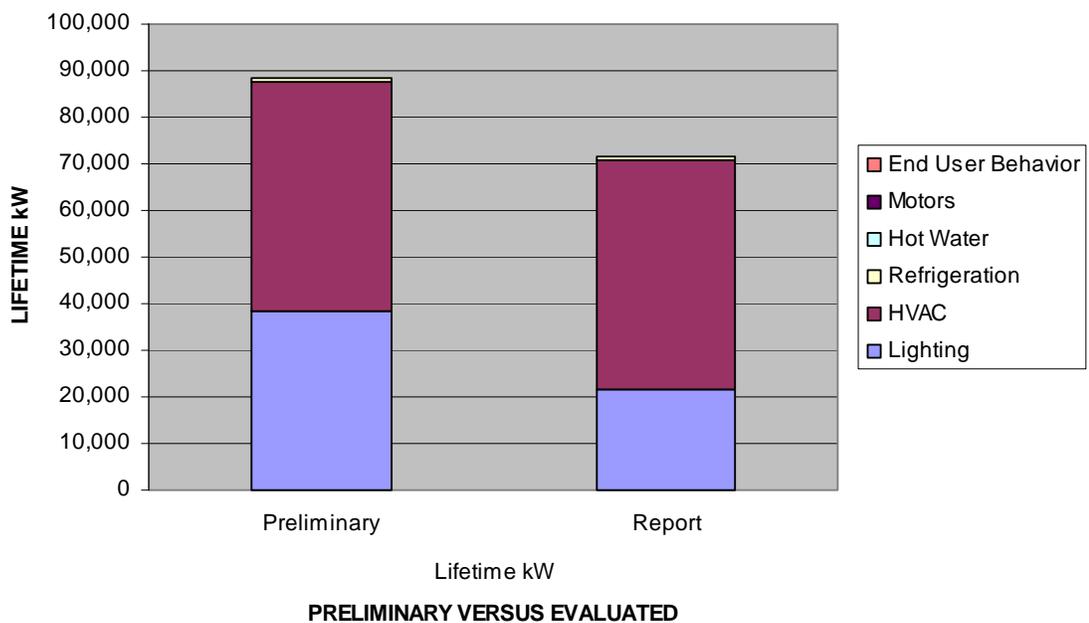
The residential program impacts by end-use are summarized in Table 6 and in Figures 13-15 below.

TABLE 6						
IMPACT BY RESIDENTIAL END-USES						
End Use	Lifetime MWH		Lifetime kW		Lifetime \$ NEB	
	Preliminary	Report	Preliminary	Report	Preliminary	Report
Lighting	580,629	287,887	38,428	21,637	\$4,214,435	\$2,262,407
HVAC	47,931	48,688	49,033	49,033	\$27,275,094	\$27,275,094
Refrigeration	5,902	5,902	763	763	\$0	\$0
Hot Water	78	78	7	7	\$2,199,633	\$2,199,633
Motors	11	11	2	2	\$0	\$0
End User Behavior	255	255	31	31	\$0	\$0
Total	634,806	342,821	88,264	71,472	\$33,689,163	\$31,737,134

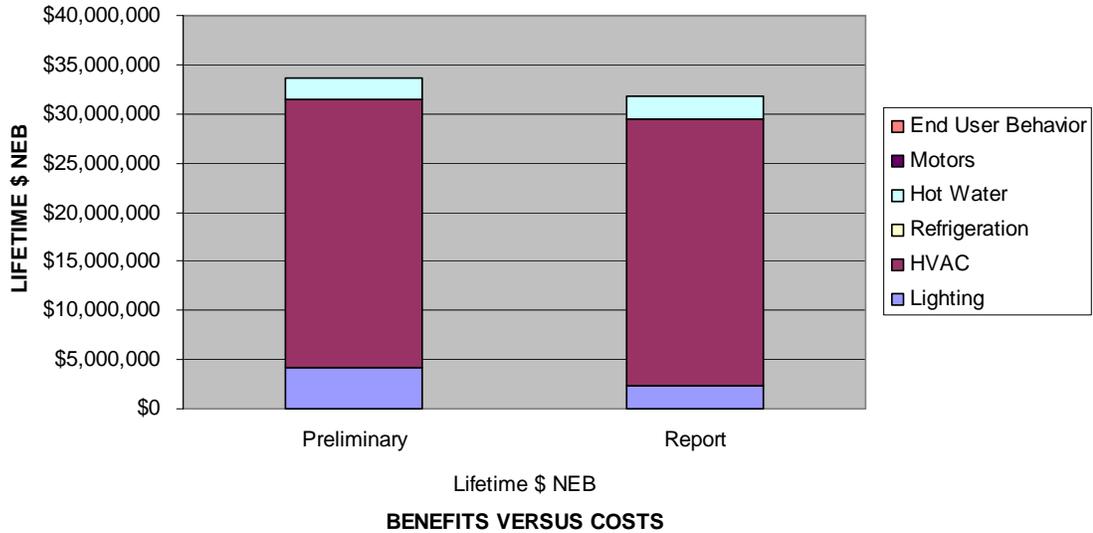
**FIGURE 13
RESIDENTIAL LIFETIME MWH - END-USE**



**FIGURE 14
RESIDENTIAL LIFETIME kW - END-USE**



**FIGURE 15
RESIDENTIAL LIFETIME \$ NEB - END- USE**



LOW-INCOME

Impact by BCR Activity

Table 7 highlights the net impact of the Company's low-income energy efficiency programs as distinguished by the three BCR-based activities: lost opportunity; retrofit 1-4; and multi-family retrofit.

Benefit-Cost Ratio	Participant	Annual				Lifetime			Cost		Benefit-Cost
Activity		kWh	kWh per Cust	kW	\$/NEB	MWH	kW	\$/NEB	Activity	per Cust	TRC (with DRIPE)
B02a Low-Income Lost Opportunity	310	225,521	727	90.38	\$83,444	3,404	2,103	\$1,974,972	\$979,670	\$3,160	2.95
B03a Low-Income Retrofit 1-4	2,603	1,573,444	604	121.71	\$661,579	17,731	1,373	\$11,496,727	\$3,506,441	\$1,347	3.88
B03b Low-Income Retrofit Multifamily	2,399	3,400,962	1,418	317.60	\$201,664	48,758	4,575	\$2,043,307	\$2,306,056	\$961	3.38
TOTAL	5,312	5,199,927	979	529.69	\$946,687	69,893	8,050	\$15,515,005	\$6,792,168	\$1,279	3.57

LOST OPPORTUNITY

Low-Income New Construction

The Low-Income New Construction program is designed to capture lost opportunities when: (1) a building with at least 50 percent low-income residents undergoes a major renovation; (2) a customer constructs a new building; or (3) single-family homes for low-income customers are built by organizations such as Habitat for Humanity. The program supports energy-efficient housing construction and works in collaboration with the Residential New Construction program.

The program essentially targets all end-uses within the home such as shell measures, mechanical ventilation, appliances, heating and water heating equipment, and lighting fixtures. Recommended technologies include ENERGY STAR heating systems, lighting, appliances, and windows. Other technologies recommended, as appropriate, are

increased levels of insulation and improved construction techniques to minimize air leakage, infiltration, and heat loss.

Program Evaluation

The Low-Income New Construction program was included in the Residential New Construction program evaluation. Like the Residential New Construction program, as discussed above, savings in this program can be attributed to two main areas: (1) those associated with heating, cooling, and water heating in the home; and (2) those associated with appliances and lighting installed in the home.

Under the transition to the new EM&V framework, plans are underway in the residential retrofit and low-income research area to conduct a process evaluation in 2010 and possibly an impact evaluation in the future for the low-income programs.

Results

Preliminary and final evaluation impact factors are identical.

RETROFIT 1-4

Low-Income Single-Family

The focus of the Low-Income Single-Family program is to deliver energy-efficient products and services directly into the homes of eligible low-income customers. The program is also designed to provide non-energy benefits such as improved comfort for low-income residents and a reduction in utility arrearages. The target market for this program includes customers living in 1-4 unit dwellings who are at 60 percent of the median income level. Technologies offered by the program include weatherization measures, lighting, and appliances.

Program Evaluation

The Company conducted a process evaluation of the Low-Income Single-Family program in 1999, (Megdal & Associates, *Process Evaluations of NSTAR's Low-Income Programs*, July 28, 2000). Utilizing the impact results from other evaluations has permitted the Company to keep program costs low while also reporting realistic and reliable estimates of program savings.

Under the transition to the new EM&V framework, plans are underway in the residential retrofit and low-income research area to conduct a process evaluation in 2010 and possibly an impact evaluation in the future for the low-income programs.

Results

Preliminary and final evaluation impact factors are identical.

RETROFIT MULTI-FAMILY

Low-Income Multi-Family

The focus of the Low-Income Multi-Family program is to deliver energy-efficient products and services directly into the homes of existing, eligible low-income customers who live in multi-family housing. The target market for this program includes low-income customers in buildings that consist of at least 50 percent low-income residents (residents at 60 percent of the median income level). Technologies offered by the program include weatherization measures, lighting, and appliances.

Program Evaluation

Under the transition to the new EM&V framework, plans are underway in the residential retrofit and low-income research area to conduct a process evaluation in 2010 and possibly an impact evaluation in the future for the low-income programs.

Results

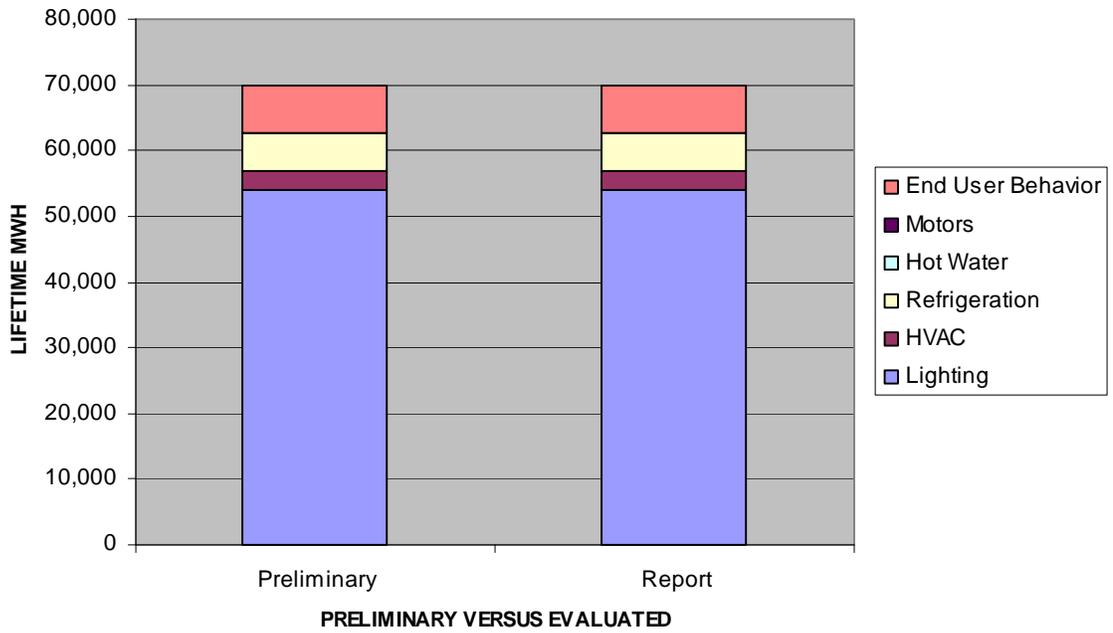
Preliminary and final evaluation impact factors are identical.

Impact by End-Use

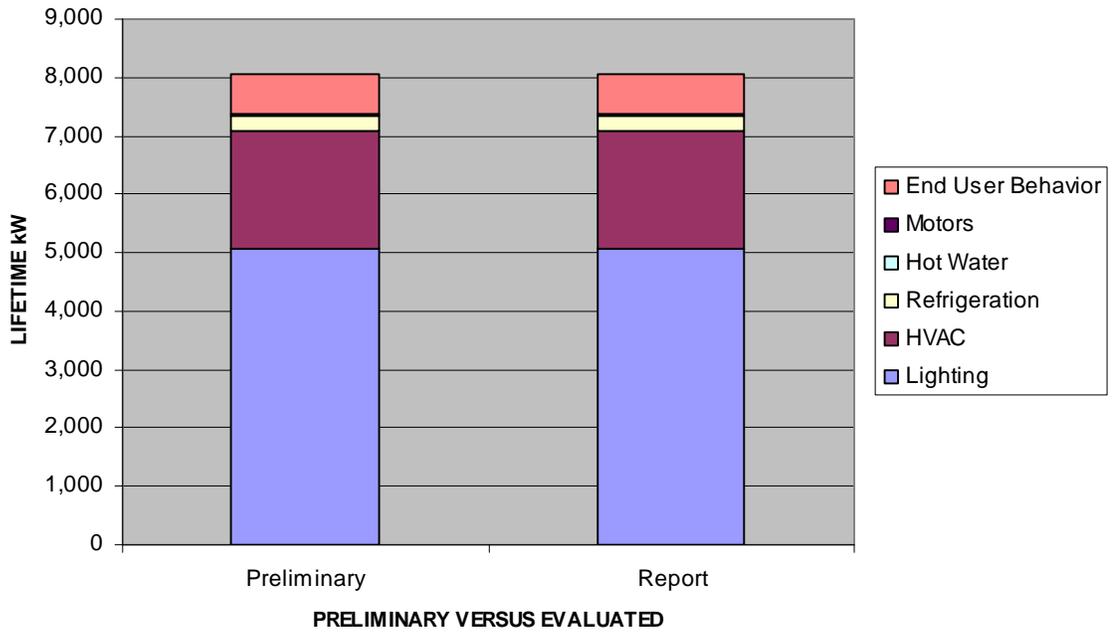
The low-income program impacts by end-use are summarized in Table 8 and Figures 16-18 below.

TABLE 8						
IMPACT BY LOW-INCOME END-USES						
End Use	Lifetime MWH		Lifetime kW		Lifetime \$ NEB	
	Preliminary	Report	Preliminary	Report	Preliminary	Report
Lighting	53,928	53,928	5,068	5,068	\$1,083,757	\$1,083,757
HVAC	2,859	2,859	2,017	2,017	\$13,507,896	\$13,507,896
Refrigeration	5,744	5,744	272	272	\$257,089	\$257,089
Hot Water	141	141	5	5	\$159,196	\$159,196
Motors	0	0	0	0	\$0	\$0
End User Behavior	7,222	7,222	688	688	\$516,148	\$516,148
Total	69,893	69,893	8,050	8,050	\$15,524,086	\$15,524,086

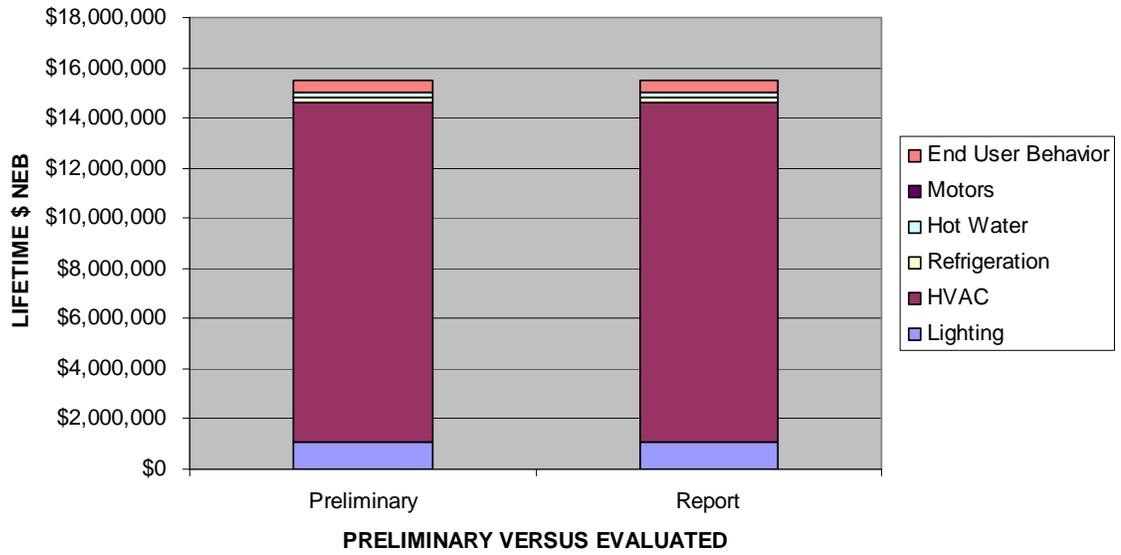
**FIGURE 16
LOW-INCOME LIFETIME MWH - END-USE**



**FIGURE 17
LOW-INCOME LIFETIME kW - END-USE**



**FIGURE 18
LOW-INCOME LIFETIME \$ NEB - END-USE**



COMMERCIAL AND INDUSTRIAL

Impact by BCR Activity

Table 9 highlights the net impact of the Company's C&I energy efficiency programs by three BCR activities: lost opportunity, large retrofit, and small retrofit.

Benefit-Cost Ratio	Participant	Annual				Lifetime			Cost		Benefit-Cost
Activity		kWh	kWh per Customer	kW	\$-NEB	MWH	kW	\$-NEB	Activity	per Customer	TRC (with DRIPE)
C02a C&I Lost Opportunity	393	35,211,318	89,596	6,023.32	\$20,901	566,649	94,006	\$365,542	\$11,075,896	\$28,183	8.06
C03a Large C&I Retrofit	906	83,047,842	91,664	12,233.80	(\$74,813)	1,023,579	151,504	(\$945,112)	\$28,133,145	\$31,052	5.58
C03b Small C&I Retrofit	1,909	26,520,730	13,892	5,486.11	\$236,387	322,640	69,132	\$2,957,299	\$22,161,979	\$11,609	2.65
TOTAL	3,208	144,779,890	45,131	23,743.24	\$182,475	1,912,869	314,641	\$2,377,729	\$61,371,021	\$19,131	4.97

Approach To Impact Evaluation

NSTAR Electric has evaluated its current C&I programs for both gross and net impact on an annual basis since their inception in 1999. The Company's approach to evaluation has been to comprehensively assess, in a statistically rigorous manner, the gross and net savings for all measures implemented during the corresponding time period in a statistically rigorous manner. Measurement protocols require extensive use of monitoring resulting in typically anywhere between 100 and 200 measurements (such as lighting logger profiles or hour-interval amp recordings) incorporated into each evaluation each year.

Recent evaluation activities include an impact evaluation to provide independent estimates of the annual lifetime energy and peak demand savings associated with the lighting end use of NSTAR Electric's 2007 Construction Solutions and Business Solutions programs. The focus of the work was to develop adjusted gross and net energy (kWh) and demand (kW) savings. This evaluation was performed by an independent third-party vendor, KEMA Inc., and was included in the Company's 2008 Energy Efficiency Annual Report.

Due to the transition to the new evaluation framework, NSTAR Electric did not conduct any C&I Company-specific impact evaluations which normally would have been filed with this report.

LOST OPPORTUNITY

Construction Solutions

Construction Solutions, the Company's primary C&I lost opportunity program, targets time dependent opportunities for the installation of energy-efficient equipment in the new construction, renovation, remodeling, and failed equipment replacement markets. In addressing these markets, the program's goal is to make consideration of energy efficiency options an integral part of the design process. In so doing, it creates long-term market transforming effects by influencing architects, engineers, and the building design community to incorporate energy-efficient design, strategies, and equipment in the early design phase, thereby raising the energy efficiency of normal building practice.

The Company implements its Construction Solutions program primarily through financial rebates for energy efficient equipment installation. These rebates are supplemented by technical assistance, design assistance, and commissioning services for complex projects and for both the Comprehensive Design and Comprehensive Chiller tracks. The Comprehensive Design track includes computer simulation of a building's energy use for new construction applications addressing multiple end-uses.

Prescriptive measures installed through Construction Solutions include energy-efficient lighting, premium efficiency motors, HVAC equipment, variable speed drives and compressed air equipment. Custom measures are initiated on a separate application form, which allows more site-specific and comprehensive energy-efficiency measures not available through the prescriptive application approach. Savings and demand values

associated with any MotorUp and Cool Choice offering are included with each of the other Construction Solutions' offerings described above.

Program Evaluation

Final savings for program years 2006 and 2007 were evaluated using the gross and net impact factors from the impact study for the 2006 program year which looked at all measures except lighting along with the impact study for the lighting end-use 2007 program year. The resulting *NSTAR Electric & Gas Business & Construction Solutions (BS/CS) Programs Monitoring & Verification 2006 Final Report* was filed in NSTAR Electric's 2007 Energy Efficiency Annual Report, docketed by the Department as NSTAR Electric Company, D.P.U. 08-46. The July 2009 report entitled *2007 Business & Construction Solutions (BS/CS) Programs NSTAR Electric and Gas Measurements and Verification of 2007 Lighting Measures* was filed in NSTAR Electric's 2008 Energy Efficiency Annual Report, docketed by the Department as NSTAR Electric Company, D.P.U. 09-64. Combined, these two reports reflect the results of the evaluation activity for this program.

Under the transition to the new M&V framework, NSTAR Electric did not conduct a Company-specific evaluation for this program. Under the Non-Residential Large Retrofit and New Construction statewide research area evaluation plans are as follows:

- Market Characterization Study
- Prescriptive VSD Impact Evaluation
- Custom Electric HVAC Impact
- Custom Gas Measures Impact
- Prescriptive Gas Measures Impact
- Comprehensive Design Approach Impact and Process
- General Process Evaluation

Results

Preliminary and final evaluation impact factors are identical.

LARGE RETROFIT

Business Solutions

Business Solutions, the Company's primary C&I retrofit program for large and mid-size customers, focuses on efficiency opportunities in existing C&I and governmental facilities. The program targets equipment that continues to function but is outdated and energy inefficient. This approach taps the largest magnitude of energy savings potential by addressing existing building stock.

Business Solutions is implemented through financial rebates for energy-efficient equipment installations, and is supplemented by technical assistance and commissioning services for complex projects. Prescriptive measures installed through Business Solutions include energy-efficient lighting, HVAC equipment, variable speed drives, variable frequency drive motor combinations, and vending machine occupancy sensors. Custom measures are initiated on a separate application form, which allows more site-specific and comprehensive energy-efficient measures not available through the prescriptive application approach.

Program Evaluation

Final savings for program years 2006 and 2007 were evaluated using the gross and net impact factors from the impact study for the 2006 program year which looked at all measures except lighting along with the impact study for the lighting end-use 2007 program year. The resulting *NSTAR Electric & Gas Business & Construction Solutions (BS/CS) Programs Monitoring & Verification 2006 Final Report* was filed in NSTAR Electric's 2007 Energy Efficiency Annual Report, docketed by the Department as

NSTAR Electric Company, D.P.U. 08-46. The July 2009 report entitled *2007 Business & Construction Solutions (BS/CS) Programs NSTAR Electric and Gas Measurements and Verification of 2007 Lighting Measures* was filed in NSTAR Electric's 2008 Energy Efficiency Annual Report, docketed by the Department as NSTAR Electric Company, D.P.U. 09-64. Combined, these two reports reflect the results of the evaluation activity for this program.

Under the transition to the new M&V framework, NSTAR Electric did not conduct a Company-specific evaluation for this program. Under the Non-Residential Large Retrofit and New Construction research area statewide evaluation plans are as follows:

- Market Characterization Study
- Prescriptive VSD Impact Evaluation
- Custom Electric HVAC Impact
- Custom Gas Measures Impact
- Prescriptive Gas Measures Impact
- Comprehensive Design Approach Impact and Process
- General Process Evaluation

Results

Preliminary and final evaluation impact factors are identical.

SMALL RETROFIT

Small Business Solutions

Small Business Solutions, the Company's primary retrofit program for small C&I customers, provides direct installation of energy-efficient lighting and non-lighting retrofit measures - including electric water heating, space-conditioning, and refrigeration measures. The program serves non-residential customers with an average monthly

demand of less than 200 kW. NSTAR Electric offers qualifying customers the ability to defer their co-payment through the Company's financing program.

Program Evaluation

The Company has evaluated the Small Business Solutions program (or its predecessor the Small C&I Retrofit program) on a regular basis from program inception in 1999 through 2008.

From April 2009 through December 2009, NSTAR Electric offered an EPS pilot program to provide customers installing energy efficiency measures the opportunity to obtain on-bill financing. Upon completion of the pilot, a statewide evaluation study was done to determine the extent to which on-bill financing motivates customers to install energy efficiency measures. The pilot was offered to residential and small commercial customers. The findings will be used to inform financing options in future program years. *See Appendix 6 Study 6 for the Energy Pay and Save Pilot Program Survey and Analysis.*

In addition there was a study performed to investigate if there were any opportunities within the small business sector that might come from plug-loads that were not being addressed by the program. A plug load is the electricity consumed by a device that plugs into an electrical outlet. The study used billing data and secondary research to determine potential devices and/or technologies that might be used to reduce the electrical load due to plug-loads. The results of this study are currently being evaluated to see how the suggested technologies might be incorporated into the portfolio of energy efficient programs and if additional primary research is called for to determine a more reliable estimate of savings potential. *See Appendix 6 Study 10 for the Massachusetts Market Assessment and Best Practices for Delivering Plug-Load Energy Efficiency in Business*

Under the Small Retrofit Research Area, there are plans to evaluate this program statewide. Tasks to be performed are listed below:

- Multi-Tier Program Structure Assessment: expanded this effort to include process interviews with program implementers and data mining of pilot efforts
- Program Participant and Non-Participants Process Surveys: reviewed the survey’s purpose and further defined the term “non-participant”
- Lighting Impact Evaluation: the scope of this effort is to conduct lighting control metering

Results

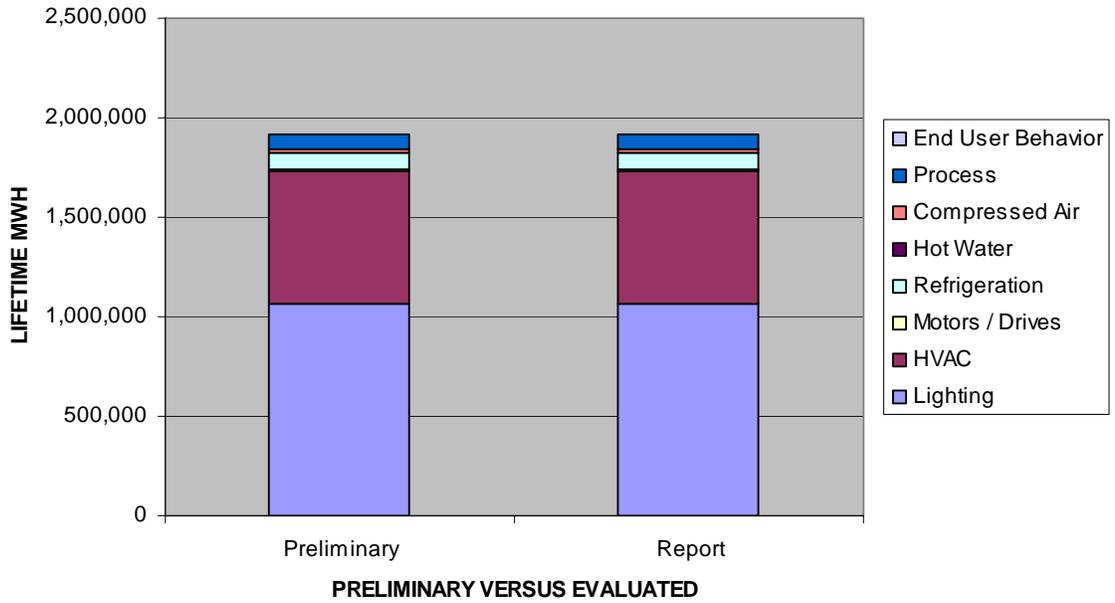
Preliminary and final evaluation impact factors are identical.

Impact by End-Use

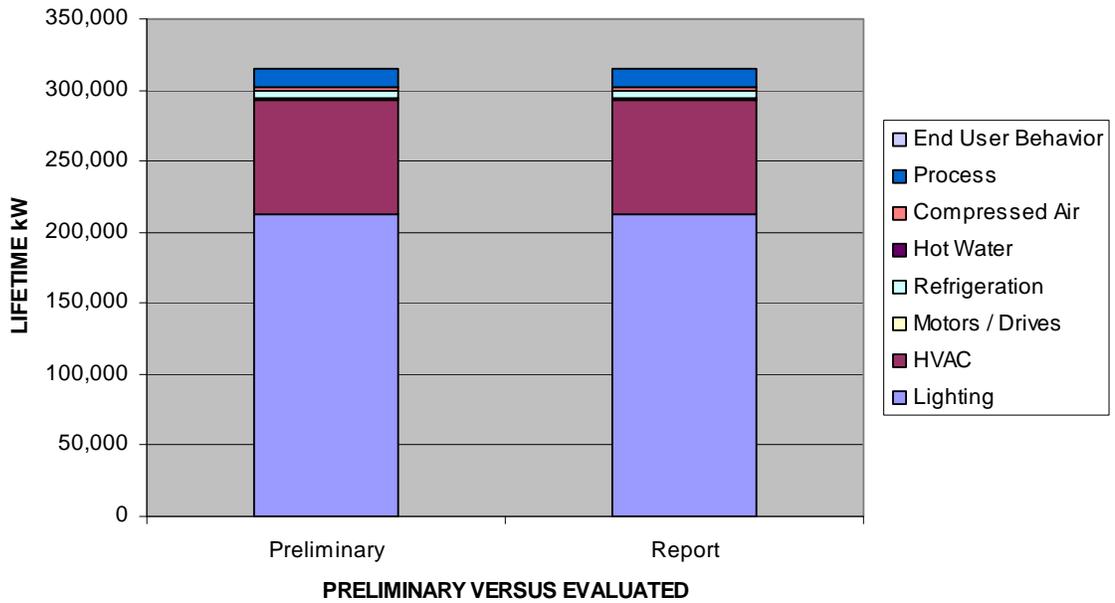
Table 10 and Figures 19-21 tabulate total C&I net savings by end-use.

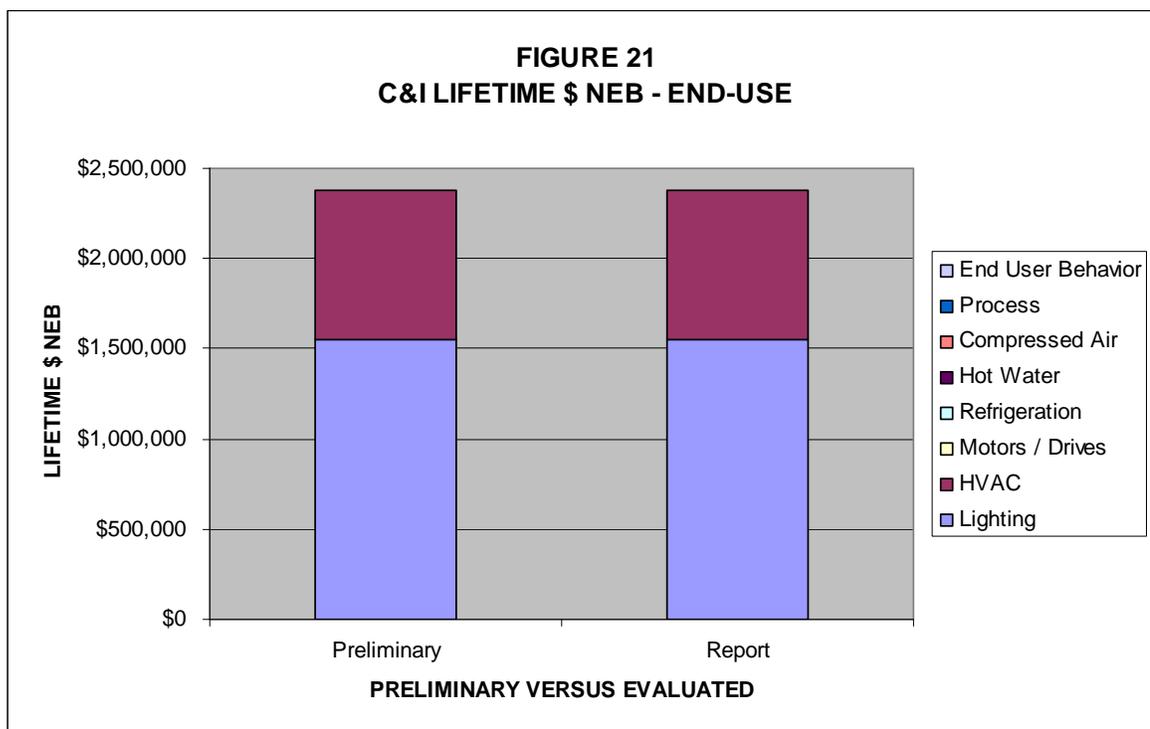
TABLE 10						
IMPACT BY C&I END-USES						
End Use	Lifetime MWH		Lifetime kW		Lifetime \$ NEB	
	Preliminary	Report	Preliminary	Report	Preliminary	Report
Lighting	1,068,510	1,068,510	212,486	212,486	\$1,550,732	\$1,550,732
HVAC	659,050	659,050	80,674	80,674	\$826,997	\$826,997
Motors / Drives	9,496	9,496	1,536	1,536	\$0	\$0
Refrigeration	84,702	84,702	4,992	4,992	\$0	\$0
Hot Water	0	0	0	0	\$0	\$0
Compressed Air	20,688	20,688	2,435	2,435	\$0	\$0
Process	70,422	70,422	12,519	12,519	\$0	\$0
End User Behavior	0	0	0	0	\$0	\$0
Total	1,912,869	1,912,869	314,641	314,641	\$2,377,729	\$2,377,729

**FIGURE 19
C&I LIFETIME MWH - END-USE**



**FIGURE 20
C&I LIFETIME kW - END USE**





SHAREHOLDER INCENTIVE

BACKGROUND

Section 5 of the Guidelines provides distribution companies with direction about the Department's preferred structure for shareholder incentive mechanisms and how to calculate incentives associated with distribution companies' performance under their energy efficiency plans. The Company, with the support of the Settling Parties in D.P.U. 08-117, proposed that the calculation algorithm in D.T.E. 98-100 be modified to address concerns that the low prevailing Treasury bill rates may not provide an appropriate incentive to the electric distribution companies.

The Company's filing in D.P.U. 08-117, as approved by the Department, stated that:

- the Company's 2009 performance incentive will be calculated as five percent of energy efficiency program expenses after taxes;
- the threshold level of performance in 2009 will be set at 75 percent of

design level performance;

- the exemplary level of performance in 2009 will be set at 110 percent of design level performance;
- the total after-tax performance incentive for 2009 shall be equivalent to the product of: (1) the actual 2009 energy efficiency program expenses; (2) the 5 percent performance incentive percentage rate that the distribution companies and the Settling Parties have agreed to; and (3) the percentage of the overall design performance level actually achieved, subject to the threshold and exemplary levels described above; and
- the specific calculation of the total after-tax incentive will be the sum of three incentive components (the savings mechanism, the value mechanism, and performance metrics), with the threshold and exemplary performance levels applied for each of the three components.

Details about each of the incentive mechanism components are provided in Appendix 5.

As designed, the total overall after-tax performance incentive for 2009 does not exceed the product of: (1) the actual 2009 program implementation expenses; (2) the agreed-to five percent incentive rate; and (3) the percentage of the overall design performance level actually achieved, subject to the threshold and exemplary levels described above. Each of the three components of the overall performance incentive (savings mechanism, value mechanism, and performance metrics) is capped consistent with this approach. Because actual expenses are used as the basis for calculation of the performance incentives, the Company can earn an incentive on a given dollar of funding only once, when it is actually spent.

SHAREHOLDER INCENTIVE MECHANISM

The Company's shareholder incentive mechanism for 2009 includes three components (savings mechanism, value mechanism, and performance metrics). Results for each component are discussed below.

Component 1 – Savings Mechanism

The intent of the savings mechanism is to reward the Company for achieving portfolio-level lifetime energy savings, demand savings, and NEBs goals, as defined in NSTAR Electric's 2009 Expanded Energy Efficiency Plan, as filed with the Department on December 1, 2008, and as approved in D.P.U. 08-117. As Appendix 5, Table 3 shows, the potential after-tax shareholder incentive at the design level of performance for the savings mechanism component was \$1,539,613. The actual incentive dollars earned by NSTAR Electric in program year 2009 for this component of the incentive mechanism is \$1,577,614, representing approximately 103 percent of the potential design level incentive for this component of the shareholder mechanism.

Component 2 – Value Mechanism

The value mechanism rewards the Company for achieving positive net benefits through cost-effective program implementation. As shown in Appendix 5, Table 4, the Company exceeded the design level of performance for the value mechanism component of the shareholder incentive. The potential after-tax shareholder incentive at the design level of performance for the value mechanism component was \$1,155,737. The actual incentive dollars earned by NSTAR Electric in program year 2009 for this component of the incentive mechanism is \$1,165,663, representing approximately 101 percent of the potential design level incentive for this component of the shareholder mechanism.

Component 3 - Performance Metrics

Performance metrics reward the Company for supporting program development and implementation or such efforts as conducting outreach, training and market research activities. The Company's performance metrics for 2009 are provided as Appendix 5, Table 5 of this report. The potential after-tax shareholder incentive at the design level of performance for these metrics was \$830,362. The actual incentive dollars earned by NSTAR Electric in program year 2009 for this component of the incentive mechanism is \$892,667, representing approximately 108 percent of the potential design level incentive for this component of the shareholder mechanism. Documentation regarding the level of achievement for each metric is provided at Appendix 7.

SUMMARY OF EARNED SHAREHOLDER INCENTIVES FOR 2009

The potential design level shareholder incentive is calculated by multiplying actual expenses incurred during program year 2009 by 5 percent. The potential threshold level incentive is 75 percent of that amount while the potential exemplary level incentive is 110 percent of that amount. The information provided in Appendix 5, Table 1 shows that the Company's total potential design level incentive in program year 2009 was \$3,525,713 after tax. The results presented in this report document the Company's final calculated earned incentive of \$3,635,944 after tax, representing 103 percent of the available design level incentive for the year.