Program Cost Analysis – Phase 2: Program Level Results

An Addendum to the New Jersey Energy Efficiency Market Potential Assessment

Report Number 1401.2

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INTRODUCTION

Background

In 2012, EnerNOC completed an energy efficiency potential assessment for the New Jersey Board of Public Utilities (BPU) through the project management of Rutgers University (Rutgers). That project quantified the amount of electricity and natural gas savings that are achievable statewide from energy efficiency measures in the residential, commercial, and industrial sectors. The potential study developed two levels of potential to bound the range of what could be accomplished: Achievable Low and Achievable High Potential. The results of the assessment were delivered in a three-volume report, *New Jersey Energy Efficiency Market Potential Assessment*, in October 2012.

The purpose of this supplemental report is to estimate the cost of efficiency programs necessary to deliver those measures and their accompanying savings.

In order to provide timely insight for the BPU's regulatory proceedings under an aggressive program planning schedule, EnerNOC developed an interim estimate of costs at the sector level in April of 2013. That Phase 1 interim estimate broadly grouped all measures into two general program categories at the sector level: residential and non-residential.

The purpose of the Phase 2 work, described in this report, was to refine the cost estimates to a more granular, actionable level. Toward this end, EnerNOC defined two cost categories for each energy efficiency measure identified in the potential assessment: *participant* costs and *program* costs. Participant costs include the incremental costs contributed by participants toward the various measures. Program costs include incentive, implementation, administration, evaluation, sales, education, and marketing costs contributed by program funds. This was done for both the Achievable Low and Achievable High Potential cases reported in the potential assessment. All measures were allocated into program bundles. We then developed strategic and budgetary recommendations at the program level for each bundle. These program-level budget estimates constitute the final deliverable under this engagement.

Report Organization

This report is part of a supplement or addendum to the 2012 New Jersey Energy Efficiency Market Potential Assessment. The full addendum consists of two volumes as follows:

- Program Cost Analysis – Phase 1: Sector Level Results
- Program Cost Analysis – Phase 2: Program Level Results

This document is the second volume: Program Cost Analysis – Phase 2: Program Level Results.

APPROACH

This section describes the analysis approach and the data sources used for this Phase 2 project.

Analysis Approach

To perform the program cost analysis, EnerNOC, along with the staff from BPU and Rutgers, performed the following steps.

1. Held a meeting with the client project team to refine the objectives of the proposed analysis.
2. Gathered the savings and cost data for each measure analyzed in the completed *New Jersey Energy Efficiency Market Potential Assessment* from 2012, including both Achievable Low and Achievable High Potential results. This list was filtered to include only measures that passed the cost-effectiveness screen in the original potential assessment.
3. Smoothed the distribution of measure installations from year to year (and thereby the savings and costs) during the four-year implementation period. This provided a more realistic pattern for savings goals and budgets than the raw outputs of the potential modeling exercise.
4. Bundled and allocated individual measures into 9 residential programs and 10 non-residential programs, based on New Jersey's mix of historic programs, feedback from BPU and Rutgers staff, a review of national program planning and implementation best practices, and our recommendations for future portfolio directions from the 2012 potential assessment.
5. Using EnerNOC's LoadMAP™ Program Design module, allocated the savings and costs of each measure into the appropriate programs and developed program costs based on the individual measure costs.[1] The various program costs (incentives, administration, implementation, etc.), which are expressed as a percentage of the incremental measure cost and in absolute dollars, are based upon historical New Jersey program costs and evaluation reports, current market trends, and other research on program design best practices.

Data Sources

This section details the data sources used in this study.

- **EnerNOC's 2012 *New Jersey Energy Efficiency Market Potential Assessment***: The *New Jersey Energy Efficiency Market Potential Assessment*, performed by EnerNOC in 2012, was the primary data source for this Phase 2 work. It provided the measure-level energy savings and costs that were allocated to the various programs.
- **New Jersey program implementation and evaluation data**: Program reports that outline the available details of energy efficiency programs, program goals, and achievements to date.
- **New Jersey State Energy Goals**
- **New Jersey Clean Energy Library:** The NJOCE website provides a comprehensive library of past research reports, program results, and evaluation studies, which were used to inform program recommendations and provide updated information on measure adoption and penetration. http://www.njcleanenergy.com/library

[1] EnerNOC developed the Load Management Analysis and Planning (LoadMAP™) tool in 2007 to perform the EPRI National Potential Study. Since that time, it has undergone significant refinement to incorporate demand response, distributed energy, supply curve, and program design analysis capabilities, as well as expanded energy efficiency options.

- **EIA Form 861 Data:** This form contains data that utilities are required to report to the U.S. Department of Energy, Energy Information Agency (EIA). Historical program achievements for electric utilities similar to those in New Jersey were used to inform spending allocations, and compare the savings vs. spending for the proposed New Jersey programs to historical results from utilities nationwide.
- **Program Design Best Practice Resources:** Program strategies and details were garnered from a range of industry resources such as the American Council for an Energy Efficient Economy (ACEEE), EE Best Practices, US EPA's ENERGY STAR, Top 10 USA, Northeast Energy Efficiency Partnerships (NEEP), and Association of Energy Services Professionals (AESP) conference papers and presentations.

PROGRAM LIST

Table 3-1 and Table 3-2 show the list of recommended energy efficiency programs, for the residential and non-residential portfolios respectively. Details on the programs — including measures included, projected energy savings, administrative requirements, and program budgets — appear in the appendix to this report.

Table 3-1 Residential Programs

Residential Portfolio	2012 (existing)	EY'13-'14	EY'14-'15	EY'15-'16	EY'16-'17
Res Energy Efficient Products	X	X	X	X	X
Res Low Income "Comfort Partners"	X	X	X	X	X
Res New Construction	X	X	X	X	X
Res Home Perform. w/ ENERGY STAR	X	X	X	X	X
Res HVAC - Electric & Gas	X	X	X	X	X
Res Appliance Recycling	X	X	X	X	X
Res Behavioral Feedback Tools			X	X	X
Res Financing	X	X	X	X	X
Res Marketing	X	X	X	X	X

Table 3-2 Non-Residential Programs

C&I Portfolio	2012 (existing)	EY'13-'14	EY'14-'15	EY'15-'16	EY'16-'17
Bus Smart Start (Prescriptive Rebates)	X	X	X	X	X
Bus Smart Start (Custom Incentives)	X	X	X	X	X
Bus Pay-for-Performance	X	X	X	X	X
Bus New Construction	X	X	X	X	X
Bus Multifamily		X	X	X	X
Bus Local Government Energy Audit	X	X	X	X	X
Bus Direct Install	X	X	X	X	X
Bus Strategic Energy Management			X	X	X
Bus Financing		X	X	X	X
Bus Marketing	X	X	X	X	X
Bus Smart Start (Prescriptive Rebates)	X	X	X	X	X
Bus Smart Start (Custom Incentives)	X	X	X	X	X

PROGRAM COST ANALYSIS RESULTS

To determine the costs associated with the electricity and natural gas program savings across all sectors, we began with the results of the 2012 potential assessment. We grouped all measures in the achievable potential into 9 residential and 10 non-residential programs.

For each of the programs, we developed the following information for the Achievable Low and Achievable High potential cases in the October 2012 potential assessment:

- Incentive budget
- Administrative budget based on number of required administrative full-time employees (FTE) staff at the statewide level
- Implementation budget
- Sales, education, and marketing budget
- Evaluation, measurement, and verification (EM&V) budget
- Cost-effectiveness tests

Costs were developed for each of the four program years, referred to as "Energy Years" to correspond with the new calendar schedule adopted by the New Jersey Office of Clean Energy. For example, EY'13-'14 corresponds to the Energy Year beginning on June 1, 2013 and concluding May 31, 2014. The analysis assumed all measure costs and associated program costs are incurred the year in which a given measure is installed; therefore there is no consideration of commitments and carry-overs from year to year.

Table 4-1 shows the set of assumptions used for the Low Achievable and High Achievable potential cases. For the Achievable High case, greater incentives and budgets will be required to drive the requisite customer engagement. Although the implementation; sales, education and marketing; and EM&V costs are derived using the same percentages in both cases, the Achievable High potential case results in a larger amount of absolute dollars for these program cost elements.

Table 4-1 Program Cost Assumptions for Achievable Low and Achievable High Potential Cases

	Achievable Low Potential	Achievable High Potential
Residential incentives	70% of the measure costs	80% of the measure costs
Non-residential incentives	60% of the measure costs	67% of the measure costs
Portfolio administrative staff	21 FTE	30 FTE
Implementation costs	10% of the incentive budget	10% of the incentive budget
Sales, education and marketing	3% of the incentive budget	3% of the incentive budget
Evaluation, measurement, and verification	3% of total costs	3% of total costs

Finally, for both cases, we assumed a portfolio net-to-gross ratio of 0.85, meaning that free-ridership for delivered measures is 15%.

Results by Potential Case

We next provide results for the two potential cases, Achievable Low and Achievable high. Figure 4-1 and Table 4-2 show the total program costs of the combined electric and gas Achievable Low case. The total program cost grows from about $120 million in EY'13-'14 to $195 million in EY'16-'17.

Figure 4-1 Total Program Costs, Achievable Low Case

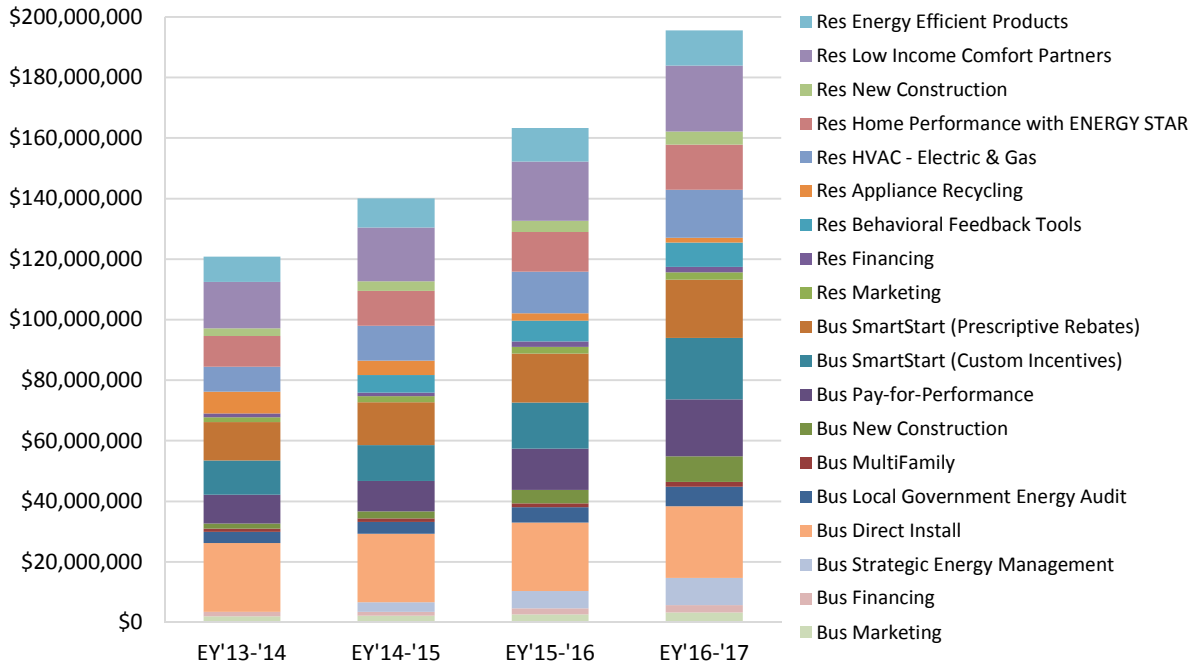


Figure 4-2 shows the net incremental MWh savings for the Achievable Low case, and Figure 4-3 shows the net incremental savings in thousands of therms. Please note that these are *incremental* savings, which indicates they are annual savings in the first year. These figures are different than *cumulative* savings in that they do not consider the ongoing savings impacts of measures through the end of their useful lives.

Figure 4-2 Achievable Low Net Incremental Electricity Savings (MWh)

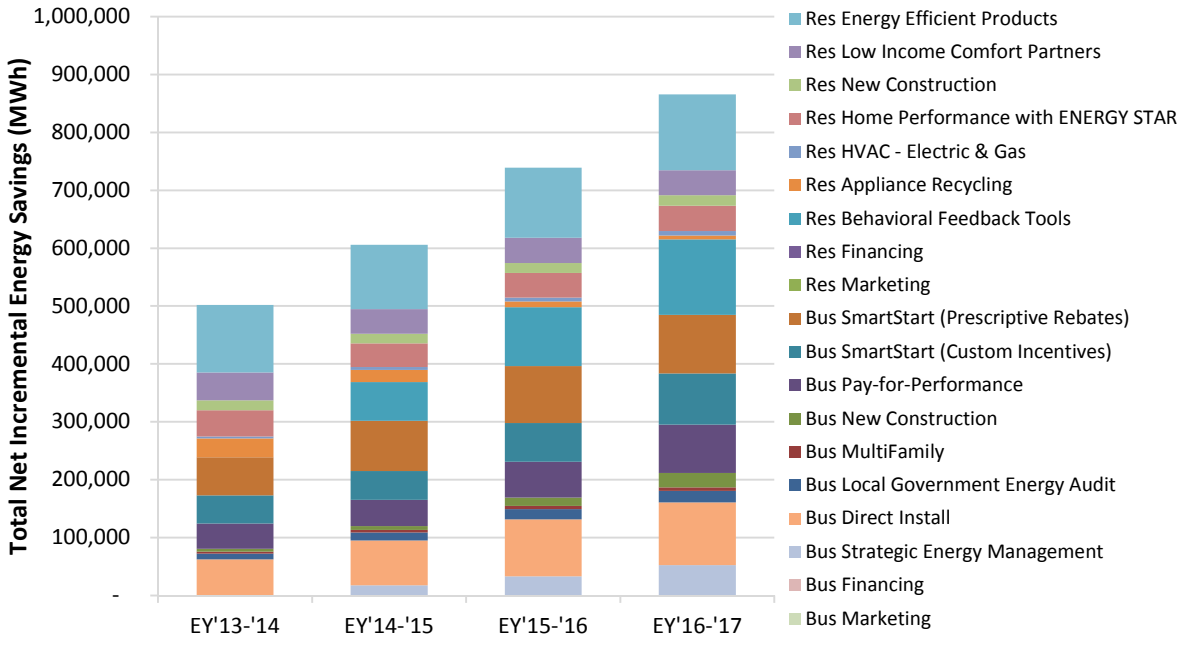


Figure 4-3 Achievable Low Net Incremental Natural Gas Savings (1,000 therms)

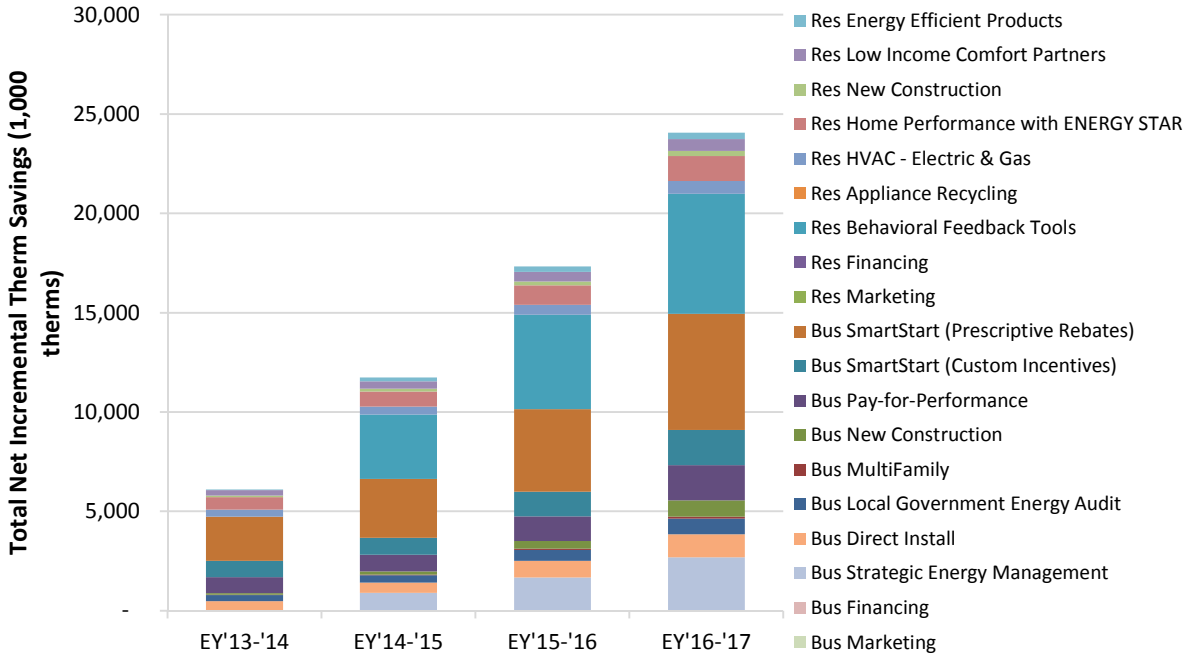


Figure 4-4 and Table 4-3 show the total program costs for the combined electric and gas Achievable High case. The total costs go from $259 million to about $392 million over the EY'13-'14 to EY'16-'17 program cycle.

Figure 4-4 Total Program Costs, Achievable High Case

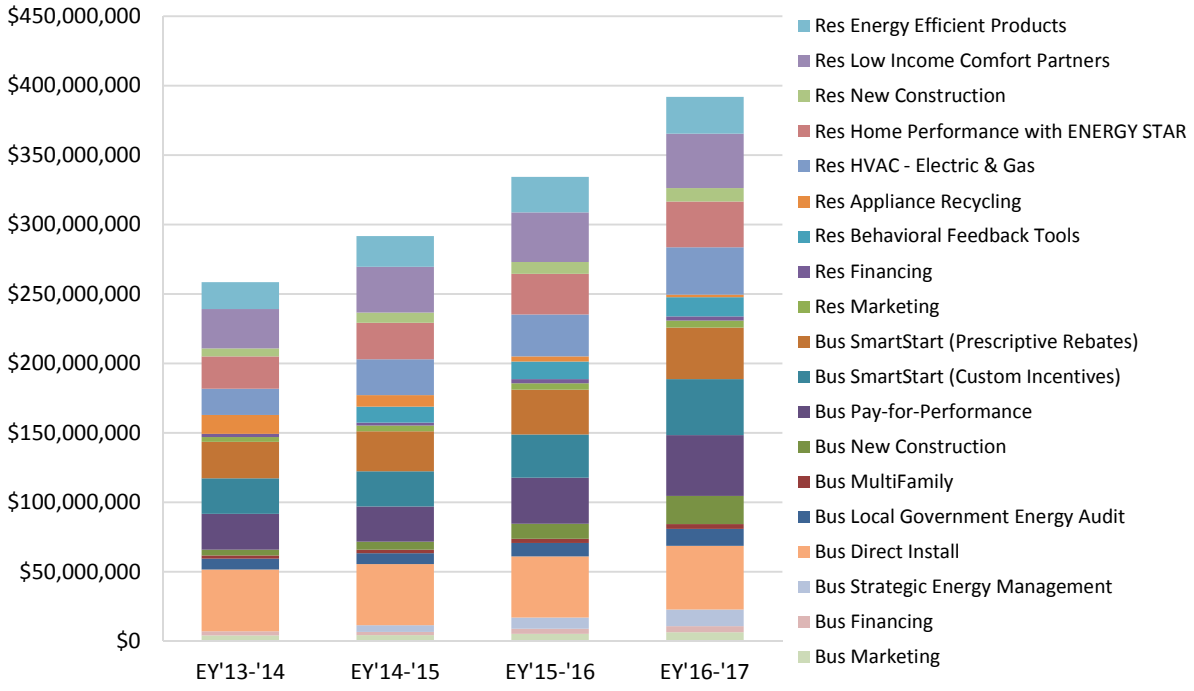


Figure 4-5 shows the net incremental MWh savings in the Achievable High case. Figure 4-6 shows the net incremental savings in thousands of therms. As described above, these are incremental and not cumulative savings.

Figure 4-5 Achievable High Net Incremental Electricity Savings (MWh)

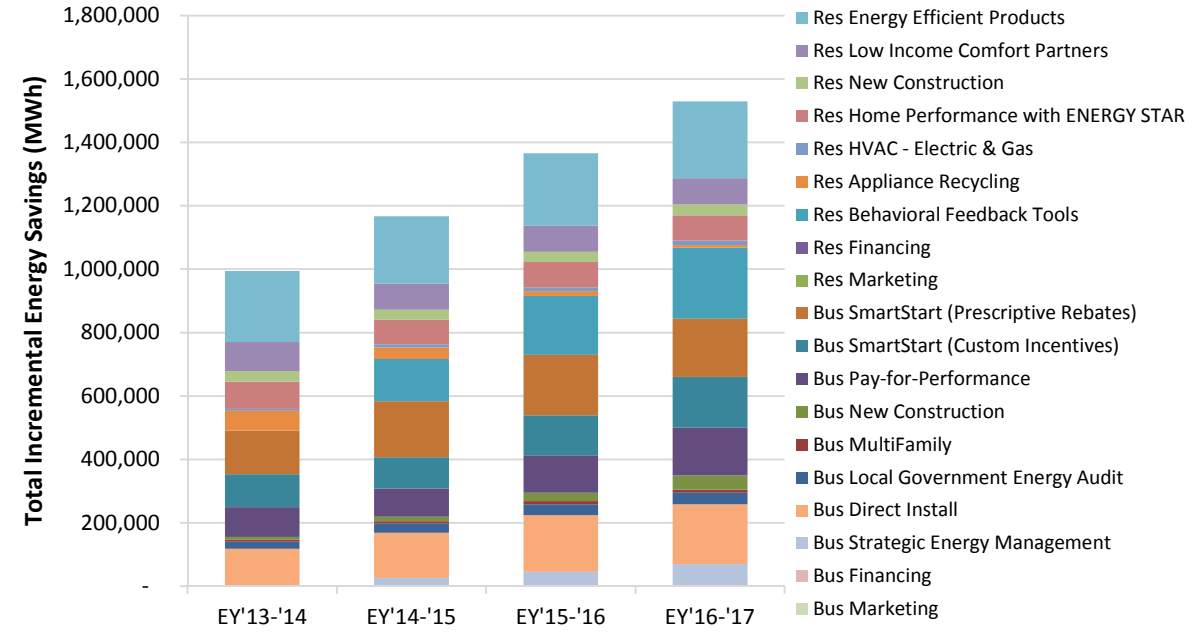


Figure 4-6 Achievable High Net Incremental Natural Gas Savings (1,000 therms)

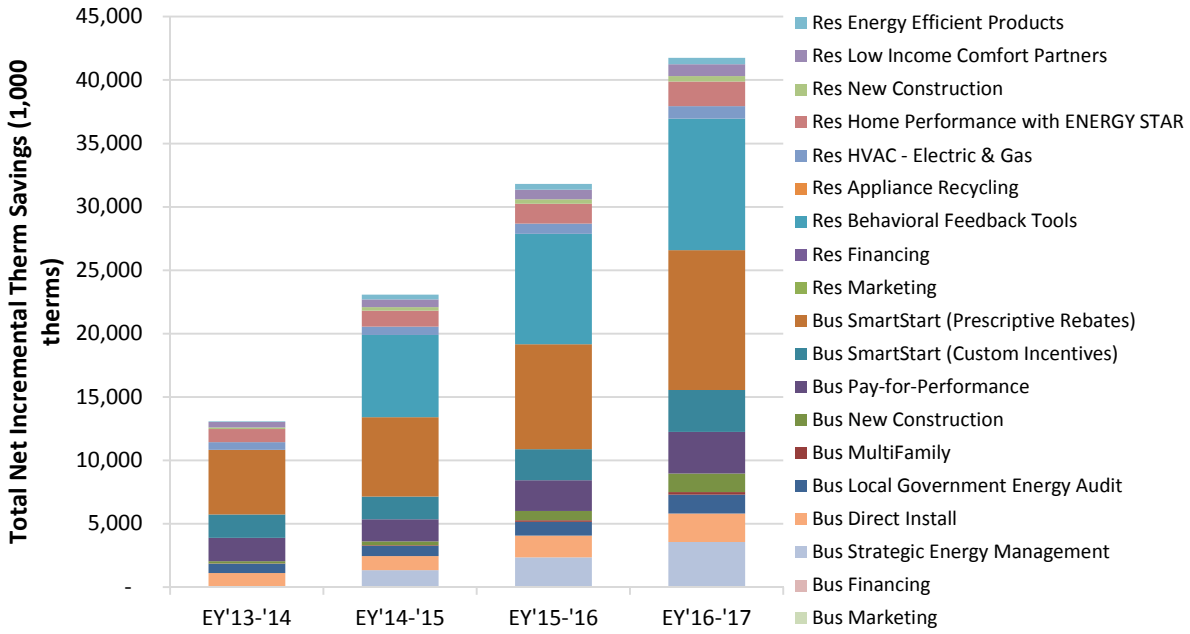


Table 4-2 and Table 4-3 summarize results for the two potential cases.

Table 4-2 New Jersey Energy Efficiency Portfolio Summary, Achievable Low Case

Program	Total Program Costs (000$)				Total Net Incremental Elec Savings (MWh)				Total Net Incremental Gas Savings (1,000 therms)			
	EY'13-'14	EY'14-'15	EY'15-'16	EY'16-'17	EY'13-'14	EY'14-'15	EY'15-'16	EY'16-'17	EY'13-'14	EY'14-'15	EY'15-'16	EY'16-'17
Res Energy Efficient Products	$8,394	$9,652	$11,087	$11,669	116,643	110,942	120,926	130,747	40	203	274	322
Res Low Income Comfort Partners	$15,346	$17,723	$19,584	$21,794	47,961	42,857	43,464	43,154	273	364	474	607
Res New Construction	$2,484	$3,163	$3,680	$4,266	17,502	16,301	17,207	18,714	77	152	192	252
Res Home Performance with ENERGY STAR	$10,145	$11,517	$13,107	$14,896	45,269	40,945	42,690	43,183	629	755	994	1,249
Res HVAC - Electric & Gas	$8,314	$11,542	$13,720	$15,878	3,361	5,321	6,693	8,160	359	402	501	643
Res Appliance Recycling	$7,132	$4,772	$2,447	$1,609	32,417	20,820	10,120	6,285	-	-	-	-
Res Behavioral Feedback Tools	$0	$5,768	$6,901	$8,034	-	66,833	101,524	130,737	-	3,245	4,751	6,051
Res Financing	$1,262	$1,172	$1,747	$1,791	-	-	-	-	-	-	-	-
Res Marketing	$1,654	$2,024	$2,216	$2,444	-	-	-	-	-	-	-	-
Bus SmartStart (Prescriptive Rebates)	$12,672	$14,140	$16,197	$19,194	65,844	86,839	98,580	101,220	2,222	2,958	4,146	5,834
Bus SmartStart (Custom Incentives)	$11,332	$11,852	$15,199	$20,311	48,602	49,878	66,924	88,236	817	855	1,247	1,785
Bus Pay-for-Performance	$9,489	$10,051	$13,595	$18,811	43,640	45,041	61,826	83,596	806	842	1,233	1,764
Bus New Construction	$1,667	$2,357	$4,443	$8,491	4,904	7,131	14,349	25,166	79	154	393	822
Bus MultiFamily	$1,049	$1,133	$1,346	$1,582	3,173	3,876	5,311	6,021	16	28	58	102
Bus Local Government Energy Audit	$3,669	$3,955	$5,012	$6,452	10,375	14,079	17,643	19,546	313	376	546	785
Bus Direct Install	$22,743	$22,631	$22,635	$23,709	62,124	77,379	98,882	108,649	475	517	840	1,163
Bus Strategic Energy Management	$0	$3,185	$5,716	$8,980	-	17,529	32,727	52,235	-	896	1,676	2,684
Bus Financing	$1,542	$1,266	$2,043	$2,362	-	-	-	-	-	-	-	-
Bus Marketing	$1,979	$2,179	$2,624	$3,326								
Residential Total:	$54,731	$67,333	$74,488	$82,381	263,154	304,020	342,624	380,980	1,378	5,120	7,185	9,125
Non-Residential Total:	$66,143	$72,749	$88,809	$113,218	238,661	301,752	396,243	484,669	4,727	6,626	10,139	14,940
Portfolio Total:	**$120,874**	**$140,082**	**$163,297**	**$195,600**	**501,815**	**605,773**	**738,867**	**865,649**	**6,105**	**11,746**	**17,324**	**24,065**

Table 4-3 New Jersey Energy Efficiency Portfolio Summary, Achievable High Case

Program	Total Program Costs (000$)				Total Net Incremental Elec Savings (MWh)				Total Net Incremental Gas Savings (1,000 therms)			
	EY'13-'14	EY'14-'15	EY'15-'16	EY'16-'17	EY'13-'14	EY'14-'15	EY'15-'16	EY'16-'17	EY'13-'14	EY'14-'15	EY'15-'16	EY'16-'17
Res Energy Efficient Products	$19,208	$22,192	$25,385	$26,418	224,040	212,619	228,111	242,141	41	375	453	508
Res Low Income Comfort Partners	$28,528	$32,921	$35,808	$39,194	92,004	82,779	83,437	82,525	439	606	754	942
Res New Construction	$5,660	$7,334	$8,456	$9,622	33,266	31,017	32,348	34,512	132	284	340	427
Res Home Performance with ENERGY STAR	$23,255	$26,249	$29,357	$32,844	85,709	77,695	79,735	80,060	1,036	1,245	1,574	1,946
Res HVAC - Electric & Gas	$18,823	$25,867	$30,208	$34,231	6,358	9,744	11,906	14,122	600	666	800	987
Res Appliance Recycling	$13,645	$8,274	$3,540	$1,858	62,320	36,303	14,699	7,155	-	-	-	-
Res Behavioral Feedback Tools	$0	$11,485	$12,618	$13,751	-	133,667	186,127	224,121	-	6,489	8,711	10,373
Res Financing	$2,284	$2,105	$3,099	$3,121	-	-	-	-	-	-	-	-
Res Marketing	$3,424	$4,180	$4,511	$4,888	-	-	-	-	-	-	-	-
Bus SmartStart (Prescriptive Rebates)	$26,235	$28,706	$32,238	$37,227	137,817	176,777	190,716	183,954	5,079	6,256	8,285	11,018
Bus SmartStart (Custom Incentives)	$25,680	$25,236	$31,293	$40,230	103,298	98,389	126,559	159,457	1,864	1,778	2,448	3,313
Bus Pay-for-Performance	$25,904	$25,428	$33,009	$43,746	94,225	89,689	117,473	151,356	1,835	1,746	2,418	3,270
Bus New Construction	$4,027	$5,724	$10,820	$20,195	9,336	13,457	26,675	45,032	166	305	742	1,477
Bus MultiFamily	$2,390	$2,581	$3,083	$3,595	5,887	7,021	9,363	10,202	38	62	121	199
Bus Local Government Energy Audit	$7,679	$7,909	$9,763	$12,158	22,467	29,213	34,808	36,127	719	791	1,082	1,470
Bus Direct Install	$44,468	$43,950	$43,970	$45,903	117,946	142,714	178,421	188,717	1,130	1,122	1,724	2,248
Bus Strategic Energy Management	$0	$4,726	$7,993	$12,042	-	26,293	45,818	69,646	-	1,344	2,347	3,579
Bus Financing	$3,046	$2,377	$3,751	$4,198	-	-	-	-	-	-	-	-
Bus Marketing	$4,242	$4,478	$5,315	$6,603	-	-	-	-	-	-	-	-
Residential Total:	$114,826	$140,607	$152,982	$165,927	503,697	583,824	636,365	684,638	2,248	9,665	12,632	15,182
Non-Residential Total:	$143,671	$151,116	$181,236	$225,896	490,976	583,553	729,834	844,490	10,831	13,405	19,167	26,575
Portfolio Total:	**$258,497**	**$291,723**	**$334,218**	**$391,824**	**994,673**	**1,167,376**	**1,366,199**	**1,529,128**	**13,079**	**23,070**	**31,799**	**41,756**

Cost-Effectiveness

With the resulting program savings and budgets, we performed the industry standard cost-effectiveness tests to gauge the economic merits of the portfolio. The definitions for the four standard tests most commonly used in EE program design are described below. Each test uses its own unique perspectives and definitions to compare the benefits of the EE programs to their costs — all communicated in terms of net present value of future cash flows.

- **Total Resource Cost test (TRC).** The benefits in this test are the lifetime avoided energy costs and avoided capacity costs. The costs in this test are the incremental measure costs plus all administrative costs spent by the program administrator.
- **Program Administrator/Utility Cost Test (PA/UCT).** The benefits in this test are the lifetime avoided energy costs and avoided capacity costs, the same as the TRC benefits. The costs in this test are the program administrator's incentive costs and administrative costs, but not the participant's portion of the measure costs.
- **Participant Cost Test (PCT).** The benefits in this test are the lifetime value of retail rate savings (which is another way of saying "lost utility revenues"). The costs in this test are the net costs seen by the participant; in other words, the incremental measure costs minus the incentives paid by the program.
- **Rate Impact Measure test (RIM).** The benefits of the RIM test are the same as the TRC benefits. The RIM costs are the same as the UCT, except for the addition of lost revenue. This test attempts to show the effects that EE programs will have on rates, which is almost always to raise them on a per unit basis. Thus, costs typically outweigh benefits from the point of view of this test, but the assumption is that absolute energy use decreases to a greater extent than per-unit rates are increased — resulting in lower average utility bills.

The cost-effectiveness results for the Achievable Low case are shown in Table 4-4, indicating lifetime TRC benefits of approximately $1.1 billion dollars and costs of $0.8 billion dollars for a TRC ratio of 1.35.

Table 4-4 Achievable Low Case Cost-Effectiveness summary

	TRC Ratio	TRC Benefits	TRC Costs	PA/UCT Ratio	PCT Ratio	RIM Ratio
Res Energy Efficient Products	2.30	$132,777,772	$57,640,573	3.69	15.94	0.36
Res Low Income Comfort Partners	0.83	$54,417,820	$65,642,085	.83	-	0.28
Res New Construction	1.23	$23,053,318	$18,753,983	1.93	8.51	0.34
Res Home Performance with ENERGY STAR	1.02	$69,515,766	$68,177,272	1.59	6.79	0.35
Res HVAC - Electric & Gas	0.48	$33,230,523	$68,678,783	.77	2.07	0.39
Res Appliance Recycling	1.55	$22,628,596	$14,574,588	1.55	-	0.42
Res Behavioral Feedback Tools	1.22	$21,736,208	$17,836,279	1.22	-	0.35
Res Financing	-	$0	$5,255,220	-	-	-
Res Marketing	-	$0	$7,348,343	-	-	-
Bus SmartStart (Prescriptive Rebates)	1.68	$175,990,233	$105,063,754	3.21	8.51	0.37
Bus SmartStart (Custom Incentives)	1.40	$135,416,632	$96,568,715	2.63	7.20	0.37
Bus Pay-for-Performance	1.47	$124,595,696	$84,919,025	2.74	7.53	0.38
Bus New Construction	1.41	$38,487,278	$27,278,246	2.64	7.10	0.38
Bus MultiFamily	1.09	$8,942,671	$8,214,159	1.99	6.01	0.35
Bus Local Government Energy Audit	1.53	$29,583,318	$19,325,995	1.77	27.48	0.35
Bus Direct Install	1.85	$173,443,644	$93,955,338	2.13	33.70	0.36
Bus Strategic Energy Management	1.31	$20,035,270	$15,245,908	1.31	-	0.33
Bus Financing	-	$0	$6,336,294	-	-	-
Bus Marketing	-	$0	$8,878,562	-	-	-
Residential Total:	1.10	$357,360,004	$323,907,127	1.45	10.94	0.34
Non-Residential Total:	1.52	$706,494,742	$465,785,997	2.36	10.26	0.37
Portfolio Total:	**1.35**	**$1,063,854,746**	**$789,693,125**	**1.95**	**10.48**	**0.36**

The cost-effectiveness results for the Achievable High case are given in Table 4-5. This case has lifetime TRC benefits of approximately $2.0 billion dollars and costs of $1.5 billion dollars for a TRC ratio of 1.35.

Table 4-5 Achievable High Case Cost-Effectiveness Summary

	TRC Ratio	TRC Benefits	TRC Costs	PA/UCT Ratio	PCT Ratio	RIM Ratio
Res Energy Efficient Products	2.18	$248,239,240	$113,952,120	3.02	20.37	0.35
Res Low Income Comfort Partners	0.84	$101,246,212	$120,396,638	0.84	-	0.28
Res New Construction	1.21	$42,641,334	$35,207,330	1.56	13.62	0.33
Res Home Performance with ENERGY STAR	0.99	$124,898,389	$126,004,751	1.27	10.86	0.33
Res HVAC - Electric & Gas	0.47	$58,294,722	$123,826,255	0.61	3.23	0.36
Res Appliance Recycling	1.57	$39,454,639	$25,113,282	1.57	-	0.42
Res Behavioral Feedback Tools	1.21	$39,687,594	$32,689,400	1.21	-	0.35
Res Financing	-	$0	$9,344,384	-	-	-
Res Marketing	-	$0	$14,993,210	-	-	-
Bus SmartStart (Prescriptive Rebates)	1.78	$342,768,204	$192,296,771	3.13	10.12	0.37
Bus SmartStart (Custom Incentives)	1.41	$261,391,105	$185,058,608	2.43	8.13	0.37
Bus Pay-for-Performance	1.46	$241,764,623	$165,461,113	2.15	10.91	0.36
Bus New Construction	1.37	$70,458,744	$51,540,463	2.01	10.02	0.37
Bus MultiFamily	1.09	$16,326,950	$14,997,338	1.59	8.59	0.34
Bus Local Government Energy Audit	1.61	$58,114,373	$36,175,191	1.76	43.74	0.35
Bus Direct Install	1.82	$316,770,647	$173,641,699	2.00	50.15	0.35
Bus Strategic Energy Management	1.31	$27,757,055	$21,140,714	1.31	-	0.33
Bus Financing	-	$0	$11,769,833	-	-	-
Bus Marketing	-	$0	$18,153,854	-	-	-
Residential Total:	1.09	$654,462,129	$601,527,371	1.29	16.54	0.33
Non-Residential Total:	1.53	$1,335,351,700	$870,235,583	2.16	12.78	0.36
Portfolio Total:	**1.35**	**$1,989,813,829**	**$1,471,762,954**	**1.77**	**13.81**	**0.35**

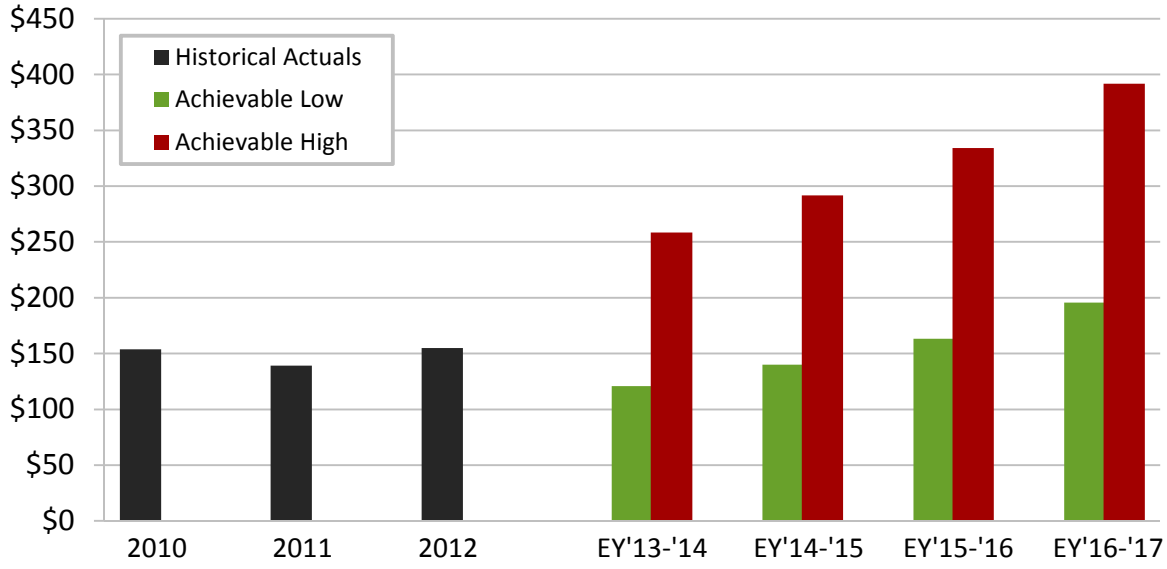
BENCHMARKING

Comparison to Historical Data

This section compares the program costs and potential energy savings of the sector-level portfolios developed in this report with historical levels of New Jersey program energy savings and budget expenditures.

Figure 5-1 shows the total program costs for New Jersey's historical programs, as well as the projected costs of the Achievable Low and Achievable High case program designs. If we were to project a trend from past program budgets into the future, it would fall in the middle of the range indicated by the Achievable Low and Achievable High budget projections.

Figure 5-1 Total Program Costs, Historical and Projected ($ millions)



In the same way, Figure 5-2 and Figure 5-3 show the historical and projected energy savings for electricity and natural gas, respectively. This graphs suggests that the proposed electric and natural gas portfolios would tend to prescribe more aggressive savings goals than have been achieved previously, but still within the given range of achievable potential.

Figure 5-2 Net Incremental Electricity Savings, Historical and Projected (GWh)

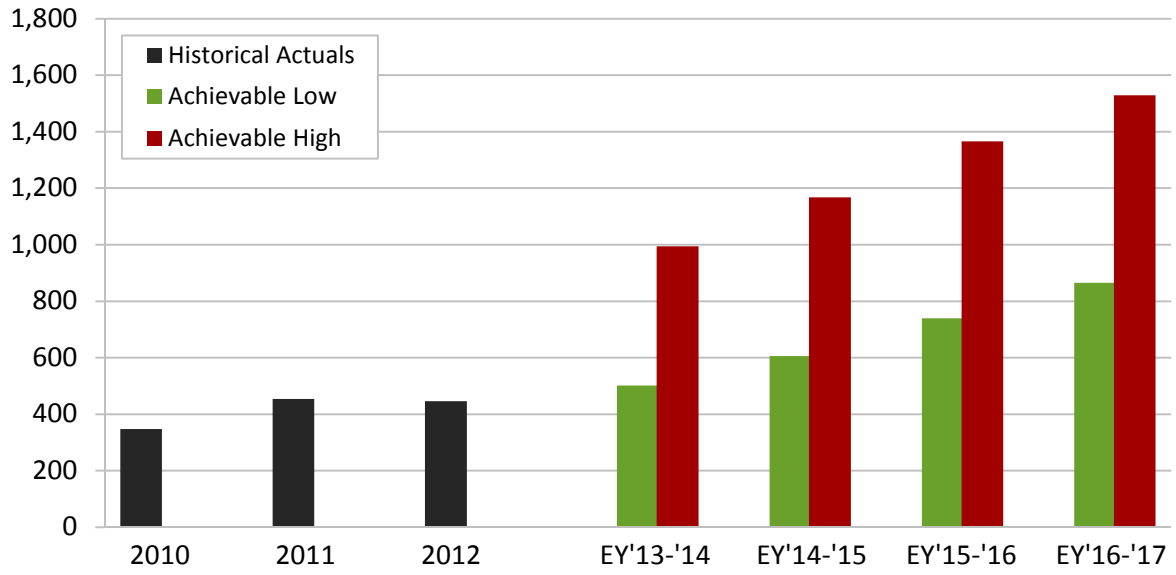
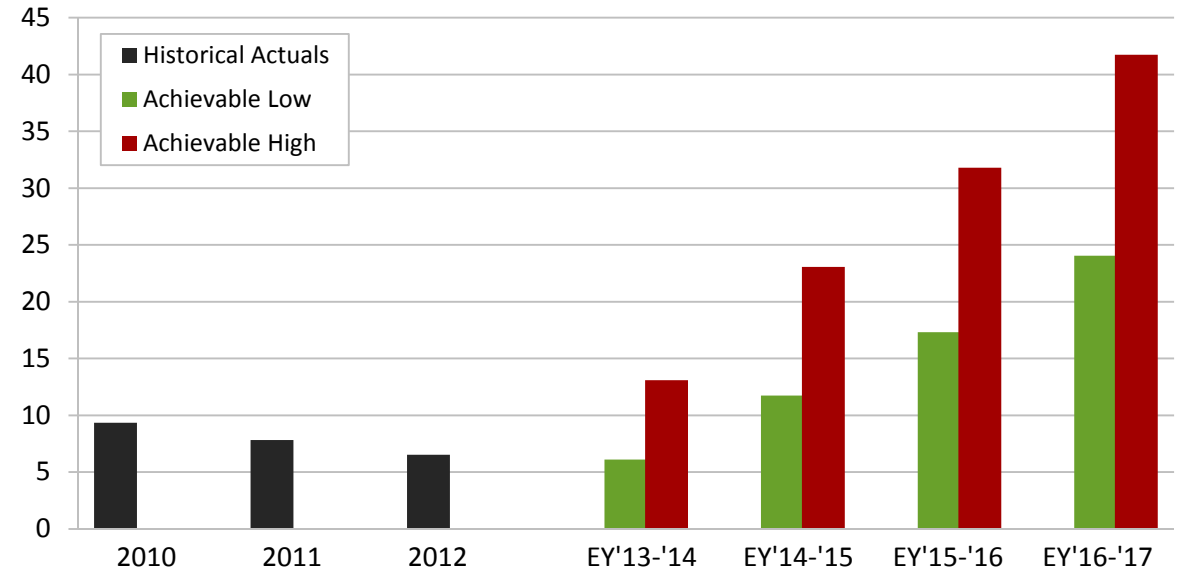


Figure 5-3 Net Incremental Natural Gas Savings, Historical and Projected (million therms)



Key Portfolio Metrics

From the portfolio projections, we calculated a series of key metrics that are useful for normalizing and comparing the performance and cost of DSM programs. The first metric is DSM spending as a percentage of total retail revenues. The second is cost per first-year energy savings, also referred to as cost per incremental or annual energy savings. This should not be confused with lifetime or levelized cost of energy savings. The third is incremental or first-year energy savings as a percentage of total baseline load. These results appear in Table 5-1 though Table 5-4.

Table 5-1 Electric Portfolio Key Metrics, Achievable Low Case

Electric Achievable Low	Historic Actuals			Projections			
	2010	2011	2012 (through Q3)	EY'14	EY'15	EY'16	EY'17
DSM Spending (% of Revenue)	1.07%	1.07%	1.23%	0.95%	1.09%	1.26%	1.52%
$ per first-year-kWh	$0.36	$0.27	$0.31	$0.21	$0.19	$0.18	$0.18
Net Incremental Savings (% of Sales)	0.44%	0.59%	0.59%	0.67%	0.82%	1.01%	1.19%

Table 5-2 Natural Gas Portfolio Key Metrics, Achievable Low Case

Natural Gas Achievable Low	Historic Actuals			Projections			
	2010	2011	2012 (through Q3)	EY'14	EY'15	EY'16	EY'17
DSM Spending (% of Revenue)	0.56%	0.35%	0.34%	0.32%	0.48%	0.59%	0.73%
$ per first-year-therm	$3.14	$2.34	$2.70	$2.72	$2.08	$1.75	$1.57
Net Incremental Savings (% of Sales)	0.20%	0.17%	0.14%	0.13%	0.25%	0.37%	0.51%

Table 5-3 Electric Portfolio Key Metrics, Achievable High Case

Electric Achievable High	Historic Actuals			Projections			
	2010	2011	2012 (through Q3)	EY'14	EY'15	EY'16	EY'17
DSM Spending (% of Revenue)	1.07%	1.07%	1.23%	2.03%	2.25%	2.57%	3.05%
$ per first-year-kWh	$0.36	$0.27	$0.31	$0.22	$0.21	$0.20	$0.21
Net Incremental Savings (% of Sales)	0.44%	0.59%	0.59%	1.33%	1.59%	1.87%	2.10%

Table 5-4 Natural Gas Portfolio Key Metrics, Achievable High Case

Natural Gas Achievable High	Historic Actuals			Projections			
	2010	2011	2012 (through Q3)	EY'14	EY'15	EY'16	EY'17
DSM Spending (% of Revenue)	0.56%	0.35%	0.34%	0.68%	1.01%	1.19%	1.45%
$ per first-year-therm	$3.14	$2.34	$2.70	$2.73	$2.23	$1.94	$1.79
Net Incremental Savings (% of Sales)	0.20%	0.17%	0.14%	0.28%	0.50%	0.68%	0.89%

Comparison to Industry Benchmarks

This section compares the three key metrics described in the previous section to electric DSM program data published in EIA Form 861. The complete list of utilities tracked by EIA Form 861 was filtered to obtain a subset of peers with spending levels similar to the New Jersey programs. The criteria selected produced a peer group of U.S. utilities with annual electric DSM spending of $50 million or greater in at least one year during the period 2007–2011. This peer group includes those listed in Table 5-5.

Table 5-5 Electric DSM Program Industry Benchmark Peer Group

• Alabama Power Co	• Northern States Power Co
• Arizona Public Service Co	• Northern States Power Co - Minnesota
• Baltimore Gas & Electric Co	• NYSERDA
• Commonwealth Edison Co	• Ohio Power Co
• Connecticut Light & Power Co	• Pacific Gas & Electric Co
• Consolidated Edison Co-NY Inc	• PacifiCorp
• Detroit Edison Co	• PECO Energy Co
• Duke Energy Carolinas, LLC	• PPL Electric Utilities Corp
• Central Illinois Light Co	• Progress Energy Carolinas Inc
• Energy Trust of Oregon	• Progress Energy Florida Inc
• Florida Power & Light Co	• Public Service Co of Colorado
• Florida Power Corp	• Public Service Elec & Gas Co
• Focus on Energy	• Puget Sound Energy Inc
• Interstate Power and Light Co	• San Diego Gas & Electric Co
• Massachusetts Electric Co	• Southern California Edison Co
• New York Power Authority	• Tennessee Valley Authority

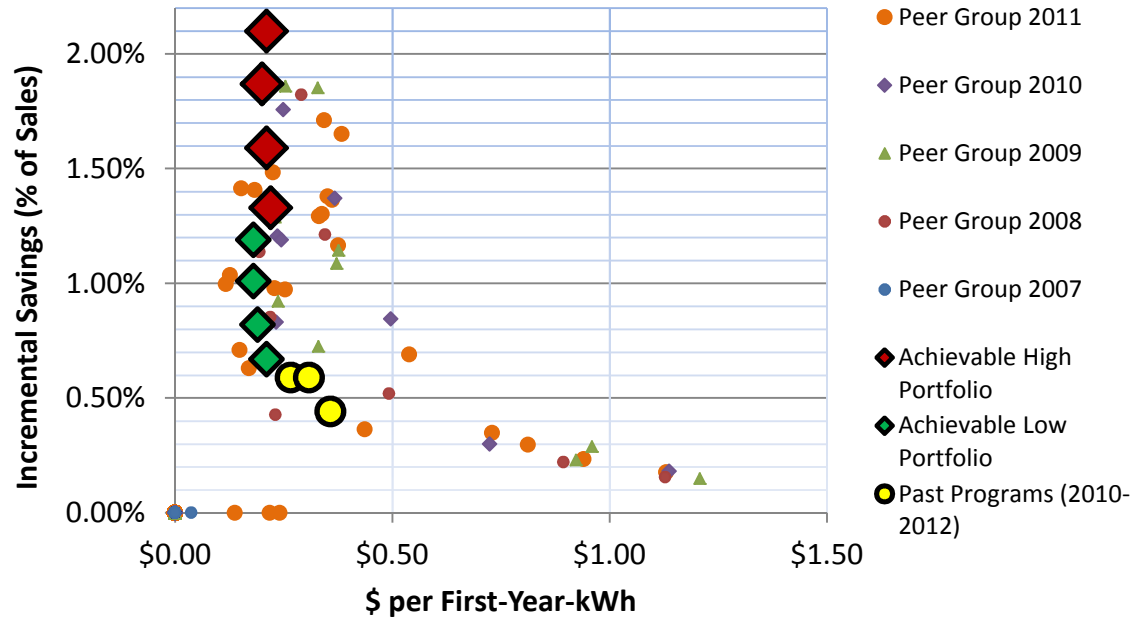
Note that this section only pertains to electric programs, as EIA does not track natural gas DSM programs in this manner.

Figure 5-4 plots the DSM spending of each utility in the data set as a percentage of total retail revenues on the horizontal axis, and the incremental energy savings as a percentage of total sales on the vertical axis. Results closer to the top left of the chart represent higher performing programs. Each year of DSM programs is shown with a separate color/shape on the scatter plot. The larger shapes outlined in black represent New Jersey's historical portfolio and the two achievable potential cases.

Figure 5-4 Benchmarking: DSM Savings as % of Sales vs. DSM Spending as % of Revenue

Figure 5-5 charts the cost per first-year kWh on the horizontal axis, and incremental energy savings as a percentage of total sales on the vertical axis. Note that this first-year cost is a new, incremental cost, not cumulative, and is not a lifetime or levelized cost of energy savings.

Figure 5-5 Benchmarking: DSM Savings as % of Sales vs. Cost per First-Year kWh



This benchmarking analysis indicates that the portfolios presented in this report are highly productive in terms of savings achieved per dollar spent relative to the other programs in the peer group. One reason for this trend is that the peer data is primarily for electric-only portfolios, while the New Jersey data is for a combined electric and natural gas portfolio. Such a combined program has inherent efficiencies and sharing of program costs to the different fuel savings. Even considering these efficiencies and shared costs, the graphs suggests that very few historic programs have been able to achieve savings as large and as cheaply as the Achievable High case.

Table 5-6 shows the portion of program budgets that are spent directly on customer incentives. Robust incentive spending within a portfolio shows that programs are striving to put customers first and encourage savings growth and measure adoption. On the other hand, reasonable non-incentive expenses are also necessary to create an administrative backbone that allows effective recruitment, delivery, and ongoing feedback and evaluation of the programs. A careful balance of the two spending categories is essential to the achievement of program goals.

According to the table, approximately 85% of 2012 expenditures were for incentives and 15% were for non-incentives. The average portion of incentive spending for the EIA peer group shows significantly less incentive spending at about 55%. The peer group programs have a wide range of values, depending on the program structure and goals, generally falling into a range of 30% to 90%. In our proposed portfolios here, we have recommended that approximately 70% to 85% of the budget be allocated to incentives.

Table 5-6 Customer Incentives as a Percent of Program Budget

	2012 NJOCE Budgets	**Proposed Achievable Low Case**	**Proposed Achievable High Case**	**Average of U.S. Electric DSM programs with >$50M annual spend** (EIA form 861)
Residential Incentives as % of Residential Budget	84.9%	72.9%	74.5%	56.1%
Non-Residential Incentives as % of Non-Residential Budget	86.6%	83.6%	84.2%	54.9%

CONCLUSIONS AND RECOMMENDATIONS

This analysis estimates the program costs to achieve the savings identified in the *New Jersey Energy Efficiency Market Potential Assessment*. These cost estimates show spending in EY '13-'14 of $120.8 million for the Achievable Low case and $258.5 million for the Achievable High case. By the end of the four-year program cycle, this budget range is $195.6 million for Achievable Low and $391.8 million for Achievable High.

In the Oct 2012 potential assessment, we provided a number of recommendations to enhance measure savings. Here, we provide a list of recommendations targeted at program costs and the financial aspects of portfolio delivery that we think will enhance the performance of New Jersey's energy-efficiency programs in the coming implementation cycle.

- **Increase focus on business programs:** Our study shows that the majority of energy efficiency potential exists in the commercial and industrial sectors. Historically, 60–70% of the New Jersey EE budgets have been allocated to residential programs. The NJOCE should consider increasing program efforts in the C&I sectors, not only to harvest larger EE savings, but to increase business competitiveness and decrease operating costs. Additionally, these sectors offer larger projects, which can be bundled more easily with creative financing and incentives.
- **Drive toward market transformation programs**: Shifting more portfolio dollars into upstream programs rather than those with direct customer contact is a way to reduce administrative burden and stretch dollars further to broadly deliver more savings. Customer touches and boots-on-the-ground program delivery are vital to implementation success, so this is not a recommendation to completely eliminate them, but is rather a matter of degree. Working through upstream channels and leveraging the NJOCE's cross-cutting vantage point with distributors, retailers, trade allies, or behavioral change programs can greatly increase the market share of energy-efficient products and enhance program effectiveness.
- **Downplay low-TRC measures.** For measures with lower TRCs, decrease incentive amounts and instead migrate to financing or loan options. Consider removing these measures from the portfolio entirely. Programs that appear to have cost-effectiveness challenges due to such measures include HVAC, Low Income, Home Performance, and Local Government Audit. For example, if a certain measure has a very burdensome cost and low savings, the Low Income program could discontinue 100% subsidization of it and consider paying a partial incentive or offering a low- or no-interest loan through the financing program.
- **Enhance transparency and communication between NJOCE and Utility Programs.** It is not easily discernible which electric and gas utilities offer programs independently of the NJOCE's programs, and the extent to which they are complementary, duplicative, or neither. There are already efforts underway to streamline the various programs and coordinate the efforts, so this need is known and steps are being taken to address it. Consolidation of all New Jersey programs under the auspices of a single organization would greatly benefit the customers and enhance the effectiveness of all program activities and marketing efforts. This would be a worthwhile goal for the NJOCE. The programs could be co-branded by all participating utilities so the customer relationship was still owned by the particular delivery utility.
- **Capitalize on joint electric and natural gas programs**: Because the New Jersey Office of Clean Energy manages the statewide energy efficiency portfolio in all New Jersey electric and natural gas utility territories, there is a good opportunity to create cross-cutting

programs with uniform marketing messages for combined electric and natural gas savings opportunities for customers. This allows for administrative savings and cost sharing.

- **Adjust budget priorities:** Historically, New Jersey budgets have been highly weighted toward providing customer incentives. Robust incentive spending within a portfolio shows that programs are striving to put customers first and encourage savings growth and measure adoption. On the other hand, reasonable non-incentive expenses are also necessary to create an administrative backbone that allows effective recruitment, marketing, delivery, and ongoing feedback and evaluation of the programs. A careful balance of the two spending categories is essential to the achievement of program goals. The following two sub-bullets are related to this issue.
    - **Invest in marketing as strategy.** Marketing should be seen as a critical, unifying effort that rallies programs and streamlines the customer experience. This should not be viewed simply as a cost center that creates a few scattered print advertisements and radio spots. The website, messaging, customer service – even the downloadable rebate forms – the very DNA of each and every program should revolve around a marketing vision and mission that is intentional, coordinated, and integrated throughout the portfolio from top to bottom
    - **Increase focus on systematic EM&V:** Evaluation, measurement, and verification are essential to understanding how programs are performing and enabling future improvements. A systematic data tracking system should be put in place as a foundation for EM&V efforts. Third-party, independent organizations should be retained to perform EM&V.
- **Consider new program strategies:** All of the programs in the portfolio are constantly adapting to changing market conditions in real time, so there is not much to be said as far as a recommendation here. In the appendix to this report, we describe several recommendations for best practices in program strategy and delivery. In particular, however, there are three new programs that we recommend investigating that have not been in the historic NJOCE portfolio: Residential Behavioral Feedback Tools, Business Strategic Energy Management, and a re-incarnation of a Financing program to cut across all programs. Please see the appendix below for details.

Program Detail Appendix

Program Descriptions, Savings, and Budgetary Detail

Report Number 1401.2

RESIDENTIAL ENERGY EFFICIENT PRODUCTS

Program Description

The Residential Efficient Products program is a program in which NJOCE will encourage and assist residential customers in improving the energy efficiency of their homes through a broad range of energy efficient products that are commonly purchased in retail settings.

The program will primarily focus on efficient lighting, appliances, pool equipment, electronics, ceiling fans, etc. The program will provide upstream "buydowns" and downstream cash rebates to help defray the cost of high-efficiency models of common home equipment. The buydowns will occur at the manufacturer, distributor, or retailer level so that customers pay a lower price at the point of purchase without needing to apply for a rebate. The upstream buydown activity is a component of the program's focus on market transformation that will increase the demand for high efficiency products, and eventually decrease the availability of lower-efficiency products in the marketplace. For measures that are purchased less frequently or have a relatively large capital cost, a prescriptive rebate form will provide a more deliberate cash incentive for customers. Measures will be assigned on a case-by-case basis to an upstream buydown approach or a downstream, direct rebate approach, based on the most suitable approach.

Projected Energy Savings

The estimated energy savings are given in terms of annual GWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
Measure	**2013**	**2014**	**2015**	**2016**
Electricity (GWh)	116.64	110.94	120.93	130.75
Natural Gas (1,000 Therms)	40.46	202.98	273.59	322.01

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
Measure	**2013**	**2014**	**2015**	**2016**
Electricity (GWh)	224.04	212.62	228.11	242.14
Natural Gas (1,000 Therms)	40.58	375.23	453.29	507.64

Customer Incentives

The incentive amounts for the Achievable Low case are assumed to be 60% of the incremental measure costs. Those in the Achievable High case are assumed to be 70% of the incremental measure costs.

Administrative Requirements

NJOCE will administer the Residential Efficient Products program through an implementation contractor. NJOCE's role will be to ensure that

- the implementation contractor performs all the activities associated with delivery of all components of the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2015	2016	2017	2018
Program Staff Labor Cost	$200,000	$200,000	$200,000	$200,000
Evaluation Cost	$244,487	$281,114	$322,913	$339,886
Implementation Cost	$722,687	$833,678	$960,343	$1,011,777
Incentive Costs	$7,226,868	$8,336,776	$9,603,429	$10,117,770
Total Budget	**$8,394,042**	**$9,651,568**	**$11,086,685**	**$11,669,433**

Total Program Budget – Achievable High

Total Program Budget				
	2015	2016	2017	2018
Program Staff Labor Cost	$200,000	$200,000	$200,000	$200,000
Evaluation Cost	$559,460	$646,374	$739,359	$769,470
Implementation Cost	$1,677,152	$1,940,526	$2,222,299	$2,313,545
Incentive Costs	$16,771,517	$19,405,258	$22,222,987	$23,135,448
Total Budget	**$19,208,129**	**$22,192,158**	**$25,384,645**	**$26,418,463**

Cost-Effectiveness

The cost-effectiveness metrics of this program are given in the tables below. The net-to-gross ratio (NTG) is assumed as 0.80.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
Res Efficient Products	**TRC Ratio**	**TRC Benefits**	**TRC Costs**	**UCT Ratio**	**PCT Ratio**	**RIM Ratio**
Electric Programs	2.46	$129,401,525	$52,660,456	3.92	17.13	0.36
Natural Gas Programs	0.68	$3,376,247	$4,980,117	1.13	4.22	0.32
Total Program	**2.30**	**$132,777,772**	**$57,640,573**	**3.69**	**15.94**	**0.36**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
Res Efficient Products	**TRC Ratio**	**TRC Benefits**	**TRC Costs**	**UCT Ratio**	**PCT Ratio**	**RIM Ratio**
Electric Programs	2.33	$242,579,802	$103,948,860	3.23	21.95	0.35
Natural Gas Programs	0.57	$5,659,438	$10,003,260	0.80	4.80	0.30
Total Program	**2.18**	**$248,239,240**	**$113,952,120**	**3.02**	**20.37**	**0.35**

RESIDENTIAL LOW INCOME COMFORT PARTNERS

Program Description

The Residential Low Income "Comfort Partners" program is required be law and provides energy efficiency services and energy education to New Jersey's low-income customers; helping them to reduce their energy usage and increase the affordability of their energy bills. This program will focus on education and the installation of measures in homes that meet the low income criteria.

Participating households will receive the following types of assistance:

- In-Home Audits and Education—these are on-site inspections used to identify the applicability of energy-savings measures the program offers and to educate residents about ways to reduce their energy usage.
- Direct Installation of Measures—Install measures to reduce energy use in the home at no charge to residents.

Projected Energy Savings

The estimated energy savings are given in terms of annual GWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	47.96	42.86	43.46	43.15
Natural Gas (1,000 Therms)	272.91	363.67	473.64	607.37

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	92.00	82.78	83.44	82.53
Natural Gas (1,000 Therms)	438.83	606.27	754.37	942.03

Customer Incentives

All energy efficiency measures are installed at no charge to low income residents. Since the cost of the measures is fully covered by the program, there are no direct financial incentives provided to the customers. It is recommended that rigorous and ongoing evaluation of the measures be applied to ensure a reasonable cost-effectiveness criterion is met, and if some measures begin to unduly burden the overall program budget, consider reducing the incentive to a portion of the cost, migrating to a low- or no-interest loan program, or excluding the measures entirely.

Administrative Requirements

NJOCE will administer this program with a program implementation contractor. The program is expected to operate according to the following administrative and total utility budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$200,000	$200,000	$200,000	$200,000
Evaluation Cost	$446,977	$516,216	$570,410	$634,769
Implementation Cost	$6,052,621	$7,002,960	$7,746,806	$8,630,162
Incentive Costs	$8,646,602	$10,004,229	$11,066,866	$12,328,803
Total Budget	**$15,346,199**	**$17,723,405**	**$19,584,083**	**$21,793,735**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$300,000	$300,000	$300,000	$300,000
Evaluation Cost	$830,916	$958,870	$1,042,948	$1,141,574
Implementation Cost	$11,281,206	$13,037,427	$14,191,439	$15,545,133
Incentive Costs	$16,116,008	$18,624,896	$20,273,484	$22,207,333
Total Budget	**$28,528,130**	**$32,921,193**	**$35,807,871**	**$39,194,041**

Cost-Effectiveness

The cost-effectiveness metrics of this program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 1.00.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	0.96	$47,002,306	$49,061,950	0.96	-	0.29
Natural Gas Program	0.45	$7,415,514	$16,580,135	0.45	-	0.24
Total Program	**0.83**	**$54,417,820**	**$65,642,085**	**0.83**	**-**	**0.28**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
Res Efficient Products	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Programs	0.98	$89,094,950	$91,329,851	0.98	-	0.29
Natural Gas Programs	0.42	$12,151,262	$29,066,787	0.42	-	0.24
Total Program	**0.84**	**$101,246,212**	**$120,396,638**	**0.84**	**-**	**0.28**

RESIDENTIAL NEW CONSTRUCTION

Program Description

The Residential New Construction program is designed to accelerate the incorporation of energy efficiency in the design, construction, and operation of single-family homes and renovated or reconstructed homes. The program works with builders and qualified Home Energy Raters to build homes that are, more comfortable, more durable, and more energy efficient than homes built to conventional practices.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	17.50	16.30	17.21	18.71
Natural Gas (1,000 Therms)	76.96	151.73	192.07	252.37

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	33.27	31.02	32.35	34.51
Natural Gas (1,000 Therms)	131.91	283.58	340.34	426.51

Customer Incentives

The incentive amounts for the Achievable Low case are assumed to be 60% of the incremental measure costs. Those in the Achievable High case are assumed to be 75% of the incremental measure costs.

Administrative Requirements

The Residential New Construction program will be administered through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$100,000	$100,000	$100,000	$100,000
Evaluation Cost	$72,342	$92,126	$107,183	$124,250
Implementation Cost	$210,128	$270,079	$315,705	$367,424
Incentive Costs	$2,101,280	$2,700,786	$3,157,050	$3,674,242
Total Budget	**$2,483,750**	**$3,162,990**	**$3,679,938**	**$4,265,916**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$125,000	$125,000	$125,000	$125,000
Evaluation Cost	$164,844	$213,622	$246,304	$280,247
Implementation Cost	$488,164	$635,974	$735,011	$837,869
Incentive Costs	$4,881,642	$6,359,743	$7,350,107	$8,378,690
Total Budget	**$5,659,651**	**$7,334,338**	**$8,456,421**	**$9,621,806**

Cost-Effectiveness

The cost-effectiveness metrics of this program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 0.95.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.59	$19,970,060	$12,597,025	2.49	11.02	0.35
Natural Gas Program	0.50	$3,083,258	$6,156,958	0.79	3.38	0.30
Total Program	**1.23**	**$23,053,318**	**$18,753,983**	**1.93**	**8.51**	**0.34**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.58	$37,143,096	$23,555,009	2.03	17.82	0.34
Natural Gas Program	0.47	$5,498,238	$11,652,321	0.61	5.15	0.27
Total Program	**1.21**	**$42,641,334**	**$35,207,330**	**1.56**	**13.62**	**0.33**

RESIDENTIAL HOME PERFORMANCE WITH ENERGY STAR

Program Description

The Residential Home Performance with ENERGY STAR program is designed to provide energy savings on a holistic, whole home basis through household products and services that are typically associated with onsite installation or implementation by contractors and vendors. This includes such energy efficiency measures as weatherization, increased insulation, or installing efficient heating, ventilation, and air conditioning equipment. The program offers cash rebates and financing to residential customers who install these measures, while simultaneously engaging equipment suppliers, contractors, and trade allies to promote the rebate-eligible equipment. A blower door test is an optional component of this program.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	45.27	40.94	42.69	43.18
Natural Gas (1,000 Therms)	628.63	754.87	993.80	1,249.21

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	85.71	77.70	79.74	80.06
Natural Gas (1,000 Therms)	1,036.10	1,245.13	1,573.57	1,945.93

Customer Incentives

The incentive amounts for the Achievable Low case are assumed to be 60% of the incremental measure costs. Those in the Achievable High case are assumed to be 75% of the incremental measure costs.

Administrative Requirements

This program will be administered through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$100,000	$100,000	$100,000	$100,000
Evaluation Cost	$295,491	$335,454	$381,767	$433,875
Implementation Cost	$1,271,700	$1,445,452	$1,646,812	$1,873,371
Incentive Costs	$8,478,000	$9,636,347	$10,978,748	$12,489,140
Total Budget	**$10,145,191**	**$11,517,254**	**$13,107,327**	**$14,896,386**

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$200,000	$200,000	$200,000	$200,000
Evaluation Cost	$677,330	$764,548	$855,071	$956,623
Implementation Cost	$2,918,828	$3,298,035	$3,691,612	$4,133,144
Incentive Costs	$19,458,852	$21,986,903	$24,610,748	$27,554,293
Total Budget	**$23,255,010**	**$26,249,486**	**$29,357,432**	**$32,844,060**

Cost-Effectiveness

The cost-effectiveness metrics of the Residential Home Performance program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 0.80.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.09	$ 53,804,460	$ 49,509,201	1.69	7.16	0.36
Natural Gas Program	0.84	$ 15,711,306	$ 18,668,071	1.31	5.80	0.33
Total Program	**1.02**	**$ 69,515,766**	**$ 68,177,272**	**1.59**	**6.79**	**0.35**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.07	$99,045,945	$92,488,577	1.37	11.64	0.34
Natural Gas Program	0.77	$25,852,444	$33,516,174	0.99	8.71	0.31
Total Program	**0.99**	**$124,898,389**	**$126,004,751**	**1.27**	**10.86**	**0.33**

RESIDENTIAL HVAC – ELECTRIC & GAS

Program Description

The Residential High Efficiency HVAC program is designed to provide energy savings through the replacement and installation of efficient heating, ventilation, and air conditioning equipment. The program offers cash rebates to residential customers who install high-efficiency electric or natural gas equipment and engages equipment suppliers, contractors, and trade allies to promote the rebate-eligible equipment. The program takes a whole-home approach, working closely with other programs as appropriate, as well as targeting health & safety issues.

Because of stringent codes and standards that have raised efficiency levels of baseline equipment, the cost-effectiveness of this program has become challenging, and implementation strategy will have to carefully consider and adapt to market trends and evaluations.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	3.36	5.32	6.69	8.16
Natural Gas (1,000 Therms)	358.74	402.41	500.76	643.12

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	6.36	9.74	11.91	14.12
Natural Gas (1,000 Therms)	600.50	665.50	800.23	986.69

Customer Incentives

The incentive amounts for the Achievable Low case are set at 60% of the incremental measure costs. Those in the Achievable High case are set at 75% of the incremental measure costs.

Administrative Requirements

The Residential HVAC Program will be administered through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$100,000	$100,000	$100,000	$100,000
Evaluation Cost	$242,153	$336,163	$399,605	$462,478
Implementation Cost	$724,705	$1,009,585	$1,201,833	$1,392,358
Incentive Costs	$7,247,051	$10,095,854	$12,018,328	$13,923,580
Total Budget	**$8,313,908**	**$11,541,602**	**$13,719,765**	**$15,878,416**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$150,000	$150,000	$150,000	$150,000
Evaluation Cost	$548,231	$753,411	$879,840	$997,029
Implementation Cost	$1,647,671	$2,269,427	$2,652,547	$3,007,663
Incentive Costs	$16,476,707	$22,694,275	$26,525,466	$30,076,629
Total Budget	**$18,822,609**	**$25,867,114**	**$30,207,853**	**$34,231,320**

Cost-Effectiveness

The cost-effectiveness metrics of this program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 0.70.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	0.54	$ 24,287,473	$ 45,006,986	0.85	1.84	0.47
Natural Gas Program	0.38	$ 8,943,050	$ 23,671,797	0.60	2.51	0.27
Total Program	**0.48**	**$ 33,230,523**	**$ 68,678,783**	**0.77**	**2.07**	**0.39**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	0.53	$43,591,880	$81,862,278	0.69	2.95	0.43
Natural Gas Program	0.35	$14,702,842	$41,963,978	0.45	3.79	0.24
Total Program	**0.47**	**$58,294,722**	**$123,826,255**	**0.61**	**3.23**	**0.36**

RESIDENTIAL APPLIANCE RECYCLING

Program Description

The Residential Appliance Recycling program pursues energy savings by offering a bounty payment to customers to remove their old, inefficient appliances and recycle them. This includes aging refrigerator and freezer units. The program offers free pickup of units from residences plus customer incentives and education about the benefits of secondary unit disposal, to encourage their participation. There are no costs to participating customers. The contractor will pick-up, disable, and recycle the units and the customer will receive the appropriate bounty payment as an incentive. Units will be removed to a collection facility and disassembled for environmentally responsible disposal of CFCs in the refrigerant and recycling of other materials such as metal and plastic components.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	32.42	20.82	10.12	6.29
Natural Gas (1,000 Therms)	-	-	-	-

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	62.32	36.30	14.70	7.16
Natural Gas (1,000 Therms)	-	-	-	-

Customer Incentives

The incentive amounts for both the Achievable Low and High cases are set at 100% of the measure costs, which includes the cost to haul away, decommission, and recycle collected units as well as the bounty payment given to the customer as an incentive.

Administrative Requirements

NJOCE will administer the Residential Appliance Recycling program through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$100,000	$100,000	$100,000	$100,000
Evaluation Cost	$207,715	$138,996	$71,282	$46,852
Implementation Cost	$1,574,730	$1,046,123	$525,248	$337,325
Incentive Costs	$5,249,099	$3,487,078	$1,750,826	$1,124,417
Total Budget	**$7,131,544**	**$4,772,197**	**$2,447,356**	**$1,608,594**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$125,000	$125,000	$125,000	$125,000
Evaluation Cost	$397,422	$240,991	$103,114	$54,121
Implementation Cost	$3,028,247	$1,824,929	$764,336	$387,468
Incentive Costs	$10,094,155	$6,083,095	$2,547,787	$1,291,561
Total Budget	**$13,644,824**	**$8,274,015**	**$3,540,237**	**$1,858,151**

Cost-Effectiveness

The cost-effectiveness metrics of this program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 0.70.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.55	$ 22,628,596	$ 14,574,588	1.55	-	0.42
Natural Gas Program	-	$ -	$ -	-	-	-
Total Program	**1.55**	**$ 22,628,596**	**$ 14,574,588**	**1.55**	**-**	**0.42**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.57	$39,454,639	$25,113,282	1.57	-	0.42
Natural Gas Program	-	$-	$-	-	-	-
Total Program	**1.57**	**$39,454,639**	**$25,113,282**	**1.57**	**-**	**0.42**

RESIDENTIAL BEHAVIORAL FEEDBACK TOOLS PROGRAM

Program Description

The Residential Behavioral Feedback Tools program provides individualized energy use information to customers with the goal of reducing energy consumption through socially-driven and information-driven behavioral change. The program provides customers with recommendations on how to save energy and money by making changes to energy consumption behavior and equipment purchases. The information is updated and provided regularly throughout the year. The program also serves to raise general awareness regarding energy efficiency and to cross-sell and market other programs within the portfolio.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	66.83	101.52	130.74
Natural Gas (1,000 Therms)	-	3,244.58	4,751.19	6,050.80

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	133.67	186.13	224.12
Natural Gas (1,000 Therms)	-	6,489.16	8,710.51	10,372.79

Customer Incentives

The program subsidizes the cost of acquiring customer data, processing and analyzing it, and using it to create and distribute customer usage information and accompanying recommendations. There is no monetary incentive directly given to the customer within this program.

Administrative Requirements

NJOCE will administer the Residential Behavioral Feedback Tools program through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$-	$100,000	$100,000	$100,000
Evaluation Cost	$-	$168,000	$201,000	$234,000
Implementation Cost	$-	$500,000	$600,000	$700,000
Incentive Costs	$-	$5,000,000	$6,000,000	$7,000,000
Total Budget	**$-**	**$5,768,000**	**$6,901,000**	**$8,034,000**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$-	$150,000	$150,000	$150,000
Evaluation Cost	$-	$334,500	$367,500	$400,500
Implementation Cost	$-	$1,000,000	$1,100,000	$1,200,000
Incentive Costs	$-	$10,000,000	$11,000,000	$12,000,000
Total Budget	**$-**	**$11,484,500**	**$12,617,500**	**$13,750,500**

Cost-Effectiveness

The cost-effectiveness metrics of this program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 1.00.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.35	$ 16,826,747	$ 12,485,395	1.35	-	0.37
Natural Gas Program	0.92	$ 4,909,461	$ 5,350,884	0.92	-	0.29
Total Program	**1.22**	**$ 21,736,208**	**$ 17,836,279**	**1.22**	**-**	**0.35**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.34	$30,730,326	$22,882,580	1.34	-	0.37
Natural Gas Program	0.91	$8,957,268	$9,806,820	0.91	-	0.29
Total Program	**1.21**	**$39,687,594**	**$32,689,400**	**1.21**	**-**	**0.35**

RESIDENTIAL FINANCING PROGRAM

Program Description

The Residential Financing Program is meant to support and enhance other programs within the portfolio by providing trustworthy, low- and no-interest loans to customers for the purchase of applicable measures and measure bundles. Experts indicate that a mature financing program can lift customer adoption by up to 30-50% (EE Financing Panel, 2013 AESP National Conference, Orlando, FL).

The funds which NJOCE would allocate toward this program would provide sponsorship and credibility to the loan program, attracting potential borrowers as well as other sources of capital and financing. Since a portfolio of EE loans is a relatively stable investment, seed capital like this tends to produce a multiplier effect by attracting five to ten times more dollars from private sources in similar programs around the country. The NJOCE funding would also function as a loss-reserve to cover the fraction of people who inevitably default on their loans (often 5% or fewer for EE-related loans, depending on the terms of the program).

Efficiencies would be gained by combining the capital pool for both the Residential and Business Financing programs and administering them together as much as possible. The programs that would access the financing pool would be those with appropriate measures; for example, you would finance a package of an efficient furnace and air conditioner, but not go to the trouble to finance a light bulb. The financing-eligible programs assumed in this analysis are in the table below:

Financing-Eligible Programs	
Residential	**C&I**
Res Low Income Comfort Partners	Bus SmartStart (Prescriptive Rebates)
Res Home Performance with ENERGY STAR	Bus SmartStart (Custom Incentives)
Res HVAC - Electric & Gas	Bus Pay-for-Performance
	Bus MultiFamily
	Bus Local Government Energy Audit

This analysis assumes and provides a general framework because the field of EE financing is evolving rapidly. We recommend issuing a request for proposals to receive detailed vendor input on how best to construct this program.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	-	-	-
Natural Gas (1,000 Therms)	-	-	-	-

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	-	-	-
Natural Gas (1,000 Therms)	-	-	-	-

Customer Incentives

There are no formal cash incentives given to the customer in this program, but they are provided with a secure and trustworthy lender and subsidized rates for low- and no-interest financing.

Administrative Requirements

The program is expected to operate according to the following program budget. The actual financing costs are categorized here under "Sales, Education & Marketing."

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Sales, Education & Marketing	$ 1,161,834	$ 1,072,281	$ 1,646,511	$ 1,690,500
Total Budget	**$ 1,261,834**	**$ 1,172,281**	**$ 1,746,511**	**$ 1,790,500**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$ 150,000	$ 150,000	$ 150,000	$ 150,000
Sales, Education & Marketing	$ 2,134,336	$ 1,954,995	$ 2,948,503	$ 2,971,457
Total Budget	**$ 2,284,336**	**$ 2,104,995**	**$ 3,098,503**	**$ 3,121,457**

Cost-Effectiveness

The cost-effectiveness metrics of the Residential Financing program are as follows. The way it is modeled in this analysis, there are no benefits directly attributed to the program, but it enables and expands the adoption of measures in other programs.

Cost-Effectiveness – Achievable Low

cost-effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	-	$-	$3,678,654	-	-	-
Natural Gas Program	-	$-	$1,576,566	-	-	-
Total Program	**-**	**$-**	**$5,255,220**	**-**	**-**	**-**

Cost-Effectiveness – Achievable High

cost-effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	-	$-	$6,541,069	-	-	-
Natural Gas Program	-	$-	$2,803,315	-	-	-
Total Program	**-**	**$-**	**$9,344,384**	**-**	**-**	**-**

RESIDENTIAL MARKETING PROGRAM

Program Description

The Residential Marketing Program is a critical, unifying effort that uses strategy, messaging, and advertisements to rally all of the programs together and streamline the customer experience. This includes all communications both with customers and within the program administration, including but not limited to the website, print and media advertisements, social media, downloadable forms, receipts, customer service centers, etc. This effort creates a marketing vision and mission that is intentional, coordinated, and integrated throughout the portfolio from top to bottom.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	-	-	-
Natural Gas (1,000 Therms)	-	-	-	-

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	-	-	-
Natural Gas (1,000 Therms)	-	-	-	-

Customer Incentives

Customer incentives are not applicable to this program.

Administrative Requirements

The program is expected to operate according to the following program budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Sales, Education & Marketing	$ 1,554,439	$ 1,924,110	$ 2,115,785	$ 2,344,394
Total Budget	**$ 1,654,439**	**$ 2,024,110**	**$ 2,215,785**	**$ 2,444,394**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$ 150,000	$ 150,000	$ 150,000	$ 150,000
Sales, Education & Marketing	$ 3,273,551	$ 4,029,684	$ 4,361,159	$ 4,737,550
Total Budget	**$ 3,423,551**	**$ 4,179,684**	**$ 4,511,159**	**$ 4,887,550**

Cost-Effectiveness

The cost-effectiveness metrics of the Residential Marketing program are as follows. The way it is modeled in this analysis, there are no benefits directly attributed to the program, but it enables and expands the adoption of measures in other programs.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	-	$ -	$ 5,143,840	-	-	-
Natural Gas Program	-	$ -	$ 2,204,503	-	-	-
Total Program	**-**	**$ -**	**$ 7,348,343**	**-**	**-**	**-**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	-	$-	$10,495,247	-	-	-
Natural Gas Program	-	$-	$4,497,963	-	-	-
Total Program	**-**	**$-**	**$14,993,210**	**-**	**-**	**-**

BUSINESS SMART START (PRESCRIPTIVE) PROGRAM

Program Description

The Business Smart Start Prescriptive Rebate program is designed to encourage and assist non-residential customers in improving the energy efficiency of their existing facilities through a broad range of specific energy efficiency measures that address all major end uses and processes.

EE portfolios typically distinguish between two broad categories of energy efficiency projects: relatively homogeneous projects whose energy savings can be known with considerable confidence and precision, independent of their application (*prescriptive projects*); and diverse technologies or applications whose savings depend on the site-specific application (that is, *custom projects*).

This program offers incentives for prescriptive projects to customers who install particular high-efficiency electric and natural gas equipment. It also engages equipment suppliers and contractors to promote the incentive-eligible equipment. The prescriptive incentives are cash-back rebates that generally cover a portion of the incremental cost of the qualifying equipment and projects.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	65.84	86.84	98.58	101.22
Natural Gas (1,000 Therms)	2,222.28	2,958.34	4,145.63	5,834.46

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	137.82	176.78	190.72	183.95
Natural Gas (1,000 Therms)	5,078.89	6,256.49	8,285.02	11,018.11

Customer Incentives

The incentive amounts for the Achievable Low case are assumed to be 50% of the incremental measure costs. Those in the Achievable High case are assumed to be 55% of the incremental measure costs.

Administrative Requirements

This program will be delivered through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$100,000	$100,000	$100,000	$100,000
Evaluation Cost	$369,101	$411,849	$471,749	$559,050
Implementation Cost	$581,113	$648,966	$744,046	$882,619
Incentive Costs	$11,622,259	$12,979,327	$14,880,917	$17,652,370
Total Budget	**$12,672,473**	**$14,140,142**	**$16,196,711**	**$19,194,038**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$125,000	$125,000	$125,000	$125,000
Evaluation Cost	$764,140	$836,109	$938,979	$1,084,278
Implementation Cost	$1,206,969	$1,321,204	$1,484,490	$1,715,123
Incentive Costs	$24,139,376	$26,424,090	$29,689,799	$34,302,466
Total Budget	**$26,235,485**	**$28,706,403**	**$32,238,267**	**$37,226,867**

Cost-Effectiveness

The cost-effectiveness metrics of the Business SMART Start Prescriptive program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 0.80.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.63	$ 134,572,970	$ 82,523,303	3.13	8.19	0.38
Natural Gas Program	1.84	$ 41,417,263	$ 22,540,452	3.53	9.70	0.36
Total Program	**1.68**	**$ 175,990,233**	**$ 105,063,754**	**3.21**	**8.51**	**0.37**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.74	$259,014,759	$148,588,300	3.06	9.77	0.38
Natural Gas Program	1.92	$83,753,445	$43,708,471	3.36	11.29	0.36
Total Program	**1.78**	**$342,768,204**	**$192,296,771**	**3.13**	**10.12**	**0.37**

BUSINESS SMART START CUSTOM INCENTIVES PROGRAM

Program Description

The Business Smart Start Customer Incentives program is designed to encourage and assist nonresidential customers to save energy through customizable projects that are too complex to fit in the standard rebate offering. The program will affect the purchase and installation of efficient technologies and/or implementation of process improvements by working directly with key end-use customers and market providers.

EE portfolios typically distinguish between two broad categories of energy efficiency projects: relatively homogeneous projects whose energy savings can be known with considerable confidence and precision, independent of their application (*prescriptive projects*); and diverse technologies or applications whose savings depend on the site-specific application (that is, *custom projects*).

The program pays custom incentives on a fixed dollar per first-year-kWh-saved basis; appropriate for large and complex projects, often with multiple measures. The program also offers technical assistance and incentives toward the cost of engineering studies to expedite the installation of energy-efficient equipment and projects.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	48.60	49.88	66.92	88.24
Natural Gas (1,000 Therms)	816.59	855.07	1,246.69	1,785.09

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	103.30	98.39	126.56	159.46
Natural Gas (1,000 Therms)	1,864.13	1,777.76	2,447.86	3,312.65

Customer Incentives

The incentive amounts for the Achievable Low case are assumed to be 50% of the incremental measure costs. Those in the Achievable High case are assumed to be 55% of the incremental measure costs.

Administrative Requirements

This program will be delivered through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$100,000	$100,000	$100,000	$100,000
Evaluation Cost	$330,073	$345,191	$442,682	$591,578
Implementation Cost	$991,129	$1,036,943	$1,332,370	$1,783,569
Incentive Costs	$9,911,291	$10,369,431	$13,323,701	$17,835,687
Total Budget	**$11,332,493**	**$11,851,565**	**$15,198,753**	**$20,310,833**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$125,000	$125,000	$125,000	$125,000
Evaluation Cost	$747,965	$735,038	$911,444	$1,171,738
Implementation Cost	$2,255,198	$2,216,024	$2,750,589	$3,539,357
Incentive Costs	$22,551,984	$22,160,242	$27,505,890	$35,393,575
Total Budget	**$25,680,148**	**$25,236,304**	**$31,292,924**	**$40,229,670**

Cost-Effectiveness

The cost-effectiveness metrics of the Business SMART Start Custom Incentives Program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 0.80.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.32	$ 116,750,605	$ 88,513,537	2.47	6.74	0.37
Natural Gas Program	2.32	$ 18,666,027	$ 8,055,178	4.35	12.26	0.38
Total Program	**1.40**	**$ 135,416,632**	**$ 96,568,715**	**2.63**	**7.20**	**0.37**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.33	$224,431,116	$168,825,888	2.29	7.61	0.37
Natural Gas Program	2.28	$36,959,989	$16,232,719	3.91	13.49	0.37
Total Program	**1.41**	**$261,391,105**	**$185,058,608**	**2.43**	**8.13**	**0.37**

BUSINESS PAY-FOR-PERFORMANCE PROGRAM

Program Description

The Business Pay-For-Performance Program is designed to provide customers a flexible incentive structure to motivate the installation of efficient equipment and measures. This program involves four main steps:

1) Modeling of the energy efficiency project in order to set savings goals
2) Performance of the efficiency project, i.e. – appropriate usage of the equipment and measures over a set period of time
3) Measurement and verification of the usage and corresponding savings versus what baseline usage would have been
4) Payment of incentives based on a fixed dollar per first-year-kWh-saved basis. This is typically more generous than the standard prescriptive or custom incentive, due to the greater complexity of the program participation. However, deeper savings can be attained by establishing and maintaining the relationship with the customer over time.

This program structure is available for both existing facilities and new construction projects.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	43.64	45.04	61.83	83.60
Natural Gas (1,000 Therms)	806.07	841.77	1,233.28	1,763.68

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	94.23	89.69	117.47	151.36
Natural Gas (1,000 Therms)	1,835.05	1,746.01	2,418.18	3,270.24

Customer Incentives

The incentive amounts for this program are paid out according to the savings achieved, but for this analysis they are assumed to be as follows: Achievable Low case is 50% of the incremental measure costs and Achievable High case is 65% of the incremental measure costs.

Administrative Requirements

This program will be delivered through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$200,000	$200,000	$200,000	$200,000
Evaluation Cost	$276,380	$292,754	$395,960	$547,905
Implementation Cost	$819,335	$868,951	$1,181,697	$1,642,136
Incentive Costs	$8,193,347	$8,689,511	$11,816,975	$16,421,360
Total Budget	**$9,489,062**	**$10,051,216**	**$13,594,632**	**$18,811,401**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$225,000	$225,000	$225,000	$225,000
Evaluation Cost	$754,478	$740,624	$961,441	$1,274,146
Implementation Cost	$2,265,843	$2,223,861	$2,893,003	$3,840,593
Incentive Costs	$22,658,432	$22,238,611	$28,930,027	$38,405,934
Total Budget	**$25,903,754**	**$25,428,096**	**$33,009,471**	**$43,745,673**

Cost-Effectiveness

The cost-effectiveness metrics of the Business Pay-For-Performance Program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 0.80.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.38	$ 105,936,334	$ 76,773,755	2.58	7.04	0.38
Natural Gas Program	2.29	$ 18,659,362	$ 8,145,271	4.28	12.16	0.38
Total Program	**1.47**	**$ 124,595,696**	**$ 84,919,025**	**2.74**	**7.53**	**0.38**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.38	$204,893,339	$148,919,732	2.02	10.21	0.36
Natural Gas Program	2.23	$36,871,284	$16,541,381	3.28	17.20	0.37
Total Program	**1.46**	**$241,764,623**	**$165,461,113**	**2.15**	**10.91**	**0.36**

BUSINESS NEW CONSTRUCTION PROGRAM

Program Description

The Business New Construction program is designed to accelerate the incorporation of energy efficient design, construction, and operation in new business buildings. The program provides facility designers, builders, and owner-builders with training, design assistance, and incentives for installing high efficiency end-use equipment and building envelope measures in newly constructed and renovated facilities.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	4.90	7.13	14.35	25.17
Natural Gas (1,000 Therms)	78.53	153.67	392.55	821.97

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	9.34	13.46	26.67	45.03
Natural Gas (1,000 Therms)	165.95	305.33	742.11	1,477.32

Customer Incentives

The incentive amounts for the Achievable Low case are assumed to be 50% of the incremental measure costs. Those in the Achievable High case are assumed to be 65% of the incremental measure costs.

Administrative Requirements

This program will be delivered through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$50,000	$50,000	$50,000	$50,000
Evaluation Cost	$48,541	$68,637	$129,396	$247,297
Implementation Cost	$142,547	$203,447	$387,562	$744,840
Incentive Costs	$1,425,474	$2,034,470	$3,875,625	$7,448,398
Total Budget	**$1,666,562**	**$2,356,554**	**$4,442,583**	**$8,490,535**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$100,000	$100,000	$100,000	$100,000
Evaluation Cost	$117,291	$166,720	$315,131	$588,203
Implementation Cost	$346,335	$496,122	$945,852	$1,773,343
Incentive Costs	$3,463,351	$4,961,216	$9,458,522	$17,733,430
Total Budget	**$4,026,977**	**$5,724,058**	**$10,819,506**	**$20,194,976**

Cost-Effectiveness

The cost-effectiveness metrics of the Business New Construction program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 0.95.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.35	$ 30,895,371	$ 22,961,250	2.52	6.75	0.38
Natural Gas Program	1.76	$ 7,591,907	$ 4,316,996	3.29	8.92	0.39
Total Program	**1.41**	**$ 38,487,278**	**$ 27,278,246**	**2.64**	**7.10**	**0.38**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.30	$56,529,438	$43,390,377	1.92	9.52	0.37
Natural Gas Program	1.71	$13,929,306	$8,150,086	2.51	12.65	0.37
Total Program	**1.37**	**$70,458,744**	**$51,540,463**	**2.01**	**10.02**	**0.37**

BUSINESS MULTIFAMILY PROGRAM

Program Description

The Business Multi Family program is designed to increase the energy efficiency of both residential dwelling units and the common areas within the buildings. Multi Family buildings are typically challenging for efficiency programs to address due to the fragmented nature of the market. We recommend that the same integrated program deal with both the residential and C&I aspects of this program. For residential dwellings, the program provides direct-install prescriptive measures, education, and cross-selling to other programs in the portfolio. For facility designers, builders, and owner-builders, the program provides training, design assistance, and incentives for installing high efficiency end-use equipment and building envelope measures in common areas and newly constructed or renovated facilities.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings - Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	3.17	3.88	5.31	6.02
Natural Gas (1,000 Therms)	16.28	28.43	58.49	102.12

Total Net Incremental Savings - Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	5.89	7.02	9.36	10.20
Natural Gas (1,000 Therms)	38.44	62.22	120.97	199.06

Customer Incentives

The incentive amounts for the Achievable Low case are assumed to be 50% of the incremental measure costs. Those in the Achievable High case are assumed to be 65% of the incremental measure costs.

Administrative Requirements

This program will be delivered through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$100,000	$100,000	$100,000	$100,000
Evaluation Cost	$30,561	$33,014	$39,204	$46,076
Implementation Cost	$68,052	$74,108	$89,392	$106,361
Incentive Costs	$850,647	$926,344	$1,117,397	$1,329,507
Total Budget	**$1,049,259**	**$1,133,465**	**$1,345,992**	**$1,581,944**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$125,000	$125,000	$125,000	$125,000
Evaluation Cost	$69,610	$75,174	$89,803	$104,715
Implementation Cost	$162,618	$176,356	$212,475	$249,296
Incentive Costs	$2,032,722	$2,204,456	$2,655,942	$3,116,203
Total Budget	**$2,389,949**	**$2,580,987**	**$3,083,220**	**$3,595,214**

Cost-Effectiveness

The cost-effectiveness metrics of the Business Multifamily program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 0.80.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.01	$ 7,868,078	$ 7,762,341	1.85	5.63	0.34
Natural Gas Program	2.38	$ 1,074,593	$ 451,818	4.36	12.58	0.39
Total Program	**1.09**	**$ 8,942,671**	**$ 8,214,159**	**1.99**	**6.01**	**0.35**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.00	$14,120,814	$14,065,931	1.47	7.97	0.33
Natural Gas Program	2.37	$2,206,136	$931,407	3.47	17.96	0.38
Total Program	**1.09**	**$16,326,950**	**$14,997,338**	**1.59**	**8.59**	**0.34**

BUSINESS LOCAL GOVERNMENT ENERGY AUDIT

Program Description

The Business Local Government Energy Audit program promotes the installation of energy efficient equipment and the adoption of efficient operational practices specifically in government facilities. The program begins by paying for an audit to identify actionable efficiency measures and projects in a given facility. After the audit, the intent is to facilitate and expedite those customer projects to successful completion.

It is often challenge to convert audit recommendations into actual, completed projects. Suggested methods to increase the conversion rate of audits are below:

1. Get top management and senior staff involved. They are the people who make budget decisions.
2. Create audit reports with a clear business proposal. Energy efficiency recommendations should be presented as a prioritized business proposal with all cost and benefits identified along with potential business risks and strategic value.
3. Ensure the quality of the technical reports. This may include requiring review of the audit by a professional engineer.
4. Make sure the report recipient understands the recommendations. Have a personal conversation where recommendations are reviewed point by point. The objective is not for auditors to prove how smart they are—the objective is to implement projects to get energy savings.
5. Colleagues and peers for the various customers are one of the most valuable sources for information regarding energy efficiency. This implies the importance of sharing case studies of successful example projects.
6. Facilitate customer participation in the portfolio's low- and no-interest financing programs
7. Connect customers with an energy services company (ESCO) that will complete the project at no upfront cost in return for the cash flows that will come from utility bill savings in the future. (This method is already being pursued in the current program structure.)
8. Consider having the program pay the entire cost of implementing recommendations up front and let the customer pay back the costs on their energy bill
9. Emphasize "green" benefits in the messaging, such as reducing the carbon footprint
10. Encourage clients to take ownership of audit recommendations. It is often effective to jointly develop or share ownership of ideas—this allows the individual at the facility to claim credit for the positive actions that will result from the audit.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	10.37	14.08	17.64	19.55
Natural Gas (1,000 Therms)	312.74	375.94	546.20	785.21

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	22.47	29.21	34.81	36.13
Natural Gas (1,000 Therms)	718.61	791.42	1,082.04	1,470.14

Customer Incentives

The incentive amounts for the Achievable Low case are assumed to be 85% of the incremental measure costs. Those in the Achievable High case are assumed to be 90% of the incremental measure costs.

Administrative Requirements

This program will be delivered through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$50,000	$50,000	$50,000	$50,000
Evaluation Cost	$106,868	$115,181	$145,971	$187,921
Implementation Cost	$319,298	$344,489	$437,792	$564,914
Incentive Costs	$3,192,975	$3,444,887	$4,377,918	$5,649,136
Total Budget	**$3,669,141**	**$3,954,556**	**$5,011,681**	**$6,451,971**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$100,000	$100,000	$100,000	$100,000
Evaluation Cost	$223,664	$230,372	$284,373	$354,106
Implementation Cost	$668,680	$689,005	$852,645	$1,063,958
Incentive Costs	$6,686,798	$6,890,049	$8,526,455	$10,639,582
Total Budget	**$7,679,142**	**$7,909,425**	**$9,763,473**	**$12,157,646**

Cost-Effectiveness

The cost-effectiveness metrics of the Business Local Government Energy Audit program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 0.80.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.49	$ 24,098,235	$ 16,214,629	1.72	26.34	0.36
Natural Gas Program	1.76	$ 5,485,083	$ 3,111,366	2.03	33.41	0.35
Total Program	**1.53**	**$ 29,583,318**	**$ 19,325,995**	**1.77**	**27.48**	**0.35**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.57	$47,100,822	$30,024,023	1.72	42.18	0.35
Natural Gas Program	1.79	$11,013,550	$6,151,167	1.96	51.36	0.34
Total Program	**1.61**	**$58,114,373**	**$36,175,191**	**1.76**	**43.74**	**0.35**

BUSINESS DIRECT INSTALL PROGRAM

Program Description

The Business Direct Install program provides a suite of targeted, highly cost-effective measures to small businesses (classified by NJOCE as less than 150 kW electric demand) in a quickly deployable program delivery mechanism, along with education and program support to help business customers reduce their energy bills.

The program will provide several direct-install measures free of charge, such as lighting replacements, pre-rinse sprayers, programmable thermostats, pipe wrap, vending machine controls, and smart power strips. The program also connects customers with other programs in the portfolio and a network of qualified trade allies/contractors that can install follow-on measures to provide deeper energy savings.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	62.12	77.38	98.88	108.65
Natural Gas (1,000 Therms)	474.81	516.79	839.92	1,162.99

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	117.95	142.71	178.42	188.72
Natural Gas (1,000 Therms)	1,129.90	1,121.80	1,723.78	2,248.00

Customer Incentives

Under this program, incentives are provided in several forms and to both customers and contractors who provide the audit and direct installation services. Incentives go to customers in the form of direct installation of measures during the audit visit and in the form of rebates for installation of recommended, follow-on measures that may fall under the umbrella of other programs. For analysis purposes, the incentive amounts for the Achievable Low case are assumed to be 85% of the incremental measure costs. Those in the Achievable High case are assumed to be 90% of the incremental measure costs.

Administrative Requirements

This program will be delivered through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$150,000	$150,000	$150,000	$150,000
Evaluation Cost	$662,426	$659,146	$659,266	$690,551
Implementation Cost	$1,993,716	$1,983,775	$1,984,139	$2,078,941
Incentive Costs	$19,937,161	$19,837,754	$19,841,387	$20,789,412
Total Budget	**$22,743,303**	**$22,630,675**	**$22,634,791**	**$23,708,903**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$200,000	$200,000	$200,000	$200,000
Evaluation Cost	$1,295,189	$1,280,102	$1,280,676	$1,336,971
Implementation Cost	$3,906,634	$3,860,916	$3,862,654	$4,033,245
Incentive Costs	$39,066,338	$38,609,155	$38,626,544	$40,332,448
Total Budget	**$44,468,161**	**$43,950,173**	**$43,969,874**	**$45,902,664**

Cost-Effectiveness

The cost-effectiveness metrics of the Business Direct Install program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 1.00.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.77	$ 164,096,921	$ 92,723,657	2.04	32.22	0.36
Natural Gas Program	7.59	$ 9,346,723	$ 1,231,681	8.76	145.34	0.38
Total Program	**1.85**	**$ 173,443,644**	**$ 93,955,338**	**2.13**	**33.70**	**0.36**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.74	$297,290,614	$171,058,109	1.91	47.61	0.35
Natural Gas Program	7.54	$19,480,032	$2,583,590	8.28	217.85	0.38
Total Program	**1.82**	**$316,770,647**	**$173,641,699**	**2.00**	**50.15**	**0.35**

BUSINESS STRATEGIC ENERGY MANAGEMENT PROGRAM

Program Description

The Business Strategic Energy Management program provides energy education, technical assistance, and company-wide coaching for large commercial and industrial customers in order to drive behavioral change and transformation of company culture; thereby producing measureable improvements in energy efficiency and utilization.

We recommend two SEM Improvement program tracks that use different delivery mechanisms:

- One-on-One Consultative Strategic Energy Management (Consultative SEM) provides the customer with access to an energy expert who works intensively with the customer to integrate energy management into the organization's business practices by helping the customer to set up an energy management process and to implement improvements. The participating customer receives frequent and personalized attention throughout the implementation period. Touch points and milestones are agreed upon between the two parties.
- Strategic Energy Management Cohort (SEM Cohort) places companies into groups that work alongside each other for one year or longer, coming together in periodic workshops, approximately quarterly, and working on their own in-between these sessions. The group setting enhances participant action as they strive to perform in front of their peers. Structured groups are composed of approximately 5 to 12 program participants sharing best practices and learning together in a group setting. The cohort is typically filled with participants from non-competing industries; however, if mutual agreement is established, competitors may participate in the same cohort. The cohort is typically established for a geographic area, as the cohort participants are expected to convene in person for workshop events.

A method is developed early in the engagement to forecast baseline levels of energy consumption for each participant, and savings goals are created and measured against this baseline.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	17.53	32.73	52.23
Natural Gas (1,000 Therms)	-	896.07	1,676.50	2,684.48

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	26.29	45.82	69.65
Natural Gas (1,000 Therms)	-	1,344.11	2,347.10	3,579.31

Customer Incentives

Incentives provided to the customer will cover the cost of supporting that customers' participation in program, including education, energy coaching, periodic meetings, and the like.

Administrative Requirements

This program will be delivered through an implementation contractor. The NJOCE's role will be to ensure that:

- the implementation contractor performs all the activities associated with delivery of all components or the program, and
- NJOCE's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate according to the following program and administrative budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$-	$200,000	$150,000	$100,000
Evaluation Cost	$-	$92,768	$166,499	$261,563
Implementation Cost	$-	$262,933	$490,907	$783,523
Incentive Costs	$-	$2,629,334	$4,909,069	$7,835,228
Total Budget	**$-**	**$3,185,036**	**$5,716,476**	**$8,980,313**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$-	$250,000	$200,000	$200,000
Evaluation Cost	$-	$137,652	$232,799	$350,750
Implementation Cost	$-	$394,400	$687,270	$1,044,697
Incentive Costs	$-	$3,944,002	$6,872,697	$10,446,971
Total Budget	**$-**	**$4,726,054**	**$7,992,766**	**$12,042,418**

Cost-Effectiveness

The cost-effectiveness metrics of the Business Strategic Energy Management program are given in the tables below. The net-to-gross ratio (NTG) is assumed to be 1.00.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.39	$ 14,814,318	$ 10,672,135	1.39	-	0.35
Natural Gas Program	1.14	$ 5,220,952	$ 4,573,772	1.14	-	0.30
Total Program	**1.31**	**$ 20,035,270**	**$ 15,245,908**	**1.31**	**-**	**0.33**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	1.39	$20,524,791	$14,798,500	1.39	-	0.35
Natural Gas Program	1.14	$7,232,264	$6,342,214	1.14	-	0.30
Total Program	**1.31**	**$27,757,055**	**$21,140,714**	**1.31**	**-**	**0.33**

BUSINESS FINANCING PROGRAM

Program Description

The Business Financing Program is meant to support and enhance other programs within the portfolio by providing trustworthy, low- and no-interest loans to customers for the purchase of applicable measures and measure bundles. Experts indicate that a mature financing program can lift customer adoption by up to 30-50% (EE Financing Panel, 2013 AESP National Conference, Orlando, FL).

The funds which NJOCE would allocate toward this program would provide sponsorship and credibility to the loan program, attracting potential borrowers as well as other sources of capital and financing. Since a portfolio of EE loans is a relatively stable investment, seed capital like this tends to produce a multiplier effect by attracting five to ten times more dollars from private sources in similar programs around the country. The NJOCE funding would also function as a loss-reserve to cover the fraction of people who inevitably default on their loans (often 5% or fewer for EE-related loans, depending on the terms of the program).

Efficiencies would be gained by combining the capital pool for both the Residential and Business Financing programs and administering them together as much as possible. The programs that would access the financing pool would be those with appropriate measures; for example, you would finance a package of an efficient furnace and air conditioner, but not go to the trouble to finance a light bulb. The financing-eligible programs assumed in this analysis are in the table below:

Financing-Eligible Programs	
Residential	**C&I**
Res Low Income Comfort Partners	Bus SmartStart (Prescriptive Rebates)
Res Home Performance with ENERGY STAR	Bus SmartStart (Custom Incentives)
Res HVAC - Electric & Gas	Bus Pay-for-Performance
	Bus MultiFamily
	Bus Local Government Energy Audit

This analysis assumes and provides a general framework because the field of EE financing is evolving rapidly. We recommend issuing a request for proposals to receive detailed vendor input on how best to construct this program.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	-	-	-
Natural Gas (1,000 Therms)	-	-	-	-

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	-	-	-
Natural Gas (1,000 Therms)	-	-	-	-

Customer Incentives

There are no formal cash incentives given to the customer in this program, but they are provided with a secure and trustworthy lender and subsidized rates for low- and no-interest financing.

Administrative Requirements

The program is expected to operate according to the following program budget. The actual financing costs are categorized here under "Sales, Education & Marketing."

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Sales, Education & Marketing	$ 1,442,478	$ 1,166,367	$ 1,942,855	$ 2,262,478
Total Budget	**$ 1,542,478**	**$ 1,266,367**	**$ 2,042,855**	**$ 2,362,478**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$ 150,000	$ 150,000	$ 150,000	$ 150,000
Sales, Education & Marketing	$ 2,895,768	$ 2,226,591	$ 3,601,329	$ 4,048,441
Total Budget	**$ 3,045,768**	**$ 2,376,591**	**$ 3,751,329**	**$ 4,198,441**

Cost-Effectiveness

The cost-effectiveness metrics of the Business Financing program are as follows. The way it is modeled in this analysis, there are no benefits directly attributed to the program, but it enables and expands the adoption of measures in other programs.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	-	$ -	$ 4,435,406	-	-	-
Natural Gas Program	-	$ -	$ 1,900,888	-	-	-
Total Program	**-**	**$ -**	**$ 6,336,294**	**-**	**-**	**-**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	-	$ -	$8,238,883	-	-	-
Natural Gas Program	-	$ -	$3,530,950	-	-	-
Total Program	**-**	**$ -**	**$11,769,833**	**-**	**-**	**-**

BUSINESS MARKETING PROGRAM

Program Description

The Business Marketing Program is a critical, unifying effort that uses strategy, messaging, and advertisements to rally all of the programs together and streamline the customer experience. This includes all communications both with customers and within the program administration, including but not limited to the website, print and media advertisements, social media, downloadable forms, receipts, customer service centers, etc. This effort creates a marketing vision and mission that is intentional, coordinated, and integrated throughout the portfolio from top to bottom.

Projected Energy Savings

The estimated energy savings are given in terms of annual kWh and annual therms. The savings noted in each year are incremental, that is reflective of new measures installed by customers through the program in that year. This does *not* include the cumulative impact of measures still in operation from previous years.

Total Net Incremental Savings – Achievable Low

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	-	-	-
Natural Gas (1,000 Therms)	-	-	-	-

Total Net Incremental Savings – Achievable High

Total Net Incremental Energy Savings				
	2013	2014	2015	2016
Electric (GWh)	-	-	-	-
Natural Gas (1,000 Therms)	-	-	-	-

Customer Incentives

Customer incentives are not applicable to this program.

Administrative Requirements

The program is expected to operate according to the following program budget:

Total Program Budget – Achievable Low

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Sales, Education & Marketing	$ 1,878,669	$ 2,079,096	$ 2,524,249	$ 3,225,898
Total Budget	**$ 1,978,669**	**$ 2,179,096**	**$ 2,624,249**	**$ 3,325,898**

Total Program Budget – Achievable High

Total Program Budget				
	2013	2014	2015	2016
Program Staff Labor Cost	$ 150,000	$ 150,000	$ 150,000	$ 150,000
Sales, Education & Marketing	$ 4,091,508	$ 4,327,845	$ 5,165,085	$ 6,452,854
Total Budget	**$ 4,241,508**	**$ 4,477,845**	**$ 5,315,085**	**$ 6,602,854**

Cost-Effectiveness

The cost-effectiveness metrics of the Business Marketing program are as follows. The way it is modeled in this analysis, there are no benefits directly attributed to the program, but it enables and expands the adoption of measures in other programs.

Cost-Effectiveness – Achievable Low

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	-	$ -	$6,214,994	-	-	-
Natural Gas Program	-	$ -	$2,663,569	-	-	-
Total Program	**-**	**$ -**	**$8,878,562**	**-**	**-**	**-**

Cost-Effectiveness – Achievable High

Cost-Effectiveness Tests						
	TRC Ratio	TRC Benefits	TRC Costs	UCT Ratio	PCT Ratio	RIM Ratio
Electric Program	-	$ -	$12,707,697	-	-	-
Natural Gas Program	-	$ -	$5,446,156	-	-	-
Total Program	**-**	**$ -**	**$18,153,854**	**-**	**-**	**-**

About EnerNOC Utility Solutions Consulting

EnerNOC Utility Solutions Consulting is part of EnerNOC Utility Solutions group, which provides a comprehensive suite of demand-side management (DSM) services to utilities and grid operators worldwide. Hundreds of utilities have leveraged our technology, our people, and our proven processes to make their energy efficiency (EE) and demand response (DR) initiatives a success. Utilities trust EnerNOC to work with them at every stage of the DSM program lifecycle – assessing market potential, designing effective programs, implementing those programs, and measuring program results.

EnerNOC Utility Solutions delivers value to our utility clients through two separate practice areas – Program Implementation and EnerNOC Utility Solutions Consulting.

- Our Program Implementation team leverages EnerNOC's deep "behind-the-meter expertise" and world-class technology platform to help utilities create and manage DR and EE programs that deliver reliable and cost-effective energy savings. We focus exclusively on the commercial and industrial (C&I) customer segments, with a track record of successful partnerships that spans more than a decade. Through a focus on high quality, measurable savings, EnerNOC has successfully delivered hundreds of thousands of MWh of energy efficiency for our utility clients, and we have thousands of MW of demand response capacity under management.
- The EnerNOC Utility Solutions Consulting team provides expertise and analysis to support a broad range of utility DSM activities, including: potential assessments; end-use forecasts; integrated resource planning; EE, DR, and smart grid pilot and program design and administration; load research; technology assessments and demonstrations; evaluation, measurement and verification; and regulatory support.

The EnerNOC Utility Solutions Consulting team has decades of combined experience in the utility DSM industry. The staff is comprised of professional electrical, mechanical, chemical, civil, industrial, and environmental engineers as well as economists, business planners, project managers, market researchers, load research professionals, and statisticians. Utilities view our experts as trusted advisors, and we work together collaboratively to make any DSM initiative a success.

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