Hawaii Energy

Your Conservation and Efficiency Program

Annual Report
Program Year 2010

Submitted to:
Hawaii Public Utilities Commission

Submitted by:
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Hawaii Energy is a ratepayer-funded conservation and efficiency program administered by SAIC under contract with the Hawaii Public Utilities Commission serving the islands of Hawaii, Lanai, Maui, Molokai and Oahu.

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I. INTRODUCTION

Welcome to the Second Annual Report of SAIC as Public Benefits Fee Administrator (PBFA) and independent third-party operator of the Hawaii Energy Efficiency Program (referred to as the Hawaii Energy Conservation and Efficiency Program or simply Hawaii Energy). This Program operates under contract with the Hawaii Public Utilities Commission (PUC) dated March 3, 2009 as amended from time to time (PBFA Contract) and serves electric utility rate-payers on the islands of Oahu, Molokai, Lanai, Maui and Hawaii.

This Annual Report covers Program Year 2010 (PY10) which began July 1, 2010 and ended June 30, 2011. The Report is required under the PBFA Contract (Section 5c of Attachment A) to meet legislative reporting requirements, show Program expenditures in relation to approved budgets, summarize progress and highlights for the year, report on progress towards savings goals and performance indicators and establish claimed energy savings for verification.

Besides providing the required claimed energy and capacity savings for PY10 with justification, the Annual Report contained herein provides details of the Program including the evolution and expansion of the Program through increased residential and business offerings, marketing and outreach initiatives, leveraging PBF funds, and ally collaboration over the Program Year. Tables, graphs and narratives describe the Program performance. Program performance is demonstrated through Program metrics and impacts, energy savings and peak demand reductions, portfolio total resource benefits, portfolio total resource cost test, island equity, market transformation, emerging technologies, budgets and expenditures, key milestones and lessons learned.

Once the energy and capacity savings and other performance indicators claimed hereunder are verified by the Program Evaluator and Contract Manager, then approved by the PUC, this Report will be published on the Hawaii Energy website at www.HawaiiEnergy.com and portions thereof may be incorporated into the PUC's reports and communications.

II. BACKGROUND

Program Origins

In 2006, the Hawaii Legislature (at HRS Sec 269-121 through Sec 269-124) authorized the PUC to transfer the existing demand-side management surcharge collected by Hawaii's electric utilities to a third-party administrator that would be contracted by the PUC. The transferred surcharge would be called the Public Benefits Fee and would be used by the contracted third-party administrator (the Public Benefits Fee Administrator) to manage and deliver energy-efficiency and demand-side management (DSM) programs and services under the oversight of the PUC.

By Decision & Order # 23258 (Docket No. 2005-0069) dated February 13, 2007, the PUC announced it would establish a Public Benefits Fund to promote the development of programs and services that increase energy efficiency, reduce electricity consumption and demand, and ultimately decrease Hawaii's dependence on imported fossil fuels. In 2008, the PUC took further actions to direct the HECO companies to begin collecting a Public Benefits Fee (PBF) surcharge.

On September 18, 2008, the PUC issued a competitive Request for Proposal (RFP) soliciting proposals and pricing for a Program Administrator for the Hawaii Energy Efficiency Program. Science Applications International Corporation (SAIC) submitted a proposal and was subsequently selected to negotiate a contract with the PUC. As a result of those negotiations, a contract was signed on March 3, 2009 between the PUC and SAIC whereby SAIC would become Hawaii's first Public Benefits Fee Administrator (PBFA) and would operate the Hawaii Energy Efficiency Program until December 31, 2013 (with a possible extension until December 31, 2016 at the discretion of the PUC). The initial two year budget of the contract was $38.4M, of which 70% was designated for direct incentives in the form of direct cash incentives or services.

PY09 – Historical Summary

On July 1, 2009, after four (4) months of preparation and recruiting, SAIC (operating as Hawaii Energy) assumed responsibility for the legacy demand side management program from the electric utility. The team began with a local staff of nine (9) full-time employees who moved during the year from shared SAIC offices at the Airport Center to a downtown location at 1132 Bishop.

While few changes were made to the already existing rebate offerings in the first Program Year, important changes were made in how the Program was operated, to include seeking and implementing ideas that stretched traditional efficiency paradigms. The Program used its reach back ability with SAIC technical expertise to develop a custom data-tracking and verification software called Efficiency Program Management and Information System (EPMIS) to automate the labor intensive processes formerly needed to operate the previous DSM program. Additionally, the Program enlisted the support of trade allies and community-based organizations in the Program's education, outreach and marketing. This force-multiplier effect enabled the Program to reach a record number of new customers – particularly low income and hard to reach customers - even though the Program's marketing budget was substantially smaller than it had been in the past.

During PY09, the PBFA spent $17.0M in ratepayer funds, of which $11.9M (or 70%) went directly to commercial and residential customers in the form of cash incentives and services. Ratepayers receiving the incentives invested an additional $29.9M of their own money to implement the rebated measures, for a total investment in energy reduction of $46.9M. The total verified customer energy savings from these rebated measures was 139.8 GWh, with a cost savings of $29.2M. Over the lifetime of the rebated measures, the customer energy savings would be 1,222 GWh, with a cost savings of $255.4M, yielding a 546% return on investment (in 2009 dollars at 2009 electric rates). This translates into the equivalent of 221,328 barrels (bbls) of imported oil saved in the first year and 1,934,637 bbls of imported oil saved over the lifetime of the incentivized measures.

Finally, during PY09, the Program concluded a smooth transition of responsibilities from the HECO Companies and was able to meet or exceed all but one of its minimum incentive performance goals, Island Equity, resulting in a Performance Award of $645,598 or 92.2% of the Program's potential target performance incentives for PY09. The full PY09 Annual Report is available at www.HawaiiEnergy.com.

III. PY10 PROGRAM OVERVIEW, OBJECTIVES, ORGANIZATION & PERFORMANCE INDICATORS

PY10 Program Overview

On June 30, 2011, Hawaii Energy closed PY10, its second year as Hawaii's ratepayer-funded energy conservation and efficiency program serving the islands of Hawaii, Lanai, Maui, Molokai, and Oahu as Public Benefits Fee Administrator. The year was particularly successful in its own right with contract requirements and Performance Incentive Goals being substantially met. But the year was also enhanced by the additional Department of Energy (DOE) funds from the American Recovery and Reinvestment Act (ARRA) provided through the State Energy Office.

During PY10, the PBFA spent $19.5M in ratepayer funds (considering expected award) out of a $21.2M approved budget, leaving $1.7M in PBF budget surplus at year-end which was returned to the PBF and not carried over. $13.7M (or 70%, after considering expected performance award) of the total PBFA expenditures for PY10 went directly to commercial and residential customers in the form of cash incentives and services.

Ratepayers receiving the incentives invested $99.7M of their own money to implement the rebated measures. The total customer energy savings (unverified at present) from these rebated measures was 142.2 GWh, with a cost savings of $48.1M shown in Table 1. Over the lifetime of the rebated measures, the customer energy savings would be 1,417 GWh, with a cost savings of $473.2M, yielding a 474% return on investment (in 2010 dollars at 2010 electric rates). This translates into the equivalent of 225,127 barrels (bbls) of imported oil saved in the first year and 2,243,355 bbls of imported oil saved over the lifetime of the underlying rebated measures as reflected on Table 1.

Table 1 – PY10 Customer Energy Cost Savings

First Year Energy Customer Energy Cost Savings (Oct. 2011 Effective Rates)

County	P	J	G	H/K	R	Total	kWh	$/kWh
Honolulu	$ 938,337	$ 704	$ 8,844,260	$ 9,107,376	$ 16,593,222	$ 35,483,899	110,185,820	$ 0.322
Hawaii	$ 496,971	$ -	$ 887,080	$ 505,474	$ 4,932,049	$ 6,821,574	16,143,096	$ 0.423
Maui	$ 363,217	$ 49,992	$ 426,038	$ 2,282,716	$ 2,659,766	$ 5,781,730	15,832,399	$ 0.365
Totals	$ 1,798,526	$ 50,696	$ 10,157,377	$ 11,895,567	$ 24,185,037	$ 48,087,203	142,161,315	$ 0.338

Equipment Lifetime Energy Customer Energy Cost Savings (Oct. 2011 Effective Rates)

County	P	J	G	H/K	R	Total	kWh	$/kWh
Honolulu	$ 11,246,262	$ 9,180	$114,642,756	$127,503,536	$109,467,764	$ 362,869,498	1,135,476,497	$ 0.320
Hawaii	$ 5,785,429	$ -	$ 12,106,074	$ 6,543,743	$ 30,025,458	$ 54,460,705	128,750,744	$ 0.423
Maui	$ 2,262,731	$ 699,889	$ 5,548,704	$ 30,761,100	$ 16,614,708	$ 55,887,132	152,439,811	$ 0.367
Totals	$ 19,294,423	$ 709,069	$132,297,534	$164,808,379	$156,107,930	$ 473,217,335	1,416,667,053	$ 0.334

PY10 Program Objectives

In addition to meeting substantially all of the PBFA Contract requirements and Performance Incentive Goals, the Program's broader objectives for PY10 included:

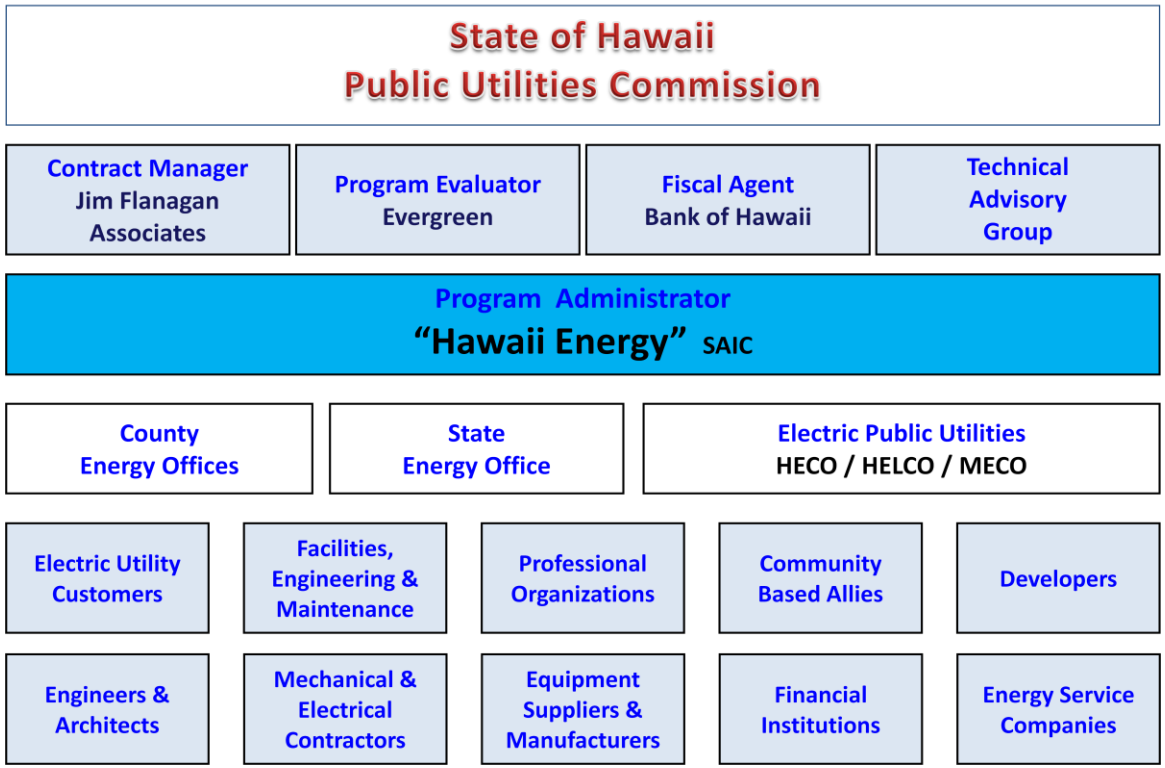
Hawaii Energy Team - PY10

- Reduction of the state's demand for electric energy while helping to reduce the state's dependence on imported fuel,
- Extension of the Program's outreach deeper into the neighbor islands and other hard to reach constituents,
- Support of the Hawaii Clean Energy Initiative and other related efforts aimed at improving Hawaii's energy sustainability,
- Engagement with strategic agencies, allies and social media as "force multipliers" to extend our Program outreach,
- Serving as one of the state's critical leaders, advocates and sources of information for energy conservation and efficiency efforts,
- Exploration of new innovative strategies in energy conservation and efficiency,
- Evolution of the Program to include enhanced personal energy awareness and peer comparisons to affect behavior change as well as the traditional cash incentives for implementing energy efficiency measures,
- Reaching out to small businesses on a more hands-on basis to enhance their viability during the economic hard times.

PY10 Program Organization – Oversight and Support

During PY10, the PBFA Program collaborated with a wide variety of support organizations and oversight entities. These oversight entities are composed of a proactive PUC, Contract Manager, Program Evaluator, Fiscal Agent and Technical Advisory Group (TAG). The TAG is made up of local energy stakeholders who provide their expertise, technical guidance and support to ensure success of the Program. Together with our supportive trade allies and community groups, Hawaii Energy continually works to improve the accountability, functionality, offerings, efficiency and cost-effectiveness of the Program through constant innovation and evolutionary change. Program oversight and support operatives are shown in Table 2.

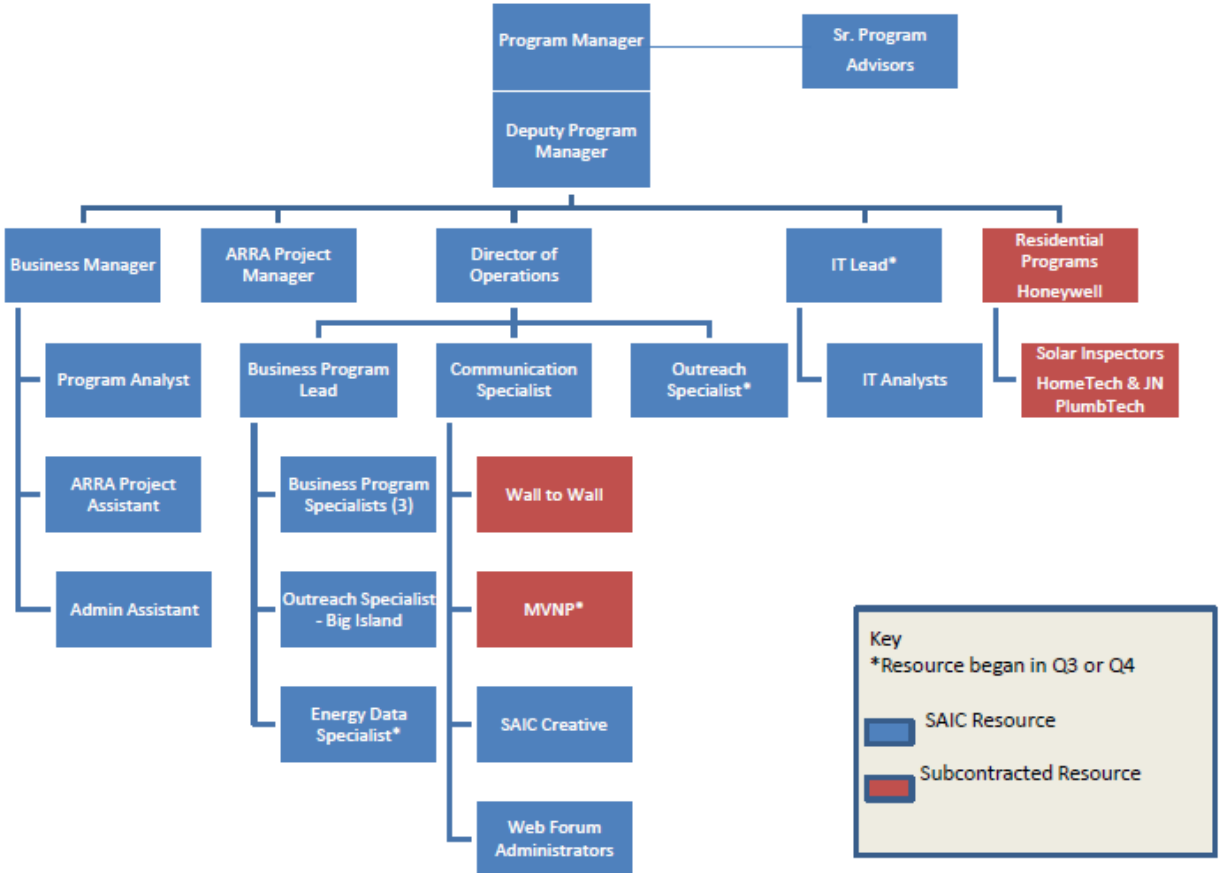
Table 2 – Program (PBFA) Oversight and Support Organizations



PY10 Program Organization – PBFA Org Chart PY10

The Program organization integrates SAIC onsite professionals, subcontracted services, and reach-back to uniquely skilled professionals in SAIC's organization. The Program continued to grow throughout PY10 and a summary Program Organizational Chart as of the close of PY10 is shown in Table 3 below:

Table 3 – PY10 Program Organizational Chart



PY10 Program Organization – Key Subcontractors

Key subcontractors supporting the Program in PY10 are listed in Table 4 below:

Table 4 – Program Subcontractors

- **Honeywell** – 220 South King Street, Suite 1460, Honolulu, Hawaii 96813 – Provides administrative functions to support the following residential programs: Residential Energy Efficient Measures (REEM), Residential New, and Residential Low Income (RLI). In addition, provides check processing services for both residential and business incentive programs.
- **Wall-to-Wall Studios** – 1128 Nuuanu Avenue, Suite 203, Honolulu, Hawaii 96817 – Provides marketing and advertising creative design services and media placement.
- **Home-Tech** – P.O. Box 7305, Hilo, Hawaii 96720 – Provides solar water heating systems and commercial equipment inspections on Hawaii Island.
- **JN Plumb Tech** – 102 Alaapapa Place, Makawao, Hawaii 96768 – Provides solar water heating systems and commercial equipment inspections on the islands of Lanai, Maui and Molokai.
- **MVNP Public Relations** – 999 Bishop Street, 21st Floor, Honolulu, Hawaii 96813 – Provides public relations support (began in the last quarter).

TUTORIAL: HOW CUSTOMER, SYSTEM AND PROGRAM LEVEL SAVINGS ARE RELATED

This Tutorial defines the three levels of energy and demand savings shown in this Report. The three levels are used to show how energy and demand savings are credited at the customer's meter (Customer Level Savings), at the utility system generation level (System Level Savings) and at the PBFA Contract level (Program Level Savings). Table 5 shows the energy savings level values used for each County/Island.

1. ***Customer Level Savings (Gross at Meter)*** – This savings figure is the gross change in energy consumption at the customer meter that results directly from program-promoted actions taken by program participants. The savings are determined by direct metering, engineering calculations, or measurement and verification of prior installations of the particular savings measure. This is the savings level defined in the Program's Technical Resource Manual (TRM).

2. ***System Level Savings (Gross Generated)*** – This savings figure is realized at the utility system level and includes the transmission, distribution and generation station energy losses between the end-use customer and the utility generating units. System Level Savings has been termed Gross Level Savings in previous reports.

3. ***Program Level Savings (Net Generated)*** - This savings figure shows the amount of energy reductions determined to be directly attributed to PBFA Program actions by separating out the impacts that are a result of other influences, such as consumer self-motivation or free-riders. Free-riders are rate-payers or participants who received an incentive and/or education by the Program, but the incentive and/or education did not play a role in their decision to purchase the savings measure. These rate-payers would have taken action or purchased the energy efficient item regardless of the Program and therefore, program level savings removes their participation. The Net-to-Gross adjustment figure for PY10 operations across all programs and counties is 73%.

PY2010 Energy (kWh) Reduction by Impact Level and by Island					
	Customer Level Savings	System Losses	System Level Savings	Net-to-Gross Ratio	Program Level Savings
Oahu	110,185,820	11.17%	122,493,397	73.0%	89,420,180
Hawaii	16,143,096	9.00%	17,595,969	73.0%	12,845,058
Maui	15,416,147	9.96%	16,951,569	73.0%	12,374,646
Lanai	15,270	9.96%	16,791	73.0%	12,257
Molokai	400,981	9.96%	440,919	73.0%	321,871
Total	142,161,315	10.79%	157,498,646	73.0%	114,974,011
% of Customer Level Savings			111%		81%

Table 5 – Energy Savings Levels

PY10 Performance Indicators (Goals) – Performance Indicator Targets

The following Performance Indicators were established in the PBFA Contract in order to set measureable performance targets that meet the Commission's objectives and to provide financial incentives as a reward for superior performance in achieving the goals. The Performance Indicators for PY10 are Cumulative Annual Electric Energy Savings, Peak Demand, Total Resource Benefit, Market Transformation, and Broad Participation-Island Equity.

Table 6 defines the minimum, target and maximum award levels for each indicator used to measure the Program's performance; details of each goal follow.

Table 6 – PY10 Performance Indicators

PY2010 Performance Indicators			
	Min	Target	Max
Cumulative Annual Electric Energy Savings			
Residential Energy Reductions (kWh)	53,433,750	71,245,000	78,369,500
Business Energy Reductions (kWh)	46,027,500	61,370,000	67,507,000
Peak Demand *(kW)*	17,345	23,126	25,439
Total Resource Benefits	$ 118,877,563	$ 148,596,954	$ 178,316,345
		Targets	
Market Transformation			
State Demonstration		10 Projects	
Community Partnership		4 Partnerships	
Retro Commissioning (RCx) Program		Launch by January 1, 2011	
		Target	Performance Range
Island Equity **(% of Energy Program Savings, kWh)**			
Honolulu		75%	+/- 20% of Target
Hawaii		12%	+/- 20% of Target
Maui		13%	+/- 20% of Target

PY10 Performance Indicators (Goals) – Objective 1 – Cumulative Annual Electric Energy Savings

Performance Indicator #1: Cumulative Annual Electric Program Level Energy Savings
Target: 132,615,000 kWh (Residential 71,245,000 kWh (54%), Business 61,370,000 kWh (46%))

Annual Electric Energy Savings directly benefits the State's goal of achieving energy independence by reducing the consumption of imported fossil fuels in proportion to the fossil fueled units used to serve this load. The program participants directly benefit through lower electrical costs.

The Program Level Energy Savings Target of 132,615,000 kWh currently equates to 1,275,945 MMBTUs or avoided use of 209,952 BBLs of liquid fossil fuels in Hawaii, see Table 7. This equates to enough energy to power 16,800 homes for a year.

Table 7 – Estimation of Potential Fossil Fuel Avoidance

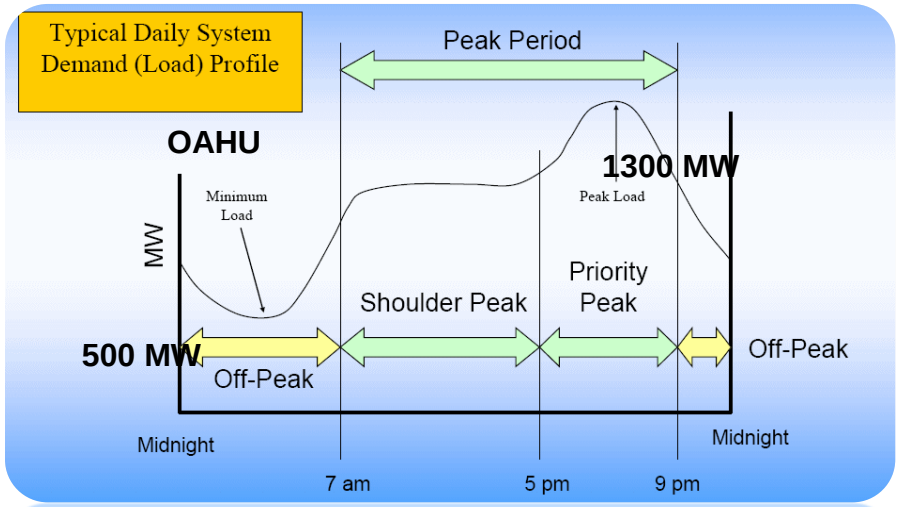
Barrels (BBLs) of Fossil Fuels Avoided				
PY2010 Annual Energy Savings Target		132,615,000	kWh/Yr	
2010 Electrical Generation Source Distribution				
Renewable Generated		11,935,350	kWh/Yr	9%
Fossil-Fuel Generated		120,679,650	kWh/Yr	91%
2010 Energy Avoided at the Generators				
Fossil-Fuel Generated		120,679,650	kWh/Yr	
2010 System Generation Heat Rate	x	10,573	BTU/kWh	
Avoided Generation Fuel Energy Consumption		1,275,945,939,450	BTU/Yr	
Generation Liquid Fossil Fuel Mix				
Energy in BBL of Low Sulfur Fuel Oil		6,200,000	BTU/BBL	67%
Energy in BBL of #2 Fuel Oil (Diesel)		5,860,000	BTU/BBL	31%
Energy in BBL of Naphtha		5,335,500	BTU/BBL	2%
Average System BTU/BBL of Fuel		6,077,310	BTU/BBL	100%
Avoided Generation Fuel Energy Consumption		1,275,945,939,450	BTU/Yr	
Average System BTU/BBL of Fuel	÷	6,077,310	BTU/BBL	
Number of Barrels of Fuel Avoided		209,952	BBLs/Yr	

PY10 Performance Indicators (Goals) – Objective 2 – Peak Demand Savings

Performance Indicator #2: Summer Peak Demand Savings
Target: 23,126 kW

Peak Demand Reduction is focused on reducing the electrical load during the traditional peak demand period between 5 and 9 p.m. weekdays. System Demand Load is typically highest when humid nights increase air conditioner usage in addition to the normal evening water heating loads. This system peak load is used to plan the requirements for additional generation capacity. Reducing the load reduces the cost to the utility customer by deferring the need for an additional unit of generation. Aggressive peak load reductions and load shifting technologies may allow for the retirement of less efficient generation units as more renewable generation is available.

Program participants benefit from lower electrical costs and all customers benefit from the avoided cost to provide additional units of generation to meet increasing electrical peak demand. The Target of 23,126 kW is equivalent to the power required to operate 5,781 water heaters at 4 kW each.



PY10 Performance Indicators (Goals) – Objectives 3 – Total Resource Benefit

Performance Indicator #3: Total Resource Benefit
Target: $148,596,954

The Total Resource Benefit (TRB) is the estimated total net present value (NPV) of the avoided cost for the utility from the reduced lifetime demand (kW) and energy (kWh) from energy efficiency projects and measures. The utility costs were determined using average avoided cost data for installed capacity to meet demand and cost to produce energy that was provided by HECO IRP4 and adjusted under the advice of the Contract Manager. Average annual avoided cost for capacity and energy for calendar year 2010 escalated for a 20-year period was the basis for the analysis. The TRB has incorporated avoided transmission and distribution costs into the avoided energy and capacity costs. The time value of money is represented by a discount rate of 6%. The discount rate is used to convert all costs and benefits to a "present value" for comparing alternative costs and benefits in the same year's dollars.

Table 8 provides an example of the TRB calculation as if this project consisted of a single measure with a nine year life achieving the program demand (kW) and energy (kWh) targets. In actual program implementation, individual calculations are done for every measure and summed together to determine the Program TRB achievement.

Table 8 – Example of TRB Look Up Table

Example of the TRB Calculation using Look Up Table

Life	Discount Rate	kW Target	kWh Target		Project Cost
8	6%	24,742	132,000,000		$ 99,000,000

			Utility Avoided Cost		NPV for each Year		Cumulative NPV		TRB			
Year	Measure Life	NPV Multiplier	$/kW/yr.	$/kWh/yr.	$/kW/yr.	$/kWh/yr.	$/kW/yr.	$/kWh/yr.	Capacity Benefit	Energy Benefit	Total Resource Benefit	TRB/TRC Ratio
2010	1	1.00	$ 280	$ 0.099	$ 280	$ 0.0989	$ 280	$ 0.0989	$ 6,922,511	$ 13,054,471	$ 19,976,982	0.20
2011	2	0.94	$ 306	$ 0.100	$ 288	$ 0.0947	$ 568	$ 0.1936	$ 14,056,636	$ 25,558,370	$ 39,615,005	0.40
2012	3	0.89	$ 339	$ 0.104	$ 301	$ 0.0926	$ 870	$ 0.2862	$ 21,513,793	$ 37,781,197	$ 59,294,990	0.60
2013	4	0.84	$ 353	$ 0.104	$ 297	$ 0.0871	$ 1,166	$ 0.3733	$ 28,850,869	$ 49,272,844	$ 78,123,712	0.79
2014	5	0.79	$ 371	$ 0.109	$ 294	$ 0.0862	$ 1,460	$ 0.4595	$ 36,113,697	$ 60,654,858	$ 96,768,555	0.98
2015	6	0.75	$ 383	$ 0.112	$ 286	$ 0.0840	$ 1,745	$ 0.5435	$ 43,185,911	$ 71,738,149	$ 114,924,059	1.16
2016	7	0.70	$ 386	$ 0.113	$ 272	$ 0.0800	$ 2,018	$ 0.6235	$ 49,922,475	$ 82,295,424	$ 132,217,899	1.34
2017	8	0.67	$ 388	$ 0.114	$ 258	$ 0.0757	$ 2,276	$ 0.6992	$ 56,302,699	$ 92,294,255	$ 148,596,954	1.50
2018	9	0.63	$ 389	$ 0.114	$ 244	$ 0.0717	$ 2,520	$ 0.7709	$ 62,343,226	$ 101,760,728	$ 164,103,953	1.66
2019	10	0.59	$ 392	$ 0.115	$ 232	$ 0.0681	$ 2,752	$ 0.8391	$ 68,082,771	$ 110,755,514	$ 178,838,285	1.81

PY10 Performance Indicators (Goals) – Objective 4 – Market Transformation

Performance Indicator #4: Market Transformation

Target: 10 State Demonstration Projects, 4 Community Partnerships, Launch of Retro-commissioning Program (RCx)

Market Transformation goals are designed to encourage lasting change with regard to how energy is used in businesses and homes. For PY10, Market Transformation goals include the installation of maximum efficiency demonstration projects at State buildings, development of partnerships with nonprofits and community organizations that can carry efficiency goals into the community, and the launch of a Retro-commissioning (RCx) Program.

The Targets are further defined as follow:

a. *10 State Demonstration Projects* – Complete comprehensive retrofits at ten (10) State owned buildings. The goal of this Performance Indicator is intended to help facilitate retrofit of buildings owned or occupied by the State of Hawaii or local government buildings to achieve maximum levels of efficiency. To promulgate savings and techniques from these projects, they may act as case studies or be used as promotional examples.

b. *4 Community Partnerships* – Establish and execute four (4) or more Community Partnership agreements. The goal of this Performance Indicator is to leverage community groups, agencies and-associations to maximize savings from limited program budgets and to encourage lasting change with respect to energy efficiency. Relationships between contractor and community organizations shall be evidenced by a signed agreement upon which each party has obligations or commitments that result in measureable energy savings.

c. *Launch of RcX Program* – Design and launch a commercial RCx program by January 1, 2011. The goal of this performance indicator is to improve building operations through a systematic approach that:

1. installs permanent critical metering
2. performs retro-commissioning activities to identify and optimize system operations
3. measures and shares the results and lessons learned.

This program will optimize how equipment and systems operate to reduce energy and demand consumption and result in energy cost-savings for owners.

PY10 Performance Indicators (Goals) – Objective 5 – Island Equity (Broad Participation)

Performance Indicator #5: Island Equity (Broad Participation)
Target: +/- 20% of each Islands Contribution to the PBF

The Island Equity targets are intended to promote the equitable participation in the Program among the Islands. For PY10, the targets were to create direct customer energy savings within 20% of the proportion of each County's total contribution to the PBF in PY10. Table 9 lists the results of the PY10 contributions to the PBF by county.

Table 9 – County Contribution to PBF

PY10 PBF Contribution by County			
County	*Contribution*		*%*
Honolulu	$	23,465,012	74.7%
Hawaii	$	3,861,739	12.3%
Maui	$	4,075,372	13.0%
Total	$	31,402,123	100%

PY10 Performance Indicators (Goals) – Potential Incentives

Under the PBFA Contract, Program Performance Incentives are provided from a "performance pool" created through a holdback of approximately $55,708 per monthly invoice (prior to tax) of the monthly invoicing for SAIC work performed. A total of $668,500.32 was withheld over the Program Year which equates to $700,000 once tax is applied. SAIC, as the PBFA, has the ability to earn the $700,000 by achieving 100% of the performance indicator targets. The maximum performance bonus potential is $833,000 as shown in Table 10.

Table 10 – PY10 Potential Performance Incentive Awards

PY10 Performance Incentives					
	Min	Target	Max	Weight	Target
				100%	$ 700,000
Cumulative Annual Electric Energy Savings	75%	100%	125%	40%	$ 280,000
Residential Energy Reductions	$ 105,000	$ 140,000	$ 175,000		
Business Energy Reductions	$ 105,000	$ 140,000	$ 175,000		
Peak Demand	60%	100%	140%	10%	$ 70,000
	$ 42,000	$ 70,000	$ 98,000		
Total Resource Benefits	80%	100%	120%	30%	$ 210,000
	175,000	210,000	245,000		
Market Transformation	100%	100%	100%	10%	$ 70,000
State Demonstration	$ 35,000	$ 35,000	$ 35,000		
Community Partnership	$ 17,500	$ 17,500	$ 17,500		
RCx Program	$ 17,500	$ 17,500	$ 17,500		
Broad Participation (Equity across each island)	100%	100%	100%	10%	$ 70,000
	70,000	70,000	70,000		
If All Indicator Metrics meet this level:	Min	Target	Max		
Performance Incentive Potential	$ 567,000	$ 700,000	$ 833,000		

IV. PY10 PERFORMANCE INDICATOR RESULTS

Performance Award Claim Summary

During PY10, the Program Performance Award Claim is $542,934.67 or 77.5% of the Program's potential target performance incentives. The Program's Net Savings Impacts, Market Transformation and Island Equity results are contained in Table 11. The tables on the subsequent pages provide the detailed calculations for each metric following the guidelines in Attachment C in the PBFA Contract. Further details of achievement are found in Section VI.

Table 11 – PY10 Performance Award Claim Summary

PY2010 Performance Award Claim Summary				
	Target	PY10 Results	% of Target	Award Claim
Residential Energy	71,245,000 kWh	**56,908,379 kWh**	80%	$ 111,843.78
Business Energy	61,370,000 kWh	**58,065,632 kWh**	95%	$ 132,444.36
Peak Demand	23,126 kW	**17,011 kW**	74%	$ -
TRB	$ 148,596,954	**$ 134,710,809**	91%	$ 193,646.53
Market Transformation				
State Demonstration Project:	10	**0**	0%	$ -
Launch RCx Program	January 1, 2011	**Completed**	100%	$ 17,500.00
Community Partnerships	4	**5**	125%	$ 17,500.00
Island Equity				
C&C Honolulu	85,913,509	**89,420,180**	+4%	
County of Hawaii	14,139,158	**12,845,058**	-9%	$ 70,000.00
County of Maui	14,921,344	**12,708,774**	-15%	
PY2010 Performance Award Claim				**$ 542,934.67**

Residential Energy Reduction Award Claim Calculation – $111,843.78

The Residential Energy Reduction was 56,908 MWh, this value falls between the minimum and target savings level. The $111,843.78 claim is calculated from $105,000 for meeting the minimum of 53,434 MWh and $6,843.78 for the remaining savings amount of 3,474 MWh at an award rate of $1.97/MWh. See calculations in Table 12 for details.

Table 12 – Residential Energy Reduction Award Claim Calculation

RESIDENTIAL ENERGY REDUCTION - PY2010 Administrators Performance vs. Performance Metrics Calculations										
Cumulative Annual Electric Energy Savings		**Min.**			**Target**		**Max.**			
Residential Energy Award Potential	$	105,000		$	140,000	$	175,000			
Residential Energy Reduction Goals		53,434			71,245		78,370	MWh		
Incentive Calculations		**Meet Min.**			**Min-Target**		**Target-Max**			**Total**
Pool Award Potential	$	105,000		$	35,000	$	35,000		$	175,000 Max
Residential Energy Goal Pools		53,434	÷		17,811		7,125			78,370 MWh
Award Amount / Rate	$	105,000		$	1.97	$	4.91	/MWh		
Residential Energy Achievement		53,434			3,474		n/a			56,908 MWh
Award Amount / Rate		105,000	x	$	1.97	$	4.91	/MWh		
Residential Energy Achievement Award Claim	$	105,000.00		$	6,843.78				$	111,843.78 Calculated
									$	**111,843.78** Claim

Business Energy Reduction Energy Award Claim Calculation – $132,444.36

The Business Energy Reduction was 58,065 MWh, this value falls between the minimum and target savings level. The $132,444.36 claim is calculated from $105,000 for meeting the minimum of 46,028 MWh and $27,444.36 for the remaining savings amount of 12,037 MWh at an award rate of $2.28/MWh. See calculations in Table 13 for details.

Table 13 – Business Energy Reduction Award Claim Calculation

BUSINESS ENERGY REDUCTION - PY2010 Administrators Performance vs. Performance Metrics Calculations										
Cumulative Annual Electric Energy Savings		**Min.**			**Target**		**Max.**			
Business Energy Award Potential	$	105,000		$	140,000	$	175,000			
Business Energy Reduction Goals		46,028			61,370		67,507	MWh		
Incentive Calculations		**Meet Min.**			**Min-Target**		**Target-Max**			**Total**
Pool Award Potential	$	105,000		$	35,000	$	35,000		$	175,000 Max
Business Energy Goal Pools		46,028	÷		15,342		6,137			67,507 MWh
Award Amount / Rate	$	105,000		$	2.28	$	5.70	/MWh		
Business Energy Achievement		46,028			12,037		n/a			58,065 MWh
Award Amount / Rate		105,000	x	$	2.28	$	5.70	/MWh		
Business Energy Achievement Award Claim	$	105,000		$	27,444.36				$	132,444.36 Calculated
									$	**132,444.36** Claim

Demand Reduction Energy Award Claim Calculation – $ 0

The Combined Peak Demand Reduction was 17,011 kWh, this value fell short of the minimum savings level by 334 kW (-1.9%).

Table 14 – Demand Reduction Award Claim Calculation

DEMAND REDUCTION - PY2010 Administrators Performance vs. Performance Metrics Calculations										
Combined Annual Electric Demand Savings		**Min.**			**Target**		**Max.**			
Demand Reduction Award Potential	$	42,000		$	70,000	$	98,000			
Demand Reduction Goals		17,345			23,126		25,439	kW		
Incentive Calculations		**Meet Min.**			**Min-Target**		**Target-Max**			**Total**	
Pool Award Potential	$	42,000		$	28,000	$	28,000		$	98,000	max
Demand Goal Pools		17,345	÷		5,781		2,313			25,439	kW
Award Amount / Rate	$	42,000		$	4.84	$	12.11	/kW			
Demand Savings Achievement		n/a			n/a		n/a			17,011	kW
Award Amount / Rate		42,000	x	$	4.84	$	12.11	/kW			
Demand Savings Achievement Calculation	$	-		$	-	$	-		$	-	calculated
Demand Savings Achievement Award Claim Limited by Maximum Award Amount									**$**	-	Claim

Total Resource Benefit (TRB) Award Claim Calculation – $193,646.53

The Program level TRB achievement of $134,710,809 NPV is 91% of the target amount and between the minimum and target level (equivalent to $ 184,535,355 System level). The award claim calculation of $193,646.53 is calculated from $175,000 for meeting the minimum 80% and $18,646.53 for the remaining savings amount of 11% at an award rate of $1,750/% target achieved. See calculations in Table 15 for details.

Table 15 – TRB Award Claim Calculation

TOTAL RESOURCE BENEFIT - PY2010 Administrators Performance vs. Performance Metrics Calculations									
TRB Target Metrics		**Min.**			**Target**		**Max.**		
TRB Award Potential		$ 175,000			$ 210,000		$ 245,000		
TRB Goal Pools in Metrics %		80%			100%		120%		
TRB Goals in $		$ 118,877,563			$ 148,596,954		$ 178,316,345	NPV of Utility Benefits	
Incentive Calculations		**Meet Min.**			**Min-Target**		**Target-Max**		**Total**
Pool Award Potential		$ 175,000			$ 35,000		$ 35,000		$ 245,000 max
TRB Goal Pools in Metrics %		80%	÷		20%		20%		120%
Award Amount / Rate		$ 175,000			$ 1,750		$ 1,750	/ %	
TRB Achievement in $									$ 134,710,809
TRB Goals in $									÷ $ 148,596,954
TRB Achievement in Metrics %		80%			11%				91%
Award Amount / Rate		175,000	x		$ 1,750.00		$ 1,750.00	/ %	
TRB Energy Achievement Award Claim		$ 175,000			$ 18,646.53				$ 193,646.53 Calculated
									$ 193,646.53 Claim

Market Transformation Award Calculation – $35,000

The Market Transformation goals include the installation of maximum efficiency demonstration projects at State buildings, the launch of a Retro-commissioning (RCx) Program and development of partnerships with nonprofits and community organizations that can carry efficiency goals into the community. Two of the three metrics were achieved with a successful launch of the RCx Program on January 1, 2011 and obtaining 5 community partnerships, resulting in a total award of $35,000 calculated from a $17,500 award for each component. See calculations in Table 16 below for details.

Table 16 – Market Transformation Award Calculation

MARKET TRANSFORMATION - PY2010 Administrators Performance vs. Performance Metrics Calculations						
	Award Potential	Target	Achievement	Target Met		Claim
State Demonstration Projects	$ 35,000	10	**0**	No		$ -
Launch RCx Program	$ 17,500	January 1, 2011	**Completed**	Yes		$ 17,500
Community Partnerships	$ 17,500	4	**5**	Yes	+	$ 17,500
						$ 35,000

Broad Participation – Island Equity Award Claim Calculation – $70,000

The Program achieved the Island Equity requirement of plus or minus 20% of the target energy savings distribution based on each County's financial contribution to the PBF in PY10. The award calculation is thus $70,000. See calculations in Table 17 below for details.

Table 17 – Island Equity Award Claim Calculation

ISLAND EQUITY - PY2010 Administrators Performance vs. Performance Metrics Calculations											
	Target Range	PBF Contribution	% PBF	Equity Targeted Program Level Savings (kWh)	Achieved Program Level Savings (kWh)	% PBF	+/- % of Target	Target Met	Award Potential	Claim
Honolulu	+/- 20%	$ 23,465,012	75%	85,913,509	89,420,180	78%	4%	Yes		
Hawaii	+/- 20%	$ 3,861,739	12%	14,139,158	12,845,058	11%	-9%	Yes		
Maui	+/- 20%	$ 4,075,372	13%	14,921,344	12,708,774	11%	-15%	Yes		
Total		$ 31,402,123	100%	114,974,011	114,974,011	100%		Yes	$ 70,000	$ 70,000.00

V. PY10 BUDGET PROGRESSION & EXPENDITURES

PY10 Annual Plan Budget

Pursuant to the Program's approved PY10 Annual Plan dated September 10, 2010, the Program's budget for the Program Year was $18.5M, made up of $13.7M in Incentives and $4.8M in Non-Incentive costs. The budget was divided approximately equally between Business and Residential; Residential requiring a higher proportion dedicated to operations compared to incentives, as seen in Table 18.

In addition, during PY10, the Program continued to administer the remainder of a previous $7M American Recovery and Reinvestment Act (ARRA) grant for energy efficiency measures on behalf of the State Energy Office under a Supplemental Amendment to the PBFA Contract. However, the ARRA funding is not counted toward the PBFA goals.

Table 18 – PY10 Annual Plan Budget

Activity	Non-Incentive	Incentive	Total
Residential Programs			
REEM	1,744,085	5,008,370	6,752,455
RLI	60,000	290,750	350,750
NEW	340,000	887,200	1,227,200
Total Residential Programs	**2,144,085**	**6,186,320**	**8,330,405**
Residential Market Evaluation	**101,755**	**-**	**101,755**
Residential Outreach	**149,598**	**-**	**149,598**
Total Residential Services and Initiatives	**2,395,438**	**6,186,320**	**8,581,758**
Business Programs			
BEEM	504,021	5,138,670	5,642,691
CBEEM	197,182	1,115,390	1,312,572
NEW	197,780	1,307,000	1,504,780
Total Business Programs	**898,983**	**7,561,060**	**8,460,043**
Business Market Evaluation	**124,367**	**-**	**124,367**
Business Outreach	**182,840**	**-**	**182,840**
Total Business Services and Initiatives	**1,206,190**	**7,561,060**	**8,767,250**
Total Services and Initiatives	**3,601,628**	**13,747,380**	**17,349,008**
Total Supporting Services	**1,205,126**	**-**	**1,205,126**
Estimated Contractor Costs	**4,806,754**	**13,747,380**	**18,554,134**

Budget Revisions

There were five (5) revisions to the PY10 budget over the first two Program Years to meet the changing needs of the Program and allow the Program to accept all qualified rate-payers of an incentive and ensure smooth program operations. The revisions and variations are included as Table 19 and descriptions follow.

First Revision (R1)

The first revision was approved in December PY09 and simplified some of the budget categories in order to create individual program budget categories, as well as reallocated funding to meet the needs encountered in set up of subcontractors and internal resources that were forecasted to continue to PY10. The changes included:

- Consolidated Program Operations, Program Management, Call Center, and Data Tracking for each sector to make Program Operations & Management with the assumption Program Management activities would consume 30% of the effort expended
- Reallocated approximately $774,704 to Residential Program Operations and Management from Business Program Operations and Management to accommodate the second year of the contract with Honeywell as residential program administrator
- Added individual program budgets to the newly formed Program Management & Operations
- Removed $289,398 in advertising funding from PY10 to PY09 to accommodate planned increased in media expenditures to help increase visibility at the launch of the Program

Second Revision (R2 &R2a)

The second revision was a more accurate forecast based on past performance of expenditures from PY09 and our forecast with plans for PY10. It was submitted as part of the PY10 Annual Plan. Non-incentive categories were combined where possible to allow visibility but to reduce the burden of frequent budget changes for similar line items. The changes included:

- Replaced PY09 Program names with their new PY10 names:
  - Removed Residential Water Heating (REWH), Energy Solutions for the Home (ESH), and Residential New Construction (RNC) and added REEM and Residential New in Residential Programs
  - Removed Commercial & Industrial Energy Efficiency (CIEE) and Photovoltaic (PV) and added BEEM, replaced Commercial & Industrial Custom Rebates (CICR) with CBEEM in Business Programs
- Combined "Advertising and Marketing" and "Education & Training" to be "Outreach"
- Combined "General Administration" and "Information Technology" to be "Supporting Services"

Revision R2a was simply to change Revision 2 to a different format where we removed the tax from each line item. Having tax at the bottom along with performance pool deductions and awards made for more accurate reporting over the course of the year. In addition, it was determined SAIC was using too large of holdback for the performance award pool. We had been deducting approximately $58,333 ($700,000 divided by 12 invoices) per invoice before tax was applied. We determined it should be ($700,000 less tax at 4.712%) divided by 12 invoices. The monthly invoice holdback changed from $58,333 to approximately $55,708. This method accounts for the tax that will be owed on the receipt of award.

Third Revision (R3)

The third revision allocated the PY09 carryover of $2,536,323.79 to the corresponding budget categories. The Two-Year budget total remains $38,686,468. However, PY09 performance awards that were not attained have not been shifted to PY10 and will not be spent. This amount totals $187,402 ($54,402 for the Residential and Business Programs ($27,201 each) and $133,000 for the performance award in excess of Target Levels). The following additional changes were made:

- Allocated Business PV category funds from PY09 to BEEM.
- Made adjustments to account for the new reporting categories in the PY10 budget and to reflect planned spending adjustments within rate class.

Fourth Revision (R4)

The fourth revision shifted funds within rate class to accommodate end of year demand and resource needs. In preparing the revision, we found that the dollar amounts in the PY10 (R3) for Residential New and Residential Low Income (RLI) non-incentives were erroneously swapped in the budget table for Budget Revision 3. The amounts should have been $284,700.00 for Residential New and $91,814.56 for RLI instead of $91,814.56 for Residential New and $284,700.00 for RLI. The additional changes included:

- Transferred excess RLI non-incentives to REEM non-incentives.
- Transferred excess funding from New Residential Programs non-incentive to the REEM non incentive budget.
- Transferred excess Business New Programs non-incentives to the BEEM and Market Evaluation non-incentives budgets.
- Transferred excess incentives from the Business New programs to BEEM and CBEEM.

Fifth Revision (R5)

The fifth revision shifted $125,000 in Residential Incentives from Residential New Programs to REEM to accommodate misallocations that were identified in analyzing the year-end data. The majority of the misallocations were “Efficiency Inside Home Design” incentives allocated to New instead of REEM.

Table 19 – Hawaii Energy Conservation and Efficiency Program Attachment F Budget Progression PY10

	PY2010 Contract	PY2010 (R1)	R1 Minus Contract	PY2010 (R2)	R2 Minus R1	PY2010 (R2a)	R2a Minus R2	Carry Over from PY2009	PY2010 (R3)	R3 Minus R2A	PY2010 (R4)	R4 Minus R3	PY2010 (R5)	R5 Minus R4
Residential Programs														
Residential Program Ops and Management														
REEM (RNC+ESH)						1,665,602.00	1,665,602.00	0.00	1,815,574.76	149,972.76	2,076,900.38	261,325.62	2,076,900.38	0.00
REWH		1,173,521.00	1,173,521.00	1,744,085.00	570,564.00		(1,744,085.00)	484.58		0.00		0.00		0.00
RNC			0.00		0.00		0.00	2,669.74		0.00		0.00		0.00
ESH		960,153.00	960,153.00		(960,153.00)		0.00	146,555.32		0.00		0.00		0.00
New[1]			0.00	340,000.00	340,000.00	324,700.00	(15,300.00)	0.00	91,814.56	(232,885.44)	44,295.00	(47,519.56)	44,295.00	0.00
RLI[1]		10,411.00	10,411.00	60,000.00	49,589.00	57,300.00	(2,700.00)	1,585.93	284,700.00	227,400.00	84,100.00	(200,600.00)	84,100.00	0.00
Total Residential Programs	1,369,381.00	2,144,085.00	774,704.00	2,144,085.00	0.00	2,047,602.00	(96,483.00)	151,295.57	2,192,089.32	144,487.32	2,205,295.38	13,206.06	2,205,295.38	0.00
Outreach (E&T, Adv & Marketing)			0.00	149,598.00	149,598.00	142,866.00	(6,732.00)	0.00	328,530.06	185,664.06	344,500.00	15,969.94	344,500.00	0.00
Education & Training	67,837.00	67,837.00	0.00		(67,837.00)		0.00	25,238.76		0.00		0.00		0.00
Market Evaluation	101,755.00	101,755.00	0.00	101,755.00	0.00	97,176.00	(4,579.00)	0.00	97,176.00	0.00	68,000.00	(29,176.00)	68,000.00	0.00
Advertising/Marketing	211,990.00	81,761.00	(130,229.00)		(81,761.00)		0.00	169,173.79		0.00		0.00		0.00
Total Residential Non-Incentives	1,750,963.00	2,395,438.00	644,475.00	2,395,438.00	0.00	2,287,644.00	(107,794.00)	345,708.12	2,617,795.38	330,151.38	2,617,795.38	0.00	2,617,795.38	0.00
Less Performance Incentives		(350,000.00)	(350,000.00)	(350,000.00)	0.00	0.00	350,000.00	0.00	(350,000.00)	(350,000.00)	(350,000.00)	0.00	(350,000.00)	0.00
Sub-total Res Non-Incen Less PI	1,750,963.00	2,045,438.00	294,475.00	2,045,438.00	0.00	2,287,644.00	242,206.00	345,708.12	2,267,795.38	(19,848.62)	2,267,795.38	0.00	2,267,795.38	0.00
Residential Incentives														
REEM (REWH, RNC & ESH)			0.00		0.00	5,008,370.00	5,008,370.00	0.00	5,941,637.41	933,267.41	5,941,637.41	0.00	6,066,637.41	125,000.00
REWH	3,402,476.00	3,458,832.00	56,356.00	5,008,370.00	1,549,538.00		(5,008,370.00)	79,965.00		0.00		0.00		0.00
RNC			0.00		0.00		0.00	41,750.00		0.00		0.00		0.00
ESH	2,474,528.00	2,474,528.00	0.00		(2,474,528.00)		0.00	811,552.41		0.00		0.00		0.00
New			0.00	887,200.00	887,200.00	887,200.00	0.00	0.00	887,200.00	0.00	887,200.00	0.00	762,200.00	(125,000.00)
RLI	252,960.00	252,960.00	0.00	290,750.00	37,790.00	290,750.00	0.00	115,477.79	406,227.79	115,477.79	406,227.79	0.00	406,227.79	0.00
Total Residential Incentives	6,186,320.00	6,186,320.00	0.00	6,186,320.00	0.00	6,186,320.00	0.00	1,048,745.20	7,235,065.20	1,048,745.20	7,235,065.20	0.00	7,235,065.20	0.00
Performance Pool Award		350,000.00	350,000.00	350,000.00	0.00	0.00	(350,000.00)	27,201.00	350,000.00	350,000.00	350,000.00	0.00	350,000.00	0.00
Total Residential Programs	7,937,283.00	8,581,758.00	644,475.00	8,581,758.00	0.00	8,473,964.00	(107,794.00)	1,421,654.32	9,852,860.58	1,378,896.58	9,852,860.58	0.00	9,852,860.58	0.00
Business (C&I) Programs														
Business Program Ops and Management														
BEEM (CIEE & CINC)						481,340.00	481,340.00		762,447.42	281,107.42	838,184.00	75,736.58	838,184.00	0.00
CIEE		272,439.00	272,439.00	504,021.00	231,582.00		(504,021.00)	124,322.03		0.00		0.00		0.00
CINC		240,902.00	240,902.00		(240,902.00)		0.00	149,087.85		0.00		0.00		0.00
CICR (CBEEM)		349,459.00	349,459.00	197,182.00	(152,277.00)	188,309.00	(8,873.00)	227,977.32	407,069.01	218,760.01	402,069.00	(5,000.01)	402,069.00	0.00
New			0.00	197,780.00	197,780.00	188,880.00	(8,900.00)	0.00	188,880.00	0.00	90,321.00	(98,559.00)	90,321.00	0.00
PV		36,183.00	36,183.00		(36,183.00)		0.00	22,033.06		0.00		0.00		0.00
Subtotal Business Programs	1,673,687.00	898,983.00	(774,704.00)	898,983.00	0.00	858,529.00	(40,454.00)	523,420.26	1,358,396.43	499,867.43	1,330,574.00	(27,822.43)	1,330,574.00	0.00
Less Contractor Contribution			0.00		0.00		0.00	0.00		0.00		0.00		0.00
Total Business Programs	1,673,687.00	898,983.00	(774,704.00)	898,983.00	0.00	858,529.00	(40,454.00)	523,420.26	1,358,396.43	499,867.43	1,330,574.00	(27,822.43)	1,330,574.00	0.00
Outreach (E&T, Adv & Marketing)			0.00	182,840.00	182,840.00	174,612.00	(8,228.00)	0.00	398,320.55	223,708.55	400,999.70	2,679.15	400,999.70	0.00
Education & Training	82,911.00	82,911.00	0.00		(82,911.00)		0.00	21,213.45		0.00		0.00		0.00
Market Evaluation	124,367.00	124,367.00	0.00	124,367.00	0.00	118,771.00	(5,596.00)	11,608.08	129,856.72	11,085.72	155,000.00	25,143.28	155,000.00	0.00
Advertising/Marketing	259,098.00	99,929.00	(159,169.00)		(99,929.00)		0.00	213,036.25		0.00		0.00		0.00
Total Business Non-Incentive	2,140,063.00	1,206,190.00	(933,873.00)	1,206,190.00	0.00	1,151,912.00	(54,278.00)	769,278.04	1,886,573.70	734,661.70	1,886,573.70	0.00	1,886,573.70	0.00
Less Performance Incentives		(350,000.00)	(350,000.00)	(350,000.00)	0.00	0.00	350,000.00	0.00	(350,000.00)	(350,000.00)	(350,000.00)	0.00	(350,000.00)	0.00
Sub-total Bus Non-Incen less PI		856,190.00	856,190.00	856,190.00	0.00	1,151,912.00	295,722.00	769,278.04	1,536,573.70	384,661.70	1,536,573.70	0.00	1,536,573.70	0.00
Business Incentives														
BEEM (CIEE & CINC)			0.00	5,138,670.00	5,138,670.00	5,138,670.00	0.00	0.00	5,203,994.00	65,324.00	5,253,994.00	50,000.00	5,253,994.00	0.00
CIEE		2,022,841.00	2,022,841.00		(2,022,841.00)		0.00	65,324.00		0.00		0.00		0.00
CINC		1,788,673.00	1,788,673.00		(1,788,673.00)		0.00	910.00		0.00		0.00		0.00
CICR (CBEEM)		2,594,710.00	2,594,710.00	1,115,390.00	(1,479,320.00)	1,115,390.00	0.00	140.90	1,116,440.90	1,050.90	1,976,440.90	860,000.00	1,976,440.90	0.00
PV			0.00		0.00		0.00	0.00		0.00		0.00		0.00
New		1,154,836.00	1,154,836.00	1,307,000.00	152,164.00	1,307,000.00	0.00	162,882.00	1,469,882.00	162,882.00	559,882.00	(910,000.00)	559,882.00	0.00
Total Business Incentives	7,561,060.00	7,561,060.00	0.00	7,561,060.00	0.00	7,561,060.00	0.00	229,256.90	7,790,316.90	229,256.90	7,790,316.90	0.00	7,790,316.90	0.00
Performance Pool Award		350,000.00	350,000.00	350,000.00	0.00	0.00	(350,000.00)	27,201.00	350,000.00	350,000.00	350,000.00	0.00	350,000.00	0.00
Total Business Programs	9,701,123.00	8,767,250.00	(933,873.00)	8,767,250.00	0.00	8,712,972.00	(54,278.00)	1,025,735.94	9,676,890.60	963,918.60	9,676,890.60	0.00	9,676,890.60	0.00
Ramp Up Program Costs			0.00		0.00		0.00	0.92		0.00		0.00		0.00
Less Contractor Contribution			0.00		0.00		0.00	0.00		0.00		0.00		0.00
Ramp Up Program Costs Total	0.00	0.00	0.00		0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00
Total Services and Initiatives	17,638,406.00	17,349,008.00	(289,398.00)	17,349,008.00	0.00	17,186,936.00	(162,072.00)	2,447,391.18	19,529,751.18	2,342,815.18	19,529,751.18	0.00	19,529,751.18	0.00
Supporting Services														
GA	1,131,088.00	1,131,088.00	0.00		(1,131,088.00)		0.00	130,345.92		0.00		0.00		0.00
IT	74,038.00	74,038.00	0.00		(74,038.00)		0.00	12,988.06		0.00		0.00		0.00
Ramp Up GA			0.00		0.00		0.00	0.47		0.00		0.00		0.00
Ramp UP IT			0.00		0.00		0.00	0.16		0.00		0.00		0.00
Less Contractor Contribution			0.00		0.00		0.00	0.00		0.00		0.00		0.00
Total Supporting Services	1,205,126.00	1,205,126.00	0.00	1,205,126.00	0.00	1,150,896.00	(54,230.00)	143,334.61	1,287,780.61	136,884.61	1,287,780.61	0.00	1,287,780.61	0.00
Costs	18,843,532.00	18,554,134.00	(289,398.00)	18,554,134.00	0.00	18,337,832.00	(216,302.00)	2,590,725.79	20,817,531.79	2,479,699.79	20,817,531.79	0.00	20,817,531.79	0.00
Less: PI			0.00	(700,000.00)	(700,000.00)	(700,000.00)	0.00	0.00	(700,000.00)	0.00	(700,000.00)	0.00	(700,000.00)	0.00
Add: PI Award			0.00	700,000.00	700,000.00	700,000.00	0.00	0.00	700,000.00	0.00	700,000.00	0.00	700,000.00	0.00
Tax on Non-Incentive w/o PI			0.00		0.00	216,302.00	216,302.00	2,590,725.79	272,926.00	56,624.00	272,926.00	0.00	272,926.00	0.00
Total Contractor Costs	18,843,532.00	18,554,134.00	(289,398.00)	18,554,134.00	0.00	18,554,134.00	0.00	2,590,725.79	21,090,457.79	2,536,323.79	21,090,457.79	0.00	21,090,457.79	0.00
PI's not earned for PY					0.00		0.00	(54,402.00)						
Performance Awards in Excess of Target Levels	133,000.00	133,000.00	0.00	133,000.00	0.00	133,000.00	0.00	0.00	133,000.00	0.00	133,000.00	0.00	133,000.00	0.00
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels	18,976,532.00	18,687,134.00	(289,398.00)	18,687,134.00	0.00	18,687,134.00	0.00	2,536,323.79	21,223,457.79	2,536,323.79	21,223,457.79	0.00	21,223,457.79	0.00

Notes:

[1] The dollar amounts in the PY2010 (R3) column for New and RLI non-incentives were erroneously swapped in the Budget table for Budget Modification 7 (Contract modification PBFA-09-05) dated 3/10/11. The amounts should have been $284,700 for New and $91,814.56 for RLI instead of $91,814.56 for New and $284,700 for RLI. Therefore, for budget modification R4, the decrease in RLI operations would only have been $7,814.56.

Portfolio Expenditures

Hawaii Energy utilized a conservative approach for expending our non-incentive and incentive resources during our first program year to alleviate the $1.1 million decrease in non-incentive funds initially budgeted for PY10. There was a carryover of $1.26 million in non-incentives and $1.28 million in incentives from PY09 that was approved by the PUC to augment the PY10 budget.

By year close, Hawaii Energy expended 95% of the two-year incentive budget and 98% of the two-year non-incentive budget (considering expected performance award).

Details of the final PY10 allocations and unspent funds by program category are included in Table 20. Narrative pertaining to individual program expenditures for residential and business programs is provided by Program in sections VII and VIII.

Table 20 – PY10 Program Expenditures and Unspent Funds

	YTD	PY2010 Budget R5	% Spent	Unspent	% Unspent
Residential Programs					
Residential Program Ops and Management					
REEM	2,064,984.86	2,076,900.38	99%	11,915.52	1%
RLI	84,076.34	84,100.00	100%	23.66	0%
New	43,599.48	44,295.00	98%	695.52	2%
Total Residential Programs	2,192,660.68	2,205,295.38	99%	12,634.70	1%
Market Evaluation	67,201.75	68,000.00	99%	798.25	1%
Outreach	344,403.70	344,500.00	100%	96.30	0%
Total Residential Non-Incentive	*2,604,266.13*	*2,617,795.38*	*99%*	*13,529.25*	*1%*
Residential Incentives					
[3] REEM	6,060,569.78	6,066,637.41	100%	6,067.63	0%
RLI	236,769.48	406,227.79	58%	169,458.31	42%
New	123,600.00	762,200.00	16%	638,600.00	84%
Total Residential Incentives	*6,420,939.26*	*7,235,065.20*	*89%*	*814,125.94*	*11%*
Total Residential Programs	**9,025,205.39**	**9,852,860.58**	**92%**	**827,655.19**	**8%**
Business (C&I) Programs					
Business Programs Ops and Management					
BEEM	834,518.85	838,184.00	100%	3,665.15	0%
CBEEM	401,770.60	402,069.00	100%	298.40	0%
New	59,420.77	90,321.00	66%	30,900.23	34%
Total Business Programs	1,295,710.22	1,330,574.00	97%	34,863.78	3%
Market Evaluation	154,009.32	155,000.00	99%	990.68	1%
Outreach	388,904.85	400,999.70	97%	12,094.85	3%
Total Business Non-Incentive	*1,838,624.39*	*1,886,573.70*	*97%*	*47,949.31*	*3%*
Business Incentives					
BEEM	5,099,029.59	5,253,994.00	97%	154,964.41	3%
CBEEM	1,772,810.00	1,976,440.90	90%	203,630.90	10%
New	382,493.29	559,882.00	68%	177,388.71	32%
Total Business Incentives	*7,254,332.88*	*7,790,316.90*	*93%*	*535,984.02*	*7%*
Total Business Programs	**9,092,957.27**	**9,676,890.60**	**94%**	**583,933.33**	**6%**
Total Services and Initiatives	**18,118,162.66**	**19,529,751.18**	**93%**	**1,411,588.52**	**7%**
Supporting Services					
Supporting Services	1,279,687.28	1,287,780.61	99%	8,093.33	1%
Total Supporting Services	**1,279,687.28**	**1,287,780.61**	**99%**	**8,093.33**	**1%**
Subtotal Non-Incentive (Prior to Tax)	5,722,577.80	5,792,149.69	99%	69,571.89	1%
[1] Less Performance Incentives (Prior to Tax)	(668,500.32)	(700,000.00)		(31,499.68)	
Subtotal Non-Incentive Less PI	5,054,077.48	5,092,149.69		38,072.21	
[2] Tax on Non-Incentive w/o performance incentives	238,148.12	272,926.00		34,777.88	
Performance Incentive Award (Inclusive of Tax)		700,000.00		700,000.00	
Subtotal Non-Incentive Billed	*5,292,225.60*	*6,065,075.69*		*772,850.09*	
Subtotal Residential and Business Customer Incentives	*13,675,272.14*	*15,025,382.10*		*1,350,109.96*	
Sub-Total Estimated Contractor Costs	*18,967,497.74*	*21,090,457.79*		*2,122,960.05*	
Performance Awards in Excess of Target Levels		133,000.00		133,000.00	
	18,967,497.74	**21,223,457.79**		**2,255,960.05**	

[1] Budget includes ($31,500) in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[2] Budget includes $31,500 in tax that would have been applied if the performance incentives had not been deducted prior to tax. This will not accrue on invoices due to tax being applied after deductions.

[3] In December 2010, $248,407.96 in CFL costs for Residential Incentives that were incurred during PY2009 have been shifted to PY2010 because they were not expensed until PY 2010. (The Honeywell Invoices for $15,613.80 from 7/6/2010 and $232,794.16 from 7/12/2010 had been invoiced on RW Beck's 6/1-6/30/10 Incentive Invoice.)

VI. PY10 PORTFOLIO SECOND YEAR IMPACTS

PY10 Portfolio Energy and Demand Savings

The Program Energy Savings for Program Year 2010 were:

- First Year – 114,974,011 kWh (49% in Residential and 51% in Business Programs)
- Lifetime – 1,147,085,613 kWh (33% in Residential and 67% for Commercial Programs)

The difference in percentage contributions between first year and lifetime savings is due to the CFLs in the residential energy savings having a relatively short 5 year measure life as compared to longer lived business measures.

- The Program Peak Demand reduction for Program Year was:
- Peak Demand – 17,011 kW (52% from Residential and 48% from Business)

The following pages provide the program Summary Tables for energy and demand by Program, System and Customer levels.

- Table 22 – PY10 Program Level Summary Impacts by Program
- Table 23 – PY10 System Level Summary Impacts by Program
- Table 24 – PY10 Customer Level Summary Impacts by Program

Table 21 – PY10 Program Level Summary Impacts by Program

PY2010 Hawaii Energy - Program Level Impact Summary by Program

Program	Apps Proccessed	Quantity of Energy Efficient Equipment (Units)	Incentives ($)	Demand Impact (kW)	First Year Energy Impact (kWh/1st yr.)	Lifetime Energy Impact (kWh/Life)	First Year Impact Cost $/kWh	Lifetime Impact Cost $/kWh
Business	**4,451**	**478,740**	**$ 7,254,333**	**8,116**	**58,065,632**	**765,700,707**	**$ 0.125**	**$ 0.009**
BEEM	4,310	471,279	$ 5,099,030	5,466	39,007,627	503,505,950	$ 0.131	$ 0.010
CBEEM	128	239	$ 1,772,810	2,519	17,847,919	255,072,454	$ 0.099	$ 0.007
NEW - Bus	13	7,222	$ 382,493	131	1,210,086	7,122,304	$ 0.316	$ 0.054
Residential	**53,568**	**1,777,887**	**$ 6,420,938**	**8,894**	**56,908,379**	**381,384,906**	**$ 0.113**	**$ 0.017**
REEM	53,176	1,698,591	$ 6,060,569	8,525	53,643,302	348,026,226	$ 0.113	$ 0.017
NEW - Res	3	3	$ 123,600	-	950,106	19,002,119	$ 0.130	$ 0.007
RLI	389	79,293	$ 236,769	370	2,314,972	14,356,561	$ 0.102	$ 0.016
Total	**58,019**	**2,256,627**	**$ 13,675,271**	**17,011**	**114,974,011**	**1,147,085,613**	**$ 0.119**	**$ 0.012**

Program	Incentives ($)	Total Resource Benefit (TRB)	Total Resource Cost (TRC)	Driven Benefit Ratio (TRC/ Incentive $)	Driven Investment Ratio (TRC / Incentive $)	Benefit Test (TRB/TRC)
Business	**$ 7,254,333**	**$ 84,380,931**	**$ 47,258,171**	**11.6**	**6.5**	**1.8**
BEEM	$ 5,099,030	$ 56,690,635	$ 33,226,778	11.1	6.5	1.7
CBEEM	$ 1,772,810	$ 26,841,358	$ 13,598,890	15.1	7.7	2.0
NEW - Bus	$ 382,493	$ 848,939	$ 432,503	2.2	1.1	2.0
Residential	**$ 6,420,938**	**$ 50,329,878**	**$ 52,481,959**	**7.8**	**8.2**	**1.0**
REEM	$ 6,060,569	$ 47,108,094	$ 49,667,627	7.8	8.2	0.9
NEW - Res	$ 123,600	$ 1,289,176	$ 123,600	10.4	1.0	10.4
RLI	$ 236,769	$ 1,932,608	$ 2,690,732	8.2	11.4	0.7
Total	**$ 13,675,271**	**$ 134,710,809**	**$ 99,740,130**	**9.9**	**7.3**	**1.4**

Table 22 – PY10 System Level Summary Impacts by Program

PY2010 Hawaii Energy - System Level Impact Summary by Program

Program	Apps Proccessed	Quantity of Energy Efficient Equipment (Units)	Incentives ($)	Demand Impact (kW)	First Year Energy Impact (kWh/1st yr.)	Lifetime Energy Impact (kWh/Life)	First Year Impact Cost $/kWh	Lifetime Impact Cost $/kWh
Business	**4,451**	**478,740**	**$ 7,254,333**	**$ 11,118**	**79,541,961**	**1,048,905,079**	**$ 0.091**	**$ 0.007**
BEEM	4,310	471,279	$ 5,099,030	$ 7,488	53,435,106	689,734,178	$ 0.095	$ 0.007
CBEEM	128	239	$ 1,772,810	$ 3,451	24,449,204	349,414,320	$ 0.073	$ 0.005
NEW - Bus	13	7,222	$ 382,493	$ 179	1,657,652	9,756,581	$ 0.231	$ 0.039
Residential	**53,568**	**1,777,887**	**$ 6,420,938**	**$ 12,184**	**77,956,684**	**522,445,076**	**$ 0.082**	**$ 0.012**
REEM	53,176	1,698,591	$ 6,060,569	$ 11,678	73,483,975	476,748,255	$ 0.082	$ 0.013
NEW - Res	3	3	$ 123,600	$ -	1,301,515	26,030,300	$ 0.095	$ 0.005
RLI	389	79,293	$ 236,769	$ 507	3,171,194	19,666,522	$ 0.075	$ 0.012
Total	**58,019**	**2,256,627**	**$ 13,675,271**	**$ 23,303**	**157,498,646**	**1,571,350,155**	**$ 0.087**	**$ 0.009**

Program	Incentives ($)	Total Resource Benefit (TRB)	Total Resource Cost (TRC)	Driven Benefit Ratio (TRC/ Incentive $)	Driven Investment Ratio (TRC / Incentive $)	Benefit Test (TRB/TRC)
Business	**$ 7,254,333**	**$ 115,590,317**	**$ 47,258,171**	**15.9**	**6.5**	**2.4**
BEEM	$ 5,099,030	$ 77,658,403	$ 33,226,778	15.2	6.5	2.3
CBEEM	$ 1,772,810	$ 36,768,984	$ 13,598,890	20.7	7.7	2.7
NEW - Bus	$ 382,493	$ 1,162,930	$ 432,503	3.0	1.1	2.7
Residential	**$ 6,420,938**	**$ 68,945,038**	**$ 52,481,959**	**10.7**	**8.2**	**1.3**
REEM	$ 6,060,569	$ 64,531,636	$ 49,667,627	10.6	8.2	1.3
NEW - Res	$ 123,600	$ 1,765,994	$ 123,600	14.3	1.0	14.3
RLI	$ 236,769	$ 2,647,408	$ 2,690,732	11.2	11.4	1.0
Total	**$ 13,675,271**	**$ 184,535,355**	**$ 99,740,130**	**13.5**	**7.3**	**1.9**

Table 23 – PY10 Customer Level Summary Impacts by Program

PY2010 Hawaii Energy - Customer Level Impact Summary by Program

Program	Apps Proccessed	Quantity of Energy Efficient Equipment (Units)	Incentives ($)	Demand Impact (kW)	First Year Energy Impact (kWh/1st yr.)	Lifetime Energy Impact (kWh/Life)	First Year Impact Cost $/kWh	Lifetime Impact Cost $/kWh
Business	**4,451**	**478,740**	**$ 7,254,333**	**10,026**	**71,729,552**	**944,827,406**	**$ 0.101**	**$ 0.008**
BEEM	4,310	471,279	$ 5,099,030	6,750	48,172,621	620,780,548	$ 0.106	$ 0.008
CBEEM	128	239	$ 1,772,810	3,114	22,058,112	315,217,438	$ 0.080	$ 0.006
NEW - Bus	13	7,222	$ 382,493	162	1,498,819	8,829,420	$ 0.255	$ 0.043
Residential	**53,568**	**1,777,887**	**$ 6,420,938**	**10,993**	**70,431,763**	**471,839,647**	**$ 0.091**	**$ 0.014**
REEM	53,176	1,698,591	$ 6,060,569	10,532	66,377,015	430,553,978	$ 0.091	$ 0.014
NEW - Res	3	3	$ 123,600	-	1,170,743	23,414,860	$ 0.106	$ 0.005
RLI	389	79,293	$ 236,769	461	2,884,005	17,870,809	$ 0.082	$ 0.013
Total	**58,019**	**2,256,627**	**$ 13,675,271**	**21,019**	**142,161,315**	**1,416,667,053**	**$ 0.096**	**$ 0.010**

Program	Incentives ($)	Total Resource Benefit (TRB)	Total Resource Cost (TRC)	Driven Benefit Ratio (TRC/ Incentive $)	Driven Investment Ratio (TRC / Incentive $)	Benefit Test (TRB/TRC)
Business	**$ 7,254,333**	**$ 104,231,138**	**$ 47,258,171**	**14.4**	**6.5**	**2.2**
BEEM	$ 5,099,030	$ 70,007,002	$ 33,226,778	13.7	6.5	2.1
CBEEM	$ 1,772,810	$ 33,171,999	$ 13,598,890	18.7	7.7	2.4
NEW - Bus	$ 382,493	$ 1,052,137	$ 432,503	2.8	1.1	2.4
Residential	**$ 6,420,938**	**$ 62,272,965**	**$ 52,481,959**	**9.7**	**8.2**	**1.2**
REEM	$ 6,060,569	$ 58,278,824	$ 49,667,627	9.6	8.2	1.2
NEW - Res	$ 123,600	$ 1,588,553	$ 123,600	12.9	1.0	12.9
RLI	$ 236,769	$ 2,405,588	$ 2,690,732	10.2	11.4	0.9
Total	**$ 13,675,271**	**$ 166,504,103**	**$ 99,740,130**	**12.2**	**7.3**	**1.7**

Savings at Customer, System and Program Levels

The Program Level Savings translates to the program participants achieving an overall first year Customer Energy Savings of 142,161,315 kWh per year (1.5% of 2010 Sales) and a Customer Peak Demand Savings of 21,019 kW (1.4% of 2010 Sales). This does not reflect the Peak Demand Savings for the customer as it may not be coincident with their actual measured peak demand used for billing purposes. Tables 24 and 25 show level of savings by impact. Tables 26 and 27 show impact level by island.

Table 24 – PY10 Customer, System and Program Level Energy Savings by Program

PY2010 Energy (kWh) Reduction by Impact Level by Program					
	Customer Level Savings	System Losses	System Level Savings	Net-to-Gross Ratio	Program Level Savings
Business	**71,729,552**	**10.9%**	**79,541,961**	**73.0%**	**58,065,632**
BEEM	48,172,621	10.9%	53,435,106	73.0%	39,007,627
CBEEM	22,058,112	10.8%	24,449,204	73.0%	17,847,919
NEW - Bus	1,498,819	10.6%	1,657,652	73.0%	1,210,086
Residential	**70,431,763**	**10.7%**	**77,956,684**	**73.0%**	**56,908,379**
REEM	66,377,015	10.7%	73,483,975	73.0%	53,643,302
NEW - Res	1,170,743	11.2%	1,301,515	73.0%	950,106
RLI	2,884,005	10.0%	3,171,194	73.0%	2,314,972
Total	**142,161,315**	**10.8%**	**157,498,646**	**73.0%**	**114,974,011**
% of Customer Level Savings			111%		81%

Table 25 – PY10 Customer, System and Program Level Demand Savings by Program

PY2010 Demand (kW) Reduction by Impact Level by Program					
	Customer Level Savings	System Losses	System Level Savings	Net-to-Gross Ratio	Program Level Savings
Business	**10,026**	**10.9%**	**11,118**	**73.0%**	**8,116**
BEEM	6,750	10.9%	7,488	73.0%	5,466
CBEEM	3,114	10.8%	3,451	73.0%	2,519
NEW - Bus	162	10.6%	179	73.0%	131
Residential	**10,993**	**10.8%**	**12,184**	**73.0%**	**8,894**
REEM	10,532	10.9%	11,678	73.0%	8,525
NEW - Res	-	0.0%	-	0.0%	-
RLI	461	9.9%	507	73.0%	370
Total	**21,019**	**10.9%**	**23,303**	**73.0%**	**17,011**
% of Customer Level Savings			111%		81%

Table 26 – PY10 Customer, System and Program Level Demand Savings by Island

PY2010 Demand (kW) Reduction by Impact Level and by Island					
	Customer Level Savings	System Losses	System Level Savings	Net-to-Gross Ratio	Program Level Savings
Oahu	16,266	11.29%	18,102	73.0%	13,215
Hawaii	2,450	8.92%	2,669	73.0%	1,948
Maui	2,267	9.91%	2,491	73.0%	1,819
Lanai	2	9.96%	2	73.0%	2
Molokai	34	9.96%	38	73.0%	28
Total	21,019	10.86%	23,303	73.0%	17,011
% of Customer Level Savings			111%		81%

Table 27 – PY10 Customer, System and Program Level Energy Savings by Island

PY2010 Energy (kWh) Reduction by Impact Level and by Island					
	Customer Level Savings	System Losses	System Level Savings	Net-to-Gross Ratio	Program Level Savings
Oahu	110,185,820	11.17%	122,493,397	73.0%	89,420,180
Hawaii	16,143,096	9.00%	17,595,969	73.0%	12,845,058
Maui	15,416,147	9.96%	16,951,569	73.0%	12,374,646
Lanai	15,270	9.96%	16,791	73.0%	12,257
Molokai	400,981	9.96%	440,919	73.0%	321,871
Total	142,161,315	10.79%	157,498,646	73.0%	114,974,011
% of Customer Level Savings			111%		81%

CFL - Major Source of Total Combined Program Energy and Demand Savings

Despite the significant reduction (41% energy and 59% demand) to the Residential CFL savings allowed in the TRM in PY10, the largest single contributing measure to the program was CFLs, as shown in Table 28.

- 1,798,633 CFLs (Business and Residential combined)
- 50,765,075 kWh (44% of Total Program)
- 7,591 kW (45% of Total Program)
- 44% of the total Portfolio's energy reductions
- 80% of the residential program's total energy reductions

By comparison, if the PY10 program level savings were calculated at PY09 levels, the overall program results would be:

27,070 kW and 162,054,118 kWh
vs.
17,011 kW and 114,974,011 kWh

This was a 37% decrease in demand and a 29% decrease in Program Energy Levels achieved, see Table 29 for details.

CFL prices have been increasing since January 2010 due to market restraint of rare earth phosphors and this may continue into PY11 affecting CFL sales.

Table 28 – PY10 CFL Statistics

PY2010 CFL Statistics				
County Comparison	**Business**	**Residential**	**Total**	**%**
C&C of Honolulu	52,598	1,237,034	1,289,632 bulbs	71.7%
Hawaii County	1,146	311,813	312,959 bulbs	17.4%
Maui County	6,336	189,706	196,042 bulbs	10.9%
Total	60,080	1,738,553	1,798,633 bulbs	

Demand Comparison	**Business**	**Residential**	**Total**
CFL Program kW	621	6,970	7,591 kW
Portfolio kW	8,116	8,894	17,011 kW
CFL % of Demand	8%	78%	45%

Energy Comparison	**Business**	**Residential**	**Total**
CFL Program kWh	4,985,218	45,779,857	50,765,075 kWh
Portfolio kWh	58,065,632	56,908,379	114,974,011 kWh
CFL % of Energy	9%	80%	44%

Incentive Comparison	**Business**	**Residential**	**Total**
CFL Incentives	$ 97,616	$ 2,894,591	$ 2,992,207
Portfolio Incentives	$ 7,254,333	$ 6,420,938	$ 13,675,271
CFL % of Incentives	1%	45%	22%

Cost Effectiveness	**Business**	**Residential**	**Total**
CFL Incentives	$ 97,616	$ 2,894,591	$ 2,992,207
CFL Program kWh	4,985,218	45,779,857	50,765,075
First Year $/kWh	$ 0.02 /kWh	$ 0.06 /kWh	$ 0.06 /kWh

Table 29 – PY10 Impact of Change in Residential CFL Savings Values

PY2010 Residential CFL Energy Change Review of Program Level Savings Impacts

PY10

			kW/Lamp	kWh/Lamp		
			0.005	32.6		
Customers	*County*	*Count*	*Customer kW*	*Customer Level kWh*	*Program Level kW*	*Program Level kWh*
Military Homes	Honolulu	38,294	191	1,248,384	155	1,013,115
Residential Homes	Honolulu	1,237,034	6,175	40,327,308	5,012	32,727,264
	Hawaii	311,813	1,556	10,165,103	1,238	8,088,373
	Maui	189,706	947	6,184,416	760	4,964,280
		1,776,847	8,870	57,925,212	7,165	46,793,032

PY10 with PY09 Savings per Lamp

			kW/Lamp	kWh/Lamp		
			0.012	65.4		
Customers	*County*	*Count*	*Customer kW*	*Customer Level kWh*	*Program Level kW*	*Program Level kWh*
Military Homes	Honolulu	38,294	460	2,504,428	373	2,032,446
Residential Homes	Honolulu	1,237,034	14,844	80,902,024	12,047	65,655,309
	Hawaii	311,813	3,742	20,392,570	2,977	16,226,368
	Maui	189,706	2,276	12,406,772	1,827	9,959,015
		1,776,847	21,322	116,205,794	17,224	93,873,138
		Difference	12,452	58,280,582	**10,059 kW**	**47,080,107 kWh**

PY2010 Savings Reduction as Compared to PY09 Residential CFL Savings Numbers	10,059 kW	47,080,107 kWh	59%	41%
PY2010 Total Program Level Savings	17,011 kW	114,974,011 kWh	Diff % of Claim	
Potential PY2010 Savings at PY2009 Residential CFL Savings Values	**27,070 kW**	**162,054,118 kWh**		
Increase in Performance	37%	29%		

Target Levels	*Program Level kW*	*Program Level kWh*
Residential		71,245,000 kWh
Business		61,370,000 kWh
Target Levels	23,126 kW	132,615,000 kWh

PY10 Results	*Program Level kW*	*Program Level kWh*
Residential		56,908,379 kWh
Business		58,065,632 kWh
Claimed Levels	17,011 kW	114,974,011 kWh

Measure Contribution towards Savings Impacts

 # 1 Contributor – High Efficiency Lighting – 66.4% first year and 52.7% lifetime energy savings.
CFLs and T8 lighting contribute the most towards the program as they are the most cost effective measures a customer can implement.

 # 2 Contributor – Customized Project Measures – 15.3% of first year and 21.9% of lifetime energy savings.
This measure was dominated by building envelope and HVAC projects. These measures have longer measure lives and thus provide a greater contribution towards the lifetime energy savings.

 # 3 Contributor – High Efficiency Appliances – 5.1% of first year and 6.9% of the lifetime energy savings.
Refrigerators were the largest contributor towards High Efficiency Appliances.

Table 30 – PY10 Contribution by Category Type in Order of Program Life Energy Impact

PY2010 Contribution by Category in Order of Lifetime Energy Impact

Category	Applications	%	Measure Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Incentives ($)	%
High Efficiency Lighting	17,770	30.6%	2,144,843	10,521	61.9%	76,380,440	66.4%	604,403,710	52.7%	$ 5,231,849	38.3%
Customized Project Measures	126	0.2%	237	2,488	14.6%	17,621,128	15.3%	251,689,662	21.9%	$ 1,739,818	12.7%
High Efficiency Appliances	29,961	51.6%	29,972	720	4.2%	5,916,637	5.1%	79,131,100	6.9%	$ 1,609,745	11.8%
High Efficiency HVAC	429	0.7%	2,572	1,317	7.7%	5,304,791	4.6%	73,912,845	6.4%	$ 1,976,688	14.5%
High Efficiency Air Conditioning	6,750	11.6%	7,864	1,041	6.1%	3,823,164	3.3%	58,812,204	5.1%	$ 979,965	7.2%
High Efficiency Water Heating	2,421	4.2%	2,422	610	3.6%	2,798,375	2.4%	40,327,368	3.5%	$ 1,209,425	8.8%
Residential Design and Audits	3	0.0%	3	-	0.0%	950,106	0.8%	19,002,119	1.7%	$ 123,600	0.9%
Business Direct Installation	5	0.0%	7,214	131	0.8%	1,210,086	1.1%	7,122,304	0.6%	$ 319,396	2.3%
Residential Low Income	386	0.7%	1,821	59	0.3%	288,918	0.3%	4,226,295	0.4%	$ 38,350	0.3%
High Efficiency Water Pumping	7	0.0%	7	22	0.1%	208,267	0.2%	3,123,998	0.3%	$ 17,785	0.1%
Building Envelope Improvements	29	0.0%	59,388	73	0.4%	296,923	0.3%	2,969,233	0.3%	$ 56,669	0.4%
High Efficiency Motors	98	0.2%	255	26	0.2%	153,345	0.1%	2,300,171	0.2%	$ 35,790	0.3%
Energy Awareness, Measurement and Control Systems	4	0.0%	4	0	0.0%	10,693	0.0%	53,464	0.0%	$ 23,531	0.2%
Residential Energy Services & Maintenance	17	0.0%	17	2	0.0%	11,140	0.0%	11,140	0.0%	$ 850	0.0%
Accounting Record	8	0.0%	8	-	0.0%	-	0.0%	-	0.0%	$ 63,097	0.5%
Total	**58,019**	**100.0%**	**2,256,627**	**17,011**	**100.0%**	**114,974,011**	**100.0%**	**1,147,085,613**	**100.0%**	**$ 13,675,271**	**100.0%**

Impacts by Rate Schedule

The Net Energy First year impacts were greatest in the Schedule "R" Residential Rate schedule with 55,956,626 kWh or 48.7% of savings.

Oahu Residential Customers provided the greatest savings of 40,775,380 kWh per year of all the rate schedules.

Demand impact had similar results with the Residential Rate schedule customers providing 8,894 kW or 52.3% of the demand savings.

Table 31 – PY10 Program Energy Impact by Rate Schedule

PY2010 Portfolio Energy (kWh) Program Level Impacts by Rate Schedule

Island	"G"	"H/K"	"J"	"P"	"R"	Total	%
Oahu	2,444,847	1,829	22,760,499	23,437,625	40,775,380	89,420,180 kWh	77.8%
Hawaii	998,538	-	1,602,128	961,238	9,283,155	12,845,058 kWh	11.2%
Maui	598,667	109,274	851,972	4,952,221	5,862,511	12,374,646 kWh	10.8%
Lanai	84	-	-	6,301	5,872	12,257 kWh	0.0%
Molokai	214,790	-	77,373	-	29,708	321,871 kWh	0.3%
Total	4,256,926	111,103	25,291,972	29,357,384	55,956,626	114,974,011 kWh	100.0%
%	3.7%	0.1%	22.0%	25.5%	48.7%	100.0%	

Oahu Residential Customers provided the greatest savings of 6,544 kW per year of all the rate schedules.

Table 32 – PY10 Program Demand Impact by Rate Schedule

PY2010 Portfolio Demand (kW) Program Level Impacts by Rate Schedule

Island	"G"	"H/K"	"J"	"P"	"R"	Total	%
Oahu	257	1	2,958	3,456	6,544	13,215 kW	77.7%
Hawaii	161	-	210	146	1,431	1,948 kW	11.5%
Maui	72	9	155	669	913	1,819 kW	10.7%
Lanai	0	-	-	1	1	2 kW	0.0%
Molokai	16	-	7	-	5	28 kW	0.2%
Total	506	10	3,329	4,272	8,894	17,011 kW	100.0%
%	3.0%	0.1%	19.6%	25.1%	52.3%	100.0%	

Program Level Energy Impacts by Program and Rate Class

Table 33 shows the programmatic energy contributions by rate class.

 # 1 Contributor – Residential Rate Schedule "R" – 55,956,626 kWh
The major contributor towards this value was residential CFLs followed by Solar Water Heating.

 # 2 Contributor – Business Large Customer "P" – 29,357,384 kWh
Schedule P Customers are the biggest energy consumers and they undertake the largest energy savings projects. Schedule "P" savings were dominated by the State of Hawaii with "whole" building lighting and HVAC projects, and Department of Defense, primarily through military homes.

Table 33 – PY10 Program Level Energy Impacts by Program and Rate Class

PY2010 Portfolio Energy (kWh) Program Level Impacts by Program by Rate Schedule

Rate	BEEM	BNEW	CBEEM	REEM	RLI	RNEW	Total	%
G	1,786,671	1,210,086	487,749	-	1,648	770,773	4,256,926 kWh	4.4%
H / K	111,103	-	-	-	-	-	111,103 kWh	0.1%
J	19,420,414	-	5,692,225	-	-	179,333	25,291,972 kWh	26.0%
P	17,689,439	-	11,667,945	-	-	-	29,357,384 kWh	30.2%
R	-	-	-	53,643,302	2,313,324	-	55,956,626 kWh	57.6%
Total	39,007,627	1,210,086		53,643,302	2,314,972	950,106	97,126,092 kWh	100.0%
%	40.2%	1.2%	0.0%	55.2%	2.4%	1.0%	100.0%	

Program Level Demand Impacts by Program and Rate Class

Table 34 shows the programmatic demand contributions by rate class.

 # 1 Contributor – Residential Rate Schedule "R" – 8,894 kW
The major contributor towards this value was residential CFLs followed by Solar Water Heating.

 # 2 Contributor – Business Large Customer "P" – 4,272 kW
Schedule P Customers are the biggest energy consumers and they undertake the largest energy savings projects. Schedule "P" savings were dominated by the State of Hawaii with "whole" building lighting and HVAC projects, and Department of Defense, primarily through military homes.

Table 34– PY10 Program Level Demand Impacts by Program and Rate Class

PY2010 Portfolio Demand (kW) Program Level Impacts by Program by Rate Schedule

Rate	BEEM	BNEW	CBEEM	REEM	RLI	RNEW	Total	%
G	270	131	104	-	0	-	506 kW	3.0%
H / K	10	-	-	-	-	-	10 kW	0.1%
J	2,493	-	836	-	-	-	3,329 kW	19.6%
P	2,694	-	1,578	-	-	-	4,272 kW	25.1%
R	-	-	-	8,525	369	-	8,894 kW	52.3%
Total	5,466	131	2,519	8,525	370	-	17,011 kW	100.0%
%	32.1%	0.8%	14.8%	50.1%	2.2%	0.0%	100.0%	

Customer Level Energy by Rate Class and Program

Table 35 shows the programmatic demand contributions by rate class.

 # 1 Contributor – Residential Rate Schedule "R" – 69,258,954 kWh
The major contributor towards this value was residential CFLs followed by Solar Water Heating.

 # 2 Contributor – Business Large Customer "P" – 36,265,683 kWh
Schedule P Customers are the biggest energy consumers and they undertake the largest energy savings projects. Schedule "P" savings were dominated by the State of Hawaii with "whole" building lighting and HVAC projects, and Department of Defense, primarily through military homes.

Table 35 – PY10 Customer Level Energy by Rate Class and Program

PY2010 Portfolio Energy (kWh) Customer Level Impacts by Program by Rate Schedule

Rate	BEEM	BNEW	CBEEM	REEM	RLI	RNEW	Total	%
G	2,225,101	1,498,819	605,266	-	2,066	949,765	5,281,017 kWh	3.7%
H / K	138,386	-	-	-	-	-	138,386 kWh	0.1%
J	23,976,131	-	7,020,166	-	-	220,978	31,217,275 kWh	22.0%
P	21,833,002	-	14,432,681	-	-	-	36,265,683 kWh	25.5%
R	-	-	-	66,377,015	2,881,939	-	69,258,954 kWh	48.7%
Total	48,172,621	1,498,819	22,058,112	66,377,015	2,884,005	1,170,743	142,161,315 kWh	100.0%
%	33.9%	1.1%	15.5%	46.7%	2.0%	0.8%	100.0%	

Customer Level Demand by Rate Class and Program

Table 36 shows the programmatic demand contributions by rate class.

 # 1 Contributor – Residential Rate Schedule "R" – 10,993 kW
The major contributor towards this value was residential CFLs followed by Solar Water Heating.

 # 2 Contributor – Business Large Customer "P" – 5,277 kW
Schedule P Customers are the biggest energy consumers and they undertake the largest energy savings projects. Schedule "P" savings were dominated by the State of Hawaii with "whole" building lighting and HVAC projects, and Department of Defense, primarily through military homes.

Table 36 – PY10 Customer Level Demand by Rate Class and Program

PY2010 Portfolio Demand (kW) Customer Level Impacts by Program by Rate Schedule

Rate	BEEM	BNEW	CBEEM	REEM	RLI	RNEW	Total	%
G	336	162	129	-	0	-	628 kW	3.0%
H / K	12	-	-	-	-	-	12 kW	0.1%
J	3,078	-	1,032	-	-	-	4,110 kW	19.6%
P	3,324	-	1,953	-	-	-	5,277 kW	25.1%
R	-	-	-	10,532	461	-	10,993 kW	52.3%
Total	6,750	162	3,114	10,532	461	-	21,019 kW	100.0%
%	32.1%	311414.0%	14.8%	50.1%	2.2%	0.0%	100.0%	

Energy Efficiency Portfolio Standard (EEPS) Impacts

Application of First Year Energy Savings towards EEPS Goal

Utilizing demand side management impacts from 1996 through 2010 and projecting the current impact (PY10) into the future, there are two (2) methods to apply the program energy savings toward EEPS goal. These two methods are illustrated in Table 37.

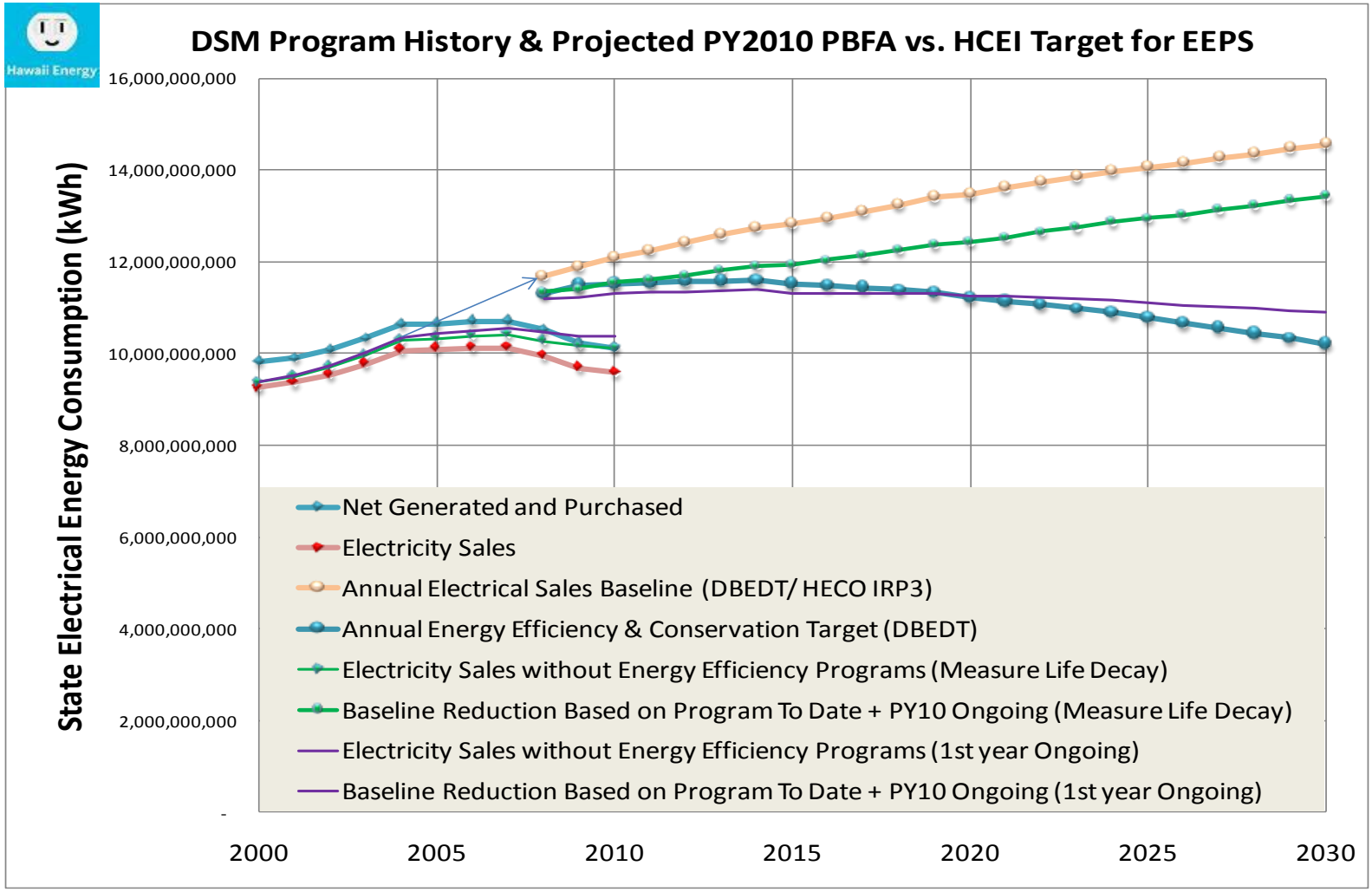
- First Year Savings Lasts Forever – 3,662 GWh potential achievement if the 1st year savings for every measure is continued to be counted for each year after it occurs (Purple Line on right).
- First Year Savings Only Lasts as Long as Measure Life – 1,129 GWh (26%) of the 4,300 GWh 2030 energy efficiency goal if the savings for each measure is counted for each year until the measure life ends (Green Line on right).

Table Assumptions

Table 38 projects the current program portfolio being achieved each year from 2010 to 2030:

- Does not have Existing Solar Water Heaters removed as an "Offset" Technologies taken out prior to 2015 (in RPS rules). The New Solar installations have been removed.
- From 2010 to 2030 there is an assumption that there is a cost effective substitute to maintain the equivalent of the CFL contribution in PY10 until 2030. This is an unknown technology at this time as the current potential of CFL to LEDs will not provide the same impact of an Incandescent to CFL retrofit and are currently not cost effective for residential consumers.

Table 37 – PY10 Projected PY10 Performance projected to 2030 EEPS Target



Portfolio Impacts Relative to Load

Tables 38 and 39 show the program Customer Level Impacts as compared to the 2010 electricity sales.

The Customer Level Savings were equivalent to 1.4% of the 2010 annual energy usage and 1.3% of the peak demand for the utility customers.

Oahu had both the largest energy and demand reductions and the largest percentage of load with energy at 1.4% and demand at 1.4%.

Table 38 – PY10 Energy Impacts vs. 2010 Sales

PY10 - Customer Level Energy (kWh) Impacts vs. Sales					
Island	2010 kWh Sales*	Customer Level Savings	% of Sales	Program Level Savings	% of Sales
Oahu	7,657,000,000	110,185,820	1.4%	89,420,180	1.2%
Maui	1,204,400,000	15,416,147	1.3%	12,374,646	1.0%
Hawaii	1,194,200,000	16,143,096	1.4%	12,845,058	1.1%
Molokai	34,500,000	400,981	1.2%	321,871	0.9%
Lanai	26,300,000	15,270	0.1%	12,257	0.0%
Total	10,116,400,000	142,161,315	1.4%	114,974,011	1.1%
* Reported HEI 2010 10K Report					

Table 39 – PY10 Demand Impacts vs. 2010 Sales

PY10 - Customer Level Demand(kW) Impacts vs. Sales					
Island	2010 kW Peak*	Customer Level Reduction	% of Peak	Program Level Reduction	% of Peak
Oahu	1,162,000	16,266	1.4%	13,215	1.1%
Maui	199,400	2,267	1.1%	1,819	0.9%
Hawaii	190,600	2,450	1.3%	1,948	1.0%
Molokai	5,600	34	0.6%	28	0.5%
Lanai	4,800	2	0.0%	2	0.0%
Total	1,562,400	21,019	1.3%	17,011	1.1%
* Reported HEI 2010 10K Report					

Portfolio Total Resource Benefit (TRB) and Total Resource Cost (TRC)

TRB

The Utility's total avoided cost of all the saved energy and capacity avoided is called the Total Resource Benefit (TRB). The total Program portfolio has a net TRB of $134,710,809 (equivalent to a System level of $184,535,355). Table 40 on the next page shows the measures and their relative contributions. Three measures provided 80% of the TRB value. They are: High Efficiency Lighting, Customized Project Measures and High Efficiency HVAC.

- *High Efficiency Lighting* – The largest contributor to the TRB at $71,488,863 (53.1%). Residential CFLs alone have a 39.8% first year energy impact contribution to the program and despite a short five (5) year useful life and small per unit savings number. It is the greatest contributor to the TRB at $31,267,622 (23.2%).
- *Customized Project Measures* – The second largest contributor with $26,470,672 (19.6%). The Customized Project measures represents 15.3% of the first year energy contribution, however, the 14.3 year average useful life of these measures provided a significant TRB value.
- *High Efficiency* Appliances – The third and last measure to offer significant contribution at $10,316,976 (7.7%) was High Efficiency Appliances. The measure has a 13.4 year useful life and a 5,916,637 kWh first year energy savings.

TRC

Total Resource Cost is the customer's project or incremental cost to purchase and install the energy efficient equipment or make operational changes above what would have been done anyway. The PY10 Program Savings were achieved with an estimated TRC of $99,740,130. The largest investment was Air Conditioning Package and Split Units at $19,750,600 (19.8%). The next largest contributor was CFLs at $10,419,231 (10.4%).

TRC Test

This is a simple benefit over cost test that compares the ratio of the TRB to the TRC. The test of cost effectiveness is if the benefit exceeds the cost. The total program TRC Test was 1.4. The measures with the highest TRC test values were Commercial Lighting, with small incremental costs above the standard equipment. The lowest TRC test values, below 1.0 were for Solar Water Heaters and Energy Star Appliances Table 40 on the following page provides the Portfolio TRB and TRC by measure.

Table 40 – Measure Portfolio TRB & TRC

PY2010 Contribution by Category in Order of Lifetime Energy Impact

Category	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
High Efficiency Lighting	10,521	61.9%	76,380,440	66.4%	604,403,710	52.7%	7.9	4.9	$ 71,488,863	53.1%	$ 14,713,306	14.8%	$ 5,231,849	38.3%
Customized Project Measures	2,488	14.6%	17,621,128	15.3%	251,689,662	21.9%	14.3	2.0	$ 26,470,672	19.6%	$ 13,442,518	13.5%	$ 1,739,818	12.7%
High Efficiency Appliances	720	4.2%	5,916,637	5.1%	79,131,100	6.9%	13.4	0.4	$ 10,316,976	7.7%	$ 26,931,687	27.0%	$ 1,609,745	11.8%
High Efficiency HVAC	1,317	7.7%	5,304,791	4.6%	73,912,845	6.4%	13.9	0.4	$ 10,294,016	7.6%	$ 24,320,159	24.4%	$ 1,976,688	14.5%
High Efficiency Air Conditioning	1,041	6.1%	3,823,164	3.3%	58,812,204	5.1%	15.4	1.4	$ 6,932,082	5.1%	$ 4,895,319	4.9%	$ 979,965	7.2%
High Efficiency Water Heating	610	3.6%	2,798,375	2.4%	40,327,368	3.5%	14.4	0.5	$ 5,475,158	4.1%	$ 11,870,950	11.9%	$ 1,209,425	8.8%
Residential Design and Audits	-	0.0%	950,106	0.8%	19,002,119	1.7%	20.0	10.4	$ 1,289,176	1.0%	$ 123,600	0.1%	$ 123,600	0.9%
Business Direct Installation	131	0.8%	1,210,086	1.1%	7,122,304	0.6%	5.9	2.7	$ 848,939	0.6%	$ 319,397	0.3%	$ 319,396	2.3%
Residential Low Income	59	0.3%	288,918	0.3%	4,226,295	0.4%	14.6	0.2	$ 548,048	0.4%	$ 2,225,900	2.2%	$ 38,350	0.3%
High Efficiency Water Pumping	22	0.1%	208,267	0.2%	3,123,998	0.3%	15.0	1.2	$ 318,369	0.2%	$ 271,679	0.3%	$ 17,785	0.1%
Building Envelope Improvements	73	0.4%	296,923	0.3%	2,969,233	0.3%	10.0	2.5	$ 448,713	0.3%	$ 178,163	0.2%	$ 56,669	0.4%
High Efficiency Motors	26	0.2%	153,345	0.1%	2,300,171	0.2%	15.0	0.9	$ 272,788	0.2%	$ 307,873	0.3%	$ 35,790	0.3%
Energy Awareness, Measurement and Control Systems	0	0.0%	10,693	0.0%	53,464	0.0%	5.0	0.2	$ 5,407	0.0%	$ 23,588	0.0%	$ 23,531	0.2%
Residential Energy Services & Maintenance	2	0.0%	11,140	0.0%	11,140	0.0%	1.0	0.6	$ 1,603	0.0%	$ 2,886	0.0%	$ 850	0.0%
Accounting Record	-	0.0%	-	0.0%	-	0.0%			$ -	0.0%	$ -	0.0%	$ 248,714	1.8%
Business Design, Audits and Commissioning	-	0.0%	-	0.0%	-	0.0%		-	$ -	0.0%	$ 113,107	0.1%	$ 63,097	0.5%
Total	**17,011**	**100.0%**	**114,974,011**	**100.0%**	**1,147,085,613**	**100.0%**	**10.0**	1.4	**$ 134,710,809**	**100.0%**	**$ 99,740,130**	**100.0%**	**$ 13,675,271**	**100.0%**

TRC Cost Development

To calculate the TRC, the measure cost values used by HECO in the 2010 A&S report were utilized. These TRC values are older and will be reevaluated for PY10. Tables 41 and 42 provide the per unit cost and incentives values associated with the Program measures.

Table 41 – PY10 TRC Measure Values

PY2010 Contribution by Category in Order of Lifetime Energy Impact

	Measure	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/ TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
1.	CFL - Residential	6,970	41.0%	45,779,857	39.8%	228,899,287	20.0%	5.0	3.0	$ 31,267,622	23.2%	$ 10,419,231	10.4%	$ 2,894,591	21.2%
2.	T8	1,671	9.8%	14,445,561	12.6%	202,237,854	17.6%	14.0	15.5	$ 21,512,899	16.0%	$ 1,387,105	1.4%	$ 1,686,295	12.3%
3.	Building Envelope Improvements	568	3.3%	4,424,902	3.8%	86,971,989	7.6%	19.7	2.4	$ 8,569,356	6.4%	$ 3,507,574	3.5%	$ 412,069	3.0%
4.	T5 / T5HO	692	4.1%	6,212,285	5.4%	86,971,989	7.6%	14.0	8.1	$ 9,156,037	6.8%	$ 1,125,696	1.1%	$ 52,882	0.4%
5.	HVAC - Chiller	530	3.1%	3,442,410	3.0%	68,438,924	6.0%	19.9	1.8	$ 7,019,557	5.2%	$ 3,833,471	3.8%	$ 635,492	4.6%
6.	HVAC - Package & Split Units	791	4.6%	3,439,369	3.0%	51,590,534	4.5%	15.0	0.3	$ 6,841,836	5.1%	$ 19,750,600	19.8%	$ 1,659,931	12.1%
7.	High Efficiency Water Heating - Heat Pumps	232	1.4%	1,864,449	1.6%	37,288,981	3.3%	20.0	2.7	$ 3,576,745	2.7%	$ 1,322,371	1.3%	$ 152,251	1.1%
8.	Solar Water Heating - Contractor - PBFA $750	533	3.1%	2,402,913	2.1%	36,043,698	3.1%	15.0	0.5	$ 4,714,210	3.5%	$ 9,421,952	9.4%	$ 1,074,650	7.9%
9.	ENERGY STAR - Refrigerator - ARRP/SEP	282	1.7%	2,141,950	1.9%	29,987,304	2.6%	14.0	0.9	$ 3,328,106	2.5%	$ 3,581,029	3.6%	$ 161,000	1.2%
10.	Delamping - T8/T12	272	1.6%	1,790,631	1.6%	25,068,834	2.2%	14.0	17.0	$ 2,898,877	2.2%	$ 170,795	0.2%	$ 107,348	0.8%
11.	Delamping with Reflectors - T8/T12	152	0.9%	1,701,894	1.5%	23,826,523	2.1%	14.0	14.6	$ 2,374,451	1.8%	$ 162,285	0.2%	$ 154,624	1.1%
12.	Building Controls	211	1.2%	1,664,489	1.4%	22,475,446	2.0%	13.5	2.4	$ 2,476,788	1.8%	$ 1,024,000	1.0%	$ 135,114	1.0%
13.	LED	641	3.8%	3,924,237	3.4%	20,381,786	1.8%	5.2	1.5	$ 2,822,973	2.1%	$ 1,899,095	1.9%	$ 453,790	3.3%
14.	ENERGY STAR - Clothes Washer	213	1.2%	1,618,697	1.4%	19,424,362	1.7%	12.0	0.4	$ 2,969,808	2.2%	$ 6,607,929	6.6%	$ 485,850	3.6%
15.	New Home - Energy Modeling	-	0.0%	950,106	0.8%	19,002,119	1.7%	20.0	10.4	$ 1,289,176	1.0%	$ 123,600	0.1%	$ 123,600	0.9%
16.	CFL - Business	621	3.7%	4,985,218	4.3%	16,982,427	1.5%	3.4	5.5	$ 2,234,677	1.7%	$ 408,200	0.4%	$ 97,616	0.7%
17.	HVAC - Cooling Tower VFD	78	0.5%	934,847	0.8%	14,022,709	1.2%	15.0	0.9	$ 1,346,322	1.0%	$ 1,438,302	1.4%	$ 72,444	0.5%
18.	ENERGY STAR - Refrigerator with Recycling	39	0.2%	965,743	0.8%	13,520,407	1.2%	14.0	0.7	$ 1,179,688	0.9%	$ 1,623,871	1.6%	$ 183,745	1.3%
19.	ENERGY STAR - Refrigerator	155	0.9%	958,035	0.8%	13,412,492	1.2%	14.0	0.1	$ 1,584,401	1.2%	$ 12,757,431	12.8%	$ 564,800	4.1%
20.	ENERGY STAR - Window AC	552	3.2%	1,092,618	1.0%	13,111,415	1.1%	12.0	1.8	$ 1,862,281	1.4%	$ 1,047,551	1.1%	$ 266,775	2.0%
21.	CO Demand Control Ventilation - Parking Garage	88	0.5%	767,847	0.7%	11,517,702	1.0%	15.0	9.2	$ 1,194,848	0.9%	$ 129,995	0.1%	$ 60,808	0.4%
22.	VFD - Chilled Water	282	1.7%	1,039,875	0.9%	10,398,748	0.9%	10.0	9.5	$ 1,648,992	1.2%	$ 173,817	0.2%	$ 113,920	0.8%
23.	HID - Metal Halide	45	0.3%	666,595	0.6%	9,332,332	0.8%	14.0	8.8	$ 878,688	0.7%	$ 99,929	0.1%	$ 33,972	0.2%
24.	VFD - AHU	208	1.2%	621,626	0.5%	9,324,393	0.8%	15.0	13.1	$ 1,480,421	1.1%	$ 112,992	0.1%	$ 64,200	0.5%
25.	LED Exit Sign	63	0.4%	487,886	0.4%	7,806,176	0.7%	16.0	12.8	$ 823,685	0.6%	$ 64,362	0.1%	$ 52,613	0.4%
26.	VFD - Water Pumping - Irrigation	58	0.3%	362,926	0.3%	5,443,896	0.5%	15.0	2.4	$ 627,471	0.5%	$ 260,264	0.3%	$ 31,908	0.2%
27.	LED Introduction - Small Business	62	0.4%	482,623	0.4%	3,993,650	0.3%	8.3	1.8	$ 463,650	0.3%	$ 252,328	0.3%	$ 39,576	0.3%
28.	Induction Lighting	115	0.7%	995,710	0.9%	4,978,552	0.4%	5.0	6.8	$ 625,552	0.5%	$ 91,722	0.1%	$ 91,722	0.7%
29.	Lighting - High Bay MH to T8	36	0.2%	301,421	0.3%	4,068,426	0.4%	13.5	1.9	$ 427,009	0.3%	$ 229,073	0.2%	$ 36,879	0.3%
30.	Pump VFD non HVAC	31	0.2%	224,883	0.2%	3,373,252	0.3%	15.0	2.4	$ 369,217	0.3%	$ 155,153	0.2%	$ 32,816	0.2%
31.	VFD Domestic Water Pumps	22	0.1%	208,267	0.2%	3,123,998	0.3%	15.0	1.2	$ 318,369	0.2%	$ 271,679	0.3%	$ 17,785	0.1%
32.	Window Tinting	73	0.4%	296,923	0.3%	2,969,233	0.3%	10.0	2.5	$ 448,713	0.3%	$ 178,163	0.2%	$ 56,669	0.4%
33.	ENERGY STAR - Dishwasher	31	0.2%	232,211	0.2%	2,786,535	0.2%	12.0	0.5	$ 1,254,973	0.9%	$ 2,361,426	2.4%	$ 214,350	1.6%
34.	ENERGY STAR - Ceiling Fan	52	0.3%	480,667	0.4%	2,403,337	0.2%	5.0	0.5	$ 275,305	0.2%	$ 539,515	0.5%	$ 142,440	1.0%
35.	Solar Water Heating - RLI Solar Inspections ARRA WAP	33	0.2%	157,724	0.1%	2,365,858	0.2%	15.0	0.1	$ 303,819	0.2%	$ 2,207,849	2.2%	$ 20,301	0.1%
36.	NEMA Premium Efficiency Motors	26	0.2%	153,345	0.1%	2,300,171	0.2%	15.0	0.9	$ 272,788	0.2%	$ 307,873	0.3%	$ 35,790	0.3%
37.	HID - Pulse Start Metal Halide	16	0.1%	153,851	0.1%	2,153,915	0.2%	14.0	0.5	$ 222,421	0.2%	$ 426,650	0.4%	$ 31,720	0.2%
38.	Small Business Direct Lighting Retrofits	16	0.1%	214,375	0.2%	2,143,752	0.2%	10.0	1.0	$ 223,386	0.2%	$ 227,674	0.2%	$ 227,674	1.7%

Table 42 – TRC Measure Values Continued

PY2010 Contribution by Category in Order of Lifetime Energy Impact

	Measure	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
39.	HVAC - Ductless Split - Residential	89	0.5%	176,103	0.2%	2,113,233	0.2%	12.0	0.4	$ 454,858	0.3%	$ 1,210,219	1.2%	$ 64,020	0.5%
40.	Heat Pumps - Residential	38	0.2%	205,554	0.2%	1,849,987	0.2%	9.0	0.9	$ 254,954	0.2%	$ 270,154	0.3%	$ 29,575	0.2%
41.	HVAC - Window AC	30	0.2%	153,214	0.1%	1,838,573	0.2%	12.0	7.7	$ 244,021	0.2%	$ 31,635	0.0%	$ 13,596	0.1%
42.	HVAC Controls	14	0.1%	117,727	0.1%	1,765,905	0.2%	15.0	4.0	$ 184,535	0.1%	$ 45,927	0.0%	$ 9,382	0.1%
43.	Solar Water Heating - Commercial	73	0.4%	117,533	0.1%	1,749,060	0.2%	14.9	1.2	$ 403,546	0.3%	$ 334,911	0.3%	$ 27,855	0.2%
44.	Indirect T5HO	36	0.2%	123,208	0.1%	1,724,914	0.2%	14.0	2.7	$ 260,766	0.2%	$ 95,000	0.1%	$ 13,131	0.1%
45.	Pulse Start MH	20	0.1%	119,053	0.1%	1,666,748	0.1%	14.0	5.7	$ 200,790	0.1%	$ 35,524	0.0%	$ 10,684	0.1%
46.	High Bay - T8HO / T8 / T5	33	0.2%	158,014	0.1%	1,624,165	0.1%	10.3	1.8	$ 228,305	0.2%	$ 128,572	0.1%	$ 14,775	0.1%
47.	Energy Hero Gift Packs - Low Flow Showerheads	20	0.1%	80,298	0.1%	1,605,953	0.1%	20.0	98.2	$ 199,989	0.1%	$ 2,037	0.0%	$ 2,035	0.0%
48.	Solar Water Heating - $1,000 - PBFA $250/ARRA$750	17	0.1%	76,566	0.1%	1,148,494	0.1%	15.0	0.1	$ 150,197	0.1%	$ 1,252,873	1.3%	$ 46,000	0.3%
49.	retro w/4'T8	43	0.2%	169,382	0.1%	846,912	0.1%	5.0	1.9	$ 139,901	0.1%	$ 72,303	0.1%	$ 16,990	0.1%
50.	HVAC - Chiller - Retrofit VFD	11	0.1%	54,954	0.0%	824,315	0.1%	15.0	0.7	$ 102,784	0.1%	$ 143,000	0.1%	$ 14,485	0.1%
51.	Split System AC	6	0.0%	50,706	0.0%	760,596	0.1%	15.0	0.0	$ 78,746	0.1%	$ 4,251,115	4.3%	$ 125,040	0.9%
52.	Lighting Sensors	20	0.1%	93,293	0.1%	745,539	0.1%	8.0	0.4	$ 110,119	0.1%	$ 276,430	0.3%	$ 92,920	0.7%
53.	Lighting - Bi-Level Lighting / Control	6	0.0%	53,423	0.0%	725,591	0.1%	13.6	2.1	$ 76,098	0.1%	$ 37,115	0.0%	$ 3,954	0.0%
54.	High Efficiency Water Heater	12	0.1%	69,156	0.1%	622,400	0.1%	9.0	1.0	$ 269,109	0.2%	$ 261,752	0.3%	$ 24,900	0.2%
55.	Motors - ECM	3	0.0%	33,794	0.0%	506,913	0.0%	15.0	3.6	$ 50,362	0.0%	$ 14,123	0.0%	$ 2,507	0.0%
56.	Lighting - T8 to LW T8	3	0.0%	29,936	0.0%	419,106	0.0%	14.0	3.9	$ 44,385	0.0%	$ 11,370	0.0%	$ 2,371	0.0%
57.	Ceramic Metal Halide	23	0.1%	208,766	0.2%	417,533	0.0%	2.0	0.6	$ 53,562	0.0%	$ 92,884	0.1%	$ 77,000	0.6%
58.	HVAC - AHU Controls	3	0.0%	20,418	0.0%	408,351	0.0%	20.0	0.1	$ 42,359	0.0%	$ 524,273	0.5%	$ 1,763	0.0%
59.	Solar Water Heating - Contractor - PBFA $1,000	6	0.0%	25,117	0.0%	376,754	0.0%	15.0	0.5	$ 49,276	0.0%	$ 104,206	0.1%	$ 14,300	0.1%
60.	HPS to CFL PL Exterior	16	0.1%	71,830	0.1%	359,151	0.0%	5.0	1.1	$ 56,934	0.0%	$ 53,057	0.1%	$ 6,952	0.1%
61.	Solar Water Heating - $1,750 - PBFA $250/ARRA $1,500	4	0.0%	19,069	0.0%	286,036	0.0%	15.0	0.1	$ 37,411	0.0%	$ 560,013	0.6%	$ 20,000	0.1%
62.	Dimming Ballast & Occupancy Sensors	1	0.0%	19,939	0.0%	279,142	0.0%	14.0	1.8	$ 25,812	0.0%	$ 14,356	0.0%	$ 1,421	0.0%
63.	RLI Energy Hero Gift Packs - Smart Strips	6	0.0%	50,897	0.0%	254,484	0.0%	5.0	2.8	$ 44,241	0.0%	$ 16,014	0.0%	$ 16,014	0.1%
64.	ENERGY STAR - Window AC - Master Metered	7	0.0%	14,227	0.0%	170,724	0.0%	12.0	1.2	$ 19,842	0.0%	$ 17,163	0.0%	$ 2,350	0.0%
65.	LED Exterior	4	0.0%	17,645	0.0%	88,223	0.0%	5.0	0.9	$ 14,030	0.0%	$ 14,906	0.0%	$ 1,707	0.0%
66.	LED Introduction - Residential	2	0.0%	15,338	0.0%	76,691	0.0%	5.0	5.8	$ 9,772	0.0%	$ 1,698	0.0%	$ 1,698	0.0%
67.	Whole House Energy Metering	0	0.0%	10,693	0.0%	53,464	0.0%	5.0	0.2	$ 5,407	0.0%	$ 23,588	0.0%	$ 23,531	0.2%
68.	HPS to CFL PL Walkway Lighting	1	0.0%	6,216	0.0%	37,297	0.0%	6.0	1.0	$ 5,900	0.0%	$ 5,700	0.0%	$ 608	0.0%
69.	Solar Attic Fan	0	0.0%	6,135	0.0%	30,676	0.0%	5.0	0.3	$ 3,151	0.0%	$ 9,181	0.0%	$ 425	0.0%
70.	Whole House Fan	0	0.0%	5,697	0.0%	28,485	0.0%	5.0	0.3	$ 2,926	0.0%	$ 10,485	0.0%	$ 975	0.0%
71.	AC Annual Tune Up - Residential	2	0.0%	11,140	0.0%	11,140	0.0%	1.0	0.6	$ 1,603	0.0%	$ 2,886	0.0%	$ 850	0.0%
72.	Energy Study Assistance	-	0.0%	-	0.0%	-	0.0%		-	$ -	0.0%	$ 113,107	0.1%	$ 63,097	0.5%
73.	Accounting Record	-	0.0%	-	0.0%	-	0.0%	-	-	$ -	0.0%	$ -	0.0%	$ 248,350	1.8%
	Total	**17,011**	**100.0%**	**114,974,011**	**100.0%**	**1,147,085,613**	**100.0%**	10.0	1.4	**$ 134,710,809**	**100.0%**	**$ 99,740,130**	**100.0%**	**$ 13,675,271**	**100.0%**

Island Equity

In PY10, the Island Equity target was based on energy savings vs. the PY09 Island Equity target based on incentives spent. The program met its Island Equity energy savings minimum targets. The distribution of energy savings were (also shown on Table 43):

- Honolulu County – 77.8%
- Hawaii County – 11.2%
- Maui County – 11.1%

This level of achievement was produced by the following:

In Hawaii County:
Full cost incentive for the residential CFL program push for both residential low income (36,885 lamps) and retail level (59,151 lamps).

In Maui County (Molokai):
In PY10, the program achieved a much larger impact on the island of Molokai, 321,871 kWh energy savings vs. 68,697 kWh for PY09.

The majority of these savings, 214,375 kWh, was achieved through direct lighting services for 94 small businesses.

Table 43 – PY10 Island Equity by Business and Residential

PY2010 Island Energy Savings by Business and Residential % of Islands

County	Island	Total Energy Reduction	% of Total	% of Total by Island	Business Energy Reduction	% of Total by Island	Residential Energy Reduction	% of Total by Island
Honolulu	Oahu	89,420,180	77.8%	100.0%	47,694,694	53.3%	41,725,486	46.7%
Hawaii	Hawaii	12,845,058	11.2%	100.0%	3,561,081	27.7%	9,283,977	72.3%
Maui	Maui	12,374,646	10.8%	100.0%	6,511,308	52.6%	5,863,337	47.4%
	Molokai	321,871	0.3%	100.0%	292,163	90.8%	29,708	9.2%
	Lanai	12,257	0.0%	100.0%	6,385	52.1%	5,872	47.9%
	Total	114,974,011	100.0%	100.0%	58,065,632	50.5%	56,908,379	49.5%

PY2010 Island Energy Savings by Business and Residential % of Total

County	Island	2010 kWh Sales*	%	Business Energy Reduction	%	Residential Energy Reduction	%
Honolulu	Oahu	7,657,000,000	75.7%	47,694,694	82.1%	41,725,486	73.3%
Hawaii	Hawaii	1,194,200,000	11.8%	3,561,081	6.1%	9,283,977	16.3%
Maui	Maui	1,204,400,000	11.9%	6,511,308	11.2%	5,863,337	10.3%
	Molokai	34,500,000	0.3%	292,163	0.5%	29,708	0.1%
	Lanai	26,300,000	0.3%	6,385	0.0%	5,872	0.0%
	Total	10,116,400,000	100.0%	58,065,632	100.0%	56,908,379	100.0%

The Program invested 78.4% of its incentive funds in Honolulu, 9.6% in Hawaii, and 12.0% in Maui counties as shown in Table 44. The high investments in residential CFLs and Solar Water Heaters and in business HVAC and high efficiency lighting, favored Honolulu. Honolulu has the greatest percentage of homes, businesses, and military presence, and appears to be the least hit by the economic downturn.

Table 44 – Island Incentive Spending by Island and Rate Schedule

PY2010 Portfolio Incentives by Rate Schedule

Island	"G"	"H/K"	"J"	"P"	"R"	Total	%
Oahu	$ 330,175	$ 775	$ 2,516,862	$ 3,175,240	$ 4,703,463	$ 10,726,515	78.4%
Hawaii	$ 103,361	$ 1,780	$ 194,721	$ 90,019	$ 921,968	$ 1,311,848	9.6%
Maui	$ 51,665	$ 15,915	$ 131,092	$ 530,458	$ 660,352	$ 1,389,482	10.2%
Lanai	$ 50	$ -	$ -	$ 1,478	$ 1,166	$ 2,695	0.0%
Molokai	$ 227,824	$ -	$ 9,125	$ -	$ 7,782	$ 244,731	1.8%
Total	$ 713,075	$ 18,470	$ 2,851,800	$ 3,797,195	$ 6,294,731	$ 13,675,271	100.0%
%	5.2%	0.1%	20.9%	27.8%	46.0%	100.0%	

Table 45 shows the island equity by Program. In total, energy saving achievement was distributed as follows: 78% in Honolulu, 11% in Hawaii and 11% in Maui counties.

- Honolulu County – 78%
- Hawaii County – 11%
- Maui County – 11%

Table 45 – Island Equity by Program

PY2010 Island Equity by Savings by Program (First Year kWh Savings)

Program	Oahu	Maui	Hawaii	Molokai	Lanai	Total	%
BEEM	33,266,192	3,047,142	2,610,120	77,788	6,385	39,007,627	34%
BNEW	714,619	189,524	91,568	214,375	-	1,210,086	1%
CBEEM	13,713,883	3,274,642	859,393	-	-	17,847,919	16%
REEM	39,959,668	5,379,383	8,276,134	23,489	4,628	53,643,302	47%
RLI	815,712	483,954	1,007,843	6,219	1,244	2,314,972	2%
RNEW	950,106	-	-	-	-	950,106	1%
Total	**89,420,180**	**12,374,646**	**12,845,058**	**321,871**	**12,257**	**114,974,011**	**100%**
%	78%	11%	11%	0%	0%	100%	
Business	47,694,694	6,511,308	3,561,081	292,163	6,385	58,065,632	51%
Residential	41,725,486	5,863,337	9,283,977	29,708	5,872	56,908,379	49%
Total	**89,420,180**	**12,374,646**	**12,845,058**	**321,871**	**12,257**	**114,974,011**	**100%**
%	78%	11%	11%	0%	0%	100%	

VII. BUSINESS (COMMERCIAL & INDUSTRIAL) PROGRAM PERFORMANCE

Business Program Impacts

For PY10, Hawaii Energy's Business Program achieved savings of 58,065,632 kWh (first year) and 8,116 kW savings with $7,254,332 in incentives.

In relative terms, 53% of Hawaii Energy's incentives captured 51% kWh (first year) and 48% kW of the demand first year savings, respectively. Table 46 provides the detailed breakdown by program with a closer look at each Program to follow.

Table 46 – Business Program Impacts

PY2010 Business Program Impacts

Category	Applications	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
BEEM	4,310	5,466	67.3%	39,007,627	67.2%	503,505,950	65.8%	12.9	1.7	$ 56,690,635	67.2%	$ 33,226,778	70.3%	$ 5,099,029.59	70.3%
BNEW	13	131	1.6%	1,210,086	2.1%	7,122,304	0.9%	5.9	2.0	$ 848,939	1.0%	$ 432,503	0.9%	$ 382,493.29	5.3%
CBEEM	128	2,519	31.0%	17,847,919	30.7%	255,072,454	33.3%	14.3	2.0	$ 26,841,358	31.8%	$ 13,598,890	28.8%	$ 1,772,810.00	24.4%
Total	**4,451**	**8,116**	**100.0%**	**58,065,632**	**100.0%**	**765,700,707**	**100.0%**	**13.2**	**1.8**	**$ 84,380,931**	**100.0%**	**$ 47,258,171**	**100.0%**	**$ 7,254,332.88**	**100.0%**

Business Program Expenditures

Hawaii Energy's efforts were concentrated on the BEEM and CBEEM Programs due to the popularity and demand for these programs. The New Programs were launched later in the year and are expected to be of greater interest next Program Year, PY11.

Table 47 – Business Program Expenditures Summary

	PY2010 Allocations	PY2010 Budget R4	% Spent	Unspent	% Unspent
Business (C&I) Programs					
Business Programs Ops and Management					
BEEM	834,518.85	838,184.00	100%	3,665.15	0%
CBEEM	401,770.60	402,069.00	100%	298.40	0%
New	59,420.77	90,321.00	66%	30,900.23	34%
Total Business Programs	1,295,710.22	1,330,574.00	97%	34,863.78	3%
Market Evaluation	154,009.32	155,000.00	99%	990.68	1%
Outreach	388,904.85	400,999.70	97%	12,094.85	3%
Total Business Non-Incentive	1,838,624.39	1,886,573.70	97%	47,949.31	3%
Business Incentives					
BEEM	5,099,029.59	5,253,994.00	97%	154,964.41	3%
CBEEM	1,772,810.00	1,976,440.90	90%	203,630.90	10%
New	382,493.29	559,882.00	68%	177,388.71	32%
Total Business Incentives	7,254,332.88	7,790,316.90	93%	535,984.02	7%
Total Business Programs	**9,092,957.27**	**9,676,890.60**	**94%**	**583,933.33**	**6%**

Business Trade Allies

Background

Trade allies include product manufacturers, wholesale and retail suppliers, equipment contractors, architects, engineers, and electricians. These individuals and companies are the people on the front lines that are directly responsible for energy efficiency measures being sold, designed, financed, installed, commissioned and maintained. By working with these individuals and organizations, the Program is successful in uncovering opportunities for partnerships with trade allies that leverage resources to promote energy conservation and efficiency.

Trade Ally Program Feedback

Hawaii Energy incorporates trade ally perspectives and concerns in the program planning process to establish well supported, effective strategies. Developing a successful relationship with these industry leaders attracts other groups over time. Industry groups are one way Hawaii Energy incorporates the views of representatives of key trade groups. By sharing insights and experiences on different technology and equipment performance with the trade allies, the Program's knowledge and awareness of different market segments are enhanced, thus helping to influence customer's energy saving decisions.

Ongoing Training

To be on the cutting edge of the conservation and efficiency field, Hawaii Energy provides ongoing training and support for the trade allies. Hawaii Energy has developed a strong training program for lighting and HVAC contractors, mechanical contractors, architects and engineers participating in its commercial incentive program. Educational and promotional workshops are conducted to influence commercial purchase decisions.

Table 48 – Business Trade Ally Referrals

PY2010 - Business Programs Trade Ally Referrals

	Trade Allies	Applications	Customer Level Energy Savings (kWh)	Incentives	Cumulative Savings %
1	Customer Driven	586	29,969,823	$ 2,641,586	42%
2	Actus Lend Lease	51	8,110,660	$ 984,915	53%
3	Noresco	56	4,948,797	$ 448,201	60%
4	Energy Industries	295	4,658,458	$ 362,203	66%
5	Norman Wright	4	1,886,386	$ 164,907	69%
6	Light Bulb Source	11	1,629,739	$ 167,021	71%
7	Huskell	8	1,220,688	$ 21,397	73%
8	Inncom	1	1,027,500	$ 68,500	75%
9	Real Win Win	38	963,673	$ 66,399	76%
10	Architects Hawaii LTD	1	946,159	$ 60,808	77%
11	Forest City	2	925,472	$ 70,386	78%
12	Johnson Controls	20	895,536	$ 111,535	80%
13	Lighting Services Inc.	29	787,532	$ 44,766	81%
14	Critchfield Pacific Inc.	16	747,657	$ 86,883	82%
15	GonLED	3	728,182	$ 75,936	83%
16	21st Century Lighting	15	610,346	$ 45,169	84%
17	Trane	10	605,708	$ 66,287	85%
18	Electricians Inc	8	491,402	$ 42,005	85%
19	Maryl Pacific Construction	17	491,212	$ 41,863	86%
20	Smart Watt Energy	9	430,051	$ 33,081	87%
21	Green Global Communities, Inc.	2	327,752	$ 39,328	87%
22	Paradise Lighting	10	309,516	$ 52,947	87%
23	Wesco Distribution	6	294,578	$ 16,941	88%
24	Pono Solutions	8	285,838	$ 230,322	88%
25	Pioneer Electric, Inc	8	285,380	$ 33,438	89%
26	Hilton Hara Electrical Contractor	1	272,861	$ 4,816	89%
27	Facility Solutions Group	1	257,247	$ 77,000	89%
28	Hawaii Eco-Lights LLC	1	256,913	$ 16,512	90%
29	American Electric	6	252,885	$ 12,715	90%
30	Sylvania Lighting Services	9	250,104	$ 25,697	90%

Business Energy Efficiency Measures (BEEM) Program

BEEM Program Objective

The objective of this program is to acquire electric energy and demand savings through customer installations of standard, known energy efficiency technologies by applying prescriptive incentives in a streamlined application and grant award process.

Measures incentivized through BEEM include:

- High Efficiency Lighting
- High Efficiency HVAC
- Premium Efficiency Motors
- High Efficiency Water Heating
- Variable Frequency Drives (VFDs) connecting to chilled water pumps, condenser water pumps, and air handling units
- HVAC systems such as water-cooled chillers, variable refrigerant flow (VRF), packaged & split system, and Energy Star window A/Cs
- Window Tinting

BEEM Program Accomplishments

Variable Refrigerant Flow (VRF) AC

With no existing national performance standards and the growing popularity of this technology, Hawaii Energy contracted an engineering company to conduct a study to determine the energy savings from VRF technology between three (3) different types of HVAC systems and four (4) different facility types. The study estimated the average energy savings to be 23.5% for the various facility types and HVAC systems considered.

Lighten Up for Savings

In the face of a weak economy, this program increased lighting incentives for a limited time to quickly move stalled lighting retrofit projects to a rapid completion. This program invigorated lighting projects for a chain of supermarkets, a convenience store, an office building and a warehouse. These businesses were stimulated to pursue additional energy conservation measures, creating greater participation in the Business Program.

BEEM Program Impacts

For PY10, the BEEM Program achieved savings of 39,007,627 kWh (first year) and 5,466 kW savings with $5,099,030 in incentives. In relative terms, 70% of Hawaii Energy's incentives captured 67% kWh (first year) and 67% kW of the demand first year savings for PY10. Table 48a provides further details.

 # 1 Contributor – High Efficiency Lighting (78%)
High Efficiency Lighting was the largest contributor to the BEEM Program savings with 78% of the energy (first year) and 64% demand savings.

 # 2 Contributor – HVAC – Package & Split Air Conditioner Units (8.8%)
High efficiency package and split air conditioner units was the second largest contributor to the BEEM Program savings with energy (first year) and demand savings of 3,438,256 kWh and 791 kW, respectively.

Table 48a – BEEM Program Impacts

PY2010 BEEM - Business Energy Efficiency Measures Program Impacts

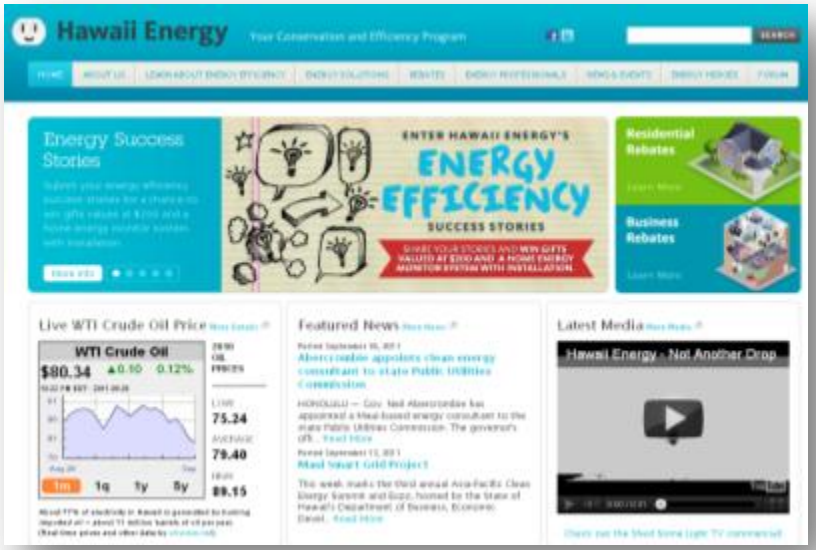
Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
T8	297,088	1,671	30.6%	14,445,561	37.0%	202,237,854	40.2%	14.0	15.5	$ 21,512,899	37.9%	$ 1,387,105	4.2%	$ 1,686,295.36	33.1%
T5 / T5HO	5,863	692	12.7%	6,212,285	15.9%	86,971,989	17.3%	14.0	8.1	$ 9,156,037	16.2%	$ 1,125,696	3.4%	$ 52,881.75	1.0%
HVAC - Package & Split Units	2,110	791	14.5%	3,438,256	8.8%	51,573,835	10.2%	15.0	0.3	$ 6,840,185	12.1%	$ 19,745,600	59.4%	$ 1,659,231.24	32.5%
HVAC - Chiller	34	340	6.2%	2,047,717	5.2%	40,954,335	8.1%	20.0	2.1	$ 4,313,720	7.6%	$ 2,061,205	6.2%	$ 503,654.65	9.9%
Delamping - T8/T12	20,557	272	5.0%	1,790,631	4.6%	25,068,834	5.0%	14.0	17.0	$ 2,898,877	5.1%	$ 170,795	0.5%	$ 107,348.20	2.1%
Delamping with Reflectors - T8/T12	14,999	152	2.8%	1,701,894	4.4%	23,826,523	4.7%	14.0	14.6	$ 2,374,451	4.2%	$ 162,285	0.5%	$ 154,624.00	3.0%
CFL - Business	60,079	621	11.4%	4,983,310	12.8%	16,972,887	3.4%	3.4	5.5	$ 2,233,208	3.9%	$ 406,981	1.2%	$ 97,439.80	1.9%
VFD - Chilled Water	68	282	5.2%	1,039,875	2.7%	10,398,748	2.1%	10.0	9.5	$ 1,648,992	2.9%	$ 173,817	0.5%	$ 113,920.00	2.2%
VFD - AHU	118	208	3.8%	621,626	1.6%	9,324,393	1.9%	15.0	13.1	$ 1,480,421	2.6%	$ 112,992	0.3%	$ 64,200.00	1.3%
LED Exit Sign	1,960	63	1.2%	487,886	1.3%	7,806,176	1.6%	16.0	12.8	$ 823,685	1.5%	$ 64,362	0.2%	$ 52,612.50	1.0%
HID - Metal Halide	222	6	0.1%	440,145	1.1%	6,162,029	1.2%	14.0	14.9	$ 496,768	0.9%	$ 33,300	0.1%	$ 13,940.00	0.3%
VFD Domestic Water Pumps	7	22	0.4%	208,267	0.5%	3,123,998	0.6%	15.0	1.2	$ 318,369	0.6%	$ 271,679	0.8%	$ 17,785.00	0.3%
Window Tinting	59,388	73	1.3%	296,923	0.8%	2,969,233	0.6%	10.0	2.5	$ 448,713	0.8%	$ 178,163	0.5%	$ 56,668.56	1.1%
ENERGY STAR - Window AC	640	98	1.8%	193,652	0.5%	2,323,827	0.5%	12.0	1.7	$ 309,536	0.5%	$ 178,566	0.5%	$ 47,850.00	0.9%
NEMA Premium Efficiency Motors	255	26	0.5%	153,345	0.4%	2,300,171	0.5%	15.0	0.9	$ 272,788	0.5%	$ 307,873	0.9%	$ 35,790.00	0.7%
HID - Pulse Start Metal Halide	513	16	0.3%	153,851	0.4%	2,153,915	0.4%	14.0	0.5	$ 222,421	0.4%	$ 426,650	1.3%	$ 31,720.00	0.6%
HVAC - Window AC	185	30	0.6%	153,214	0.4%	1,838,573	0.4%	12.0	7.7	$ 244,021	0.4%	$ 31,635	0.1%	$ 13,596.47	0.3%
Solar Water Heating - Contractor - PBFA $750	63	23	0.4%	105,465	0.3%	1,581,972	0.3%	15.0	0.6	$ 206,909	0.4%	$ 318,381	1.0%	$ 47,250.00	0.9%
ENERGY STAR - Refrigerator - ARRP/SEP	142	12	0.2%	94,582	0.2%	1,324,153	0.3%	14.0	1.1	$ 146,960	0.3%	$ 135,492	0.4%	$ 7,100.00	0.1%
ENERGY STAR - Clothes Washer	462	10	0.2%	77,069	0.2%	924,827	0.2%	12.0	0.5	$ 165,902	0.3%	$ 343,587	1.0%	$ 23,100.00	0.5%
ENERGY STAR - Refrigerator	642	9	0.2%	54,525	0.1%	763,345	0.2%	14.0	0.1	$ 90,173	0.2%	$ 620,809	1.9%	$ 32,100.00	0.6%
Split System AC	90	6	0.1%	50,706	0.1%	760,596	0.2%	15.0	0.0	$ 78,746	0.1%	$ 4,251,115	12.8%	$ 125,040.00	2.5%
Lighting Sensors	4,627	20	0.4%	93,293	0.2%	745,539	0.1%	8.0	0.4	$ 110,119	0.2%	$ 276,430	0.8%	$ 92,920.00	1.8%
ENERGY STAR - Refrigerator with Recycling	58	2	0.0%	38,629	0.1%	540,802	0.1%	14.0	0.8	$ 47,202	0.1%	$ 57,590	0.2%	$ 7,250.00	0.1%
ENERGY STAR - Dishwasher	611	4	0.1%	33,174	0.1%	398,082	0.1%	12.0	0.8	$ 193,287	0.3%	$ 232,180	0.7%	$ 30,550.00	0.6%
ENERGY STAR - Window AC - Master Metered	47	7	0.1%	14,227	0.0%	170,724	0.0%	12.0	1.2	$ 19,842	0.0%	$ 17,163	0.1%	$ 2,350.00	0.0%
ENERGY STAR - Ceiling Fan	163	2	0.0%	21,968	0.1%	109,841	0.0%	5.0	0.5	$ 12,428	0.0%	$ 25,031	0.1%	$ 6,520.00	0.1%
Induction Lighting	280	5	0.1%	49,598	0.1%	99,195	0.0%	2.0	0.1	$ 12,318	0.0%	$ 82,400	0.2%	$ 12,475.00	0.2%
Solar Water Heating - Contractor - PBFA $1,000	2	1	0.0%	3,353	0.0%	50,299	0.0%	15.0	0.6	$ 6,579	0.0%	$ 10,600	0.0%	$ 2,000.00	0.0%
Solar Water Heating - $1,000 - PBFA $250/ARRA$750	2	0		822		12,329				$ 1,613		$ 13,800		$ 500.00	
Heat Pumps - Residential	1	0	0.0%	1,220	0.0%	10,978	0.0%	9.0	1.0	$ 1,513	0.0%	$ 1,500	0.0%	$ 175.00	0.0%
HVAC - Ductless Split - Residential	1	0	0.0%	303	0.0%	3,632	0.0%	12.0	0.7	$ 782	0.0%	$ 1,169	0.0%	$ 110.00	0.0%
High Efficiency Water Heater	2	0	0.0%	257	0.0%	2,314	0.0%	9.0	1.4	$ 1,175	0.0%	$ 825	0.0%	$ 90.00	0.0%
Accounting Record	-	-	0.0%	-	0.0%	-	0.0%			$ -	0.0%	$ -	0.0%	$ (57.94)	0.0%
Total	**471,279**	**5,466**	**100.0%**	**39,007,627**	**100.0%**	**503,505,950**	**100.0%**	**12.9**	**1.7**	**56,690,635**	**100.0%**	**33,226,778**	**100.0%**	**$ 5,099,029.59**	**100.0%**

BEEM Program Expenditures

We almost entirely utilized our BEEM operations and incentive budgets due to the popularity and demand for the Program offerings. See Table 49 for details.

Table 49 – BEEM Program Expenditures

	PY2010 Allocations	PY2010 Budget R4	% Spent	Unspent	% Unspent
BEEM Operations	834,518.85	838,184.00	100%	3,665.15	0%
BEEM Incentives	5,099,029.59	5,253,994.00	97%	154,964.41	3%
BEEM Total	5,933,548.44	6,092,178.00	97%	158,629.56	3%



Customized Business Energy Efficiency Measures (CBEEM) Program

CBEEM Program Objective

The program objective is to provide a custom application and granting process for participants to receive incentives for installing non-standard energy efficiency technologies. The commercial and industrial custom incentives will enable customers to invest in energy efficiency opportunities related to manufacturing processes and other technology measures that may require calculations of energy savings for specific, unique applications.

Custom incentives are available for all energy-savings opportunities that are not already covered by the prescribed incentives and are not limited to a certain list of measures. Some examples of custom technologies include, but are not limited to, VFDs for cooling towers; air conditioning system upgrades, such as controls and change-outs; process heat recovery, LED lighting, and heat pump water heaters.

CBEEM Program Accomplishments

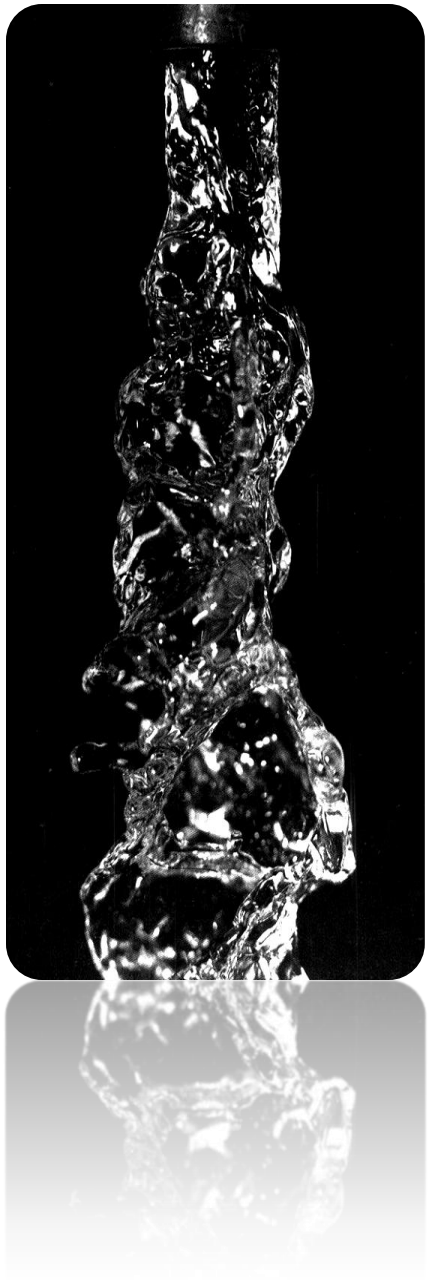
ARRA Customized Program for Government and Nonprofit

This program utilized government stimulus funds from the American Recovery and Reinvestment Act (ARRA) to augment and enhance existing customized incentive offerings for Government and Nonprofit organization facilities. These facilities were provided with a customer incentive up to 25% of the cost to purchase and install customized energy efficiency measures. The program is limited to projects with costs in excess of $60,000. The energy and demand savings credited to this program is based on the proportion of the customer incentive that was paid with Hawaii Energy program funds. The program provided a total incentive of $35,750 of which ARRA provided $21,265. Customer total energy savings is estimated to be 138,196 kWh annually. The remainder of the program funds is committed for projects in PY11.

This additional funding drove customer capital investment of $6,219,000. All of these projects were either canceled or deferred for future implementation and were prompted to be installed in PY10.

Simplified Customized Worksheet for Lighting Technologies

For lighting projects that replaced incandescent or fluorescent bulbs with LEDs, a simplified worksheet for calculating the energy savings was developed where the only input was resulting wattage reduction. This provided lighting contractors and vendors a straightforward method of factoring in and determining the incentives in their proposals.



Customized Limited Time Offer Bonus

The Custom Project Measure is offered for energy efficiency projects involving complex site-specific applications that require detailed engineering analysis and/or projects which do not qualify for incentives under any of the prescriptive incentive offerings. Projects offered through the custom program must pass a cost-effectiveness test based on project-specific costs and savings. For a limited time and with a fixed budget, the program increased the energy incentive from $0.05/kWh (measure life of less than 5 years) or $0.08/kWh (measure life of greater than 5 years) to $0.10/kWh for all measures. The demand incentive remained the same.

CBEEM Program Impacts

For PY10, the CBEEM Program achieved savings of 17,847,919 kWh (first year) and 2,519 kW savings with $17,847,918 in incentives. In relative terms, 24% of Hawaii Energy's incentives captured 29% kWh (first year) and 29% kW of the demand first year savings for PY10. Table 50 provides the detailed breakout of the program.

High Efficiency Water Heating – Heat Pumps (10.4%)

The largest single contributor to this program was a central plant upgrade project that replaced two existing 350 ton water cooled chillers, heat pumps, primary pumps and secondary pumps with new chillers and large primary pumps with VFDs. This project reduced the customer's first year energy consumption by 2,322,699 kWh and provided an incentive of $152,251.00 to the customer.

Table 50 – CBEEM Program Impacts

PY2010 CBEEM - Customized Business Energy Efficiency Measures Program Impacts

Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
Building Envelope Improvements	10	568	22.6%	4,424,902	24.8%	88,498,043	34.7%	20.0	2.4	$ 8,569,356	31.9%	$ 3,507,574	25.8%	$ 412,069.00	23.2%
High Efficiency Water Heating - Heat Pumps	1	232	9.2%	1,864,449	10.4%	37,288,981	14.6%	20.0	2.7	$ 3,576,745	13.3%	$ 1,322,371	9.7%	$ 152,251.00	8.6%
HVAC - Chiller	3	190	7.5%	1,394,693	7.8%	27,484,589	10.8%	19.7	1.5	$ 2,705,837	10.1%	$ 1,772,266	13.0%	$ 131,837.00	7.4%
Building Controls	2	211	8.4%	1,664,489	9.3%	22,475,446	8.8%	13.5	2.4	$ 2,476,788	9.2%	$ 1,024,000	7.5%	$ 135,114.00	7.6%
LED	54	641	25.4%	3,924,237	22.0%	20,381,786	8.0%	5.2	1.5	$ 2,822,973	10.5%	$ 1,899,095	14.0%	$ 453,790.00	25.6%
HVAC - Cooling Tower VFD	12	78	3.1%	934,847	5.2%	14,022,709	5.5%	15.0	0.9	$ 1,346,322	5.0%	$ 1,438,302	10.6%	$ 72,444.00	4.1%
CO Demand Control Ventilation - Parking Garage	1	88	3.5%	767,847	4.3%	11,517,702	4.5%	15.0	9.2	$ 1,194,848	4.5%	$ 129,995	1.0%	$ 60,808.00	3.4%
VFD - Water Pumping - Irrigation	2	58	2.3%	362,926	2.0%	5,443,896	2.1%	15.0	2.4	$ 627,471	2.3%	$ 260,264	1.9%	$ 31,908.00	1.8%
Lighting - High Bay MH to T8	114	62	2.4%	482,623	2.7%	3,993,650	1.6%	8.3	1.8	$ 463,650	1.7%	$ 252,328	1.9%	$ 39,576.00	2.2%
Induction Lighting	3	31	1.2%	251,824	1.4%	3,969,231	1.6%	15.8	2.8	$ 414,691	1.5%	$ 146,673	1.1%	$ 24,404.00	1.4%
Pump VFD non HVAC	1	31	1.2%	224,883	1.3%	3,373,252	1.3%	15.0	2.4	$ 369,217	1.4%	$ 155,153	1.1%	$ 32,816.00	1.9%
HID - Metal Halide	2	39	1.5%	226,450	1.3%	3,170,303	1.2%	14.0	5.7	$ 381,920	1.4%	$ 66,629	0.5%	$ 20,032.00	1.1%
HVAC Controls	1	14	0.5%	117,727	0.7%	1,765,905	0.7%	15.0	4.0	$ 184,535	0.7%	$ 45,927	0.3%	$ 9,382.00	0.5%
Solar Water Heating - Commercial	9	73	2.9%	117,533	0.7%	1,749,060	0.7%	14.9	1.2	$ 403,546	1.5%	$ 334,911	2.5%	$ 27,855.00	1.6%
Indirect T5HO	1	36	1.4%	123,208	0.7%	1,724,914	0.7%	14.0	2.7	$ 260,766	1.0%	$ 95,000	0.7%	$ 13,131.00	0.7%
Pulse Start MH	1	20	0.8%	119,053	0.7%	1,666,748	0.7%	14.0	5.7	$ 200,790	0.7%	$ 35,524	0.3%	$ 10,684.00	0.6%
High Bay - T8HO / T8 / T5	7	33	1.3%	158,014	0.9%	1,624,165	0.6%	10.3	1.8	$ 228,305	0.9%	$ 128,572	0.9%	$ 14,775.00	0.8%
retro w/4'T8	1	43	1.7%	169,382	0.9%	846,912	0.3%	5.0	1.9	$ 139,901	0.5%	$ 72,303	0.5%	$ 16,990.00	1.0%
HVAC - Chiller - Retrofit VFD	1	11	0.4%	54,954	0.3%	824,315	0.3%	15.0	0.7	$ 102,784	0.4%	$ 143,000	1.1%	$ 14,485.00	0.8%
Lighting - Bi-Level Lighting / Control	2	6	0.2%	53,423	0.3%	725,591	0.3%	13.6	2.1	$ 76,098	0.3%	$ 37,115	0.3%	$ 3,954.00	0.2%
Motors - ECM	3	3	0.1%	33,794	0.2%	506,913	0.2%	15.0	3.6	$ 50,362	0.2%	$ 14,123	0.1%	$ 2,507.00	0.1%
Lighting - T8 to LW T8	1	3	0.1%	29,936	0.2%	419,106	0.2%	14.0	3.9	$ 44,385	0.2%	$ 11,370	0.1%	$ 2,371.00	0.1%
Ceramic Metal Halide	1	23	0.9%	208,766	1.2%	417,533	0.2%	2.0	0.6	$ 53,562	0.2%	$ 92,884	0.7%	$ 77,000.00	4.3%
HVAC - AHU Controls	1	3	0.1%	20,418	0.1%	408,351	0.2%	20.0	0.1	$ 42,359	0.2%	$ 524,273	3.9%	$ 1,763.00	0.1%
HPS to CFL PL Exterior	1	16	0.7%	71,830	0.4%	359,151	0.1%	5.0	1.1	$ 56,934	0.2%	$ 53,057	0.4%	$ 6,952.00	0.4%
Dimming Ballast & Occupancy Sensors	1	1	0.0%	19,939	0.1%	279,142	0.1%	14.0	1.8	$ 25,812	0.1%	$ 14,356	0.1%	$ 1,421.00	0.1%
LED Exterior	1	4	0.2%	17,645	0.1%	88,223	0.0%	5.0	0.9	$ 14,030	0.1%	$ 14,906	0.1%	$ 1,707.00	0.1%
HPS to CFL PL Walkway Lighting	1	1	0.1%	6,216	0.0%	37,297	0.0%	6.0	1.0	$ 5,900	0.0%	$ 5,700	0.0%	$ 608.00	0.0%
CFL - Business	1	0	0.0%	1,908	0.0%	9,540	0.0%	5.0	1.2	$ 1,469	0.0%	$ 1,219	0.0%	$ 176.00	0.0%
Total	**239**	**2,519**	**100.0%**	**17,847,919**	**100.0%**	**255,072,454**	**100.0%**	**14.3**	**2.0**	**$ 26,841,358**	**100.0%**	**$ 13,598,890**	**100.0%**	**$ 1,772,810.00**	**100.0%**

CBEEM Program Expenditures

We almost entirely utilized our CBEEM operations and incentive budgets due to the popularity and demand for this program. See Table 51 for details.

Table 51 – CBEEM Program Expenditures

	PY2010 Allocations	PY2010 Budget R4	% Spent	Unspent	% Unspent
CBEEM Operations	401,770.60	402,069.00	100%	298.40	0%
CBEEM Incentives	1,772,810.00	1,976,440.90	90%	203,630.90	10%
CBEEM Total	2,174,580.60	2,378,509.90	91%	203,929.30	9%

Business New (BNEW) Programs

BNEW Program Objective

The objective of this program is to help target sectors that are currently underserved such as retail and small business. Additionally, this program conducts more aggressive outreach to lighting and electrical contractors with training, promotional materials, and frequent communication on program updates. The program also promotes proven but not widely accepted technologies such as LEDS.

BNEW Program Accomplishments

Lighting the Future

The purpose of this program was to introduce new lighting technology and reduce customer energy usage and costs to the hard-to-reach market segments. Hawaii Energy provided 7,212 LEDs to various small businesses state wide. Lamp distribution was set up through nonprofit organizations and businesses who volunteered labor and storage.

Malamalama Moloka'i

This program provided full lighting retrofits to 94 businesses on Moloka'i at no cost to the customer. Hawaii Energy hired a single lighting contractor to conduct community meetings, perform door-to door audits, and recruit new businesses. These retrofits would not have happened without this direct installation grant approach. The program achieved first year Customer Level Energy and Demand Savings of 267,065 kWh and 19.7 kW.

Energy Study Assistance

This program provided co-funding for eight energy studies in PY10. The largest study was for a hospital to improve the HVAC system to reduce energy costs and consumption. With the assistance of the ARRA Customized Program for Government and Nonprofit, it helped push the stalled hospital project and it is now expected to be completed in PY11. The project had been stalled for 3 years and had a total project cost of over $2 million.

BNEW Program Impacts

For PY10, the BNEW Program achieved savings of 1,210,086 kWh (first year) and 131 kW savings with $382,493 in incentives. In relative terms, 5% of Hawaii Energy's incentives captured 2% kWh (first year) and 2% kW of the demand first year savings for PY10. Table 52 provides the detailed breakout of the program.

Table 52 – BNEW

PY2010 BNEW - New Business Programs Incubator Impacts

Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
LED Introduction - Small Business	7,212	115	87.9%	995,710	82.3%	4,978,552	69.9%	5.0	6.8	$ 625,552	73.7%	$ 91,722	21.2%	$ 91,722.29	24.0%
Small Business Direct Lighting Retrofits	2	16	12.1%	214,375	17.7%	2,143,752	30.1%	10.0	1.0	$ 223,386	26.3%	$ 227,674	52.6%	$ 227,674.00	59.5%
Energy Study Assistance	8	-	0.0%	-	0.0%	-	0.0%	-	-	$ -	0.0%	$ 113,107	26.2%	$ 63,097.00	16.5%
Total	**7,222**	**131**	**100.0%**	**1,210,086**	**100.0%**	**7,122,304**	**100.0%**	**5.9**	**2.0**	**$ 848,939**	**100.0%**	**$ 432,503**	**100.0%**	**$ 382,493.29**	**100.0%**

BNEW Program Expenditures

The BNEW program was less subscribed, likely due to the large effort needed to support the other popular business programs, BEEM and CBEEM. We plan to dedicated more effort and expect the new offerings to gain more interest next Program Year, PY11. See Table 53 for details.

Table 53 – BNEW Program Expenditures

	PY2010 Allocations	PY2010 Budget R4	% Spent	Unspent	% Unspent
Business New Operations	59,420.77	90,321.00	66%	30,900.23	34%
Business New Incentives	382,493.29	559,882.00	72%	156,584.04	28%
Business New Total	441,914.06	650,203.00	68%	187,484.27	32%

VIII. PY10 RESIDENTIAL PROGRAM PERFORMANCE

For PY10, Hawaii Energy's Residential Program achieved savings of 56,908,379 kWh (first year) and 8,894 kW savings with $6,420,938 in incentives. In relative terms, 47.0% of Hawaii Energy's incentives captured 49.5% and 52.3% of kWh (first year) and kW savings, respectively. See Table 54.

Table 54 – Residential Program Summary Impacts

PY2010 Residential Program Impacts

Category	Applications	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
REEM	53,176	8,525	95.8%	53,643,302	94.3%	348,026,226	91.3%	6.5	0.9	$ 47,108,094	93.6%	$ 49,667,627	94.6%	$ 6,060,569	94.4%
RLI	389	370	4.2%	2,314,972	4.1%	14,356,561	3.8%	6.2	0.7	$ 1,932,608	3.8%	$ 2,690,732	5.1%	$ 236,769	3.7%
RNEW	3	-	0.0%	950,106	1.7%	19,002,119	5.0%	20.0	10.4	$ 1,289,176	2.6%	$ 123,600	0.2%	$ 123,600	1.9%
Total	**53,568**	**8,894**	**100.0%**	**56,908,379**	**100.0%**	**381,384,906**	**100.0%**	**6.7**	**1.0**	**$ 50,329,878**	**100.0%**	**$ 52,481,959**	**100.0%**	**$ 6,420,938**	**100.0%**

Residential Program Expenditures

Hawaii Energy focused efforts on the REEM Program to meet the high demand of its offerings. The New Programs were launched later in the year and are expected to be of greater interest next Program Year, PY11. See Table 55 for detailed expenditures and unspent funds.

Table 55 – Residential Program Expenditures

	PY2010 Allocations	PY2010 Budget R4	% Spent	Unspent	% Unspent
Residential Programs					
Residential Program Ops and Management					
REEM	2,064,984.86	2,076,900.38	99%	11,915.52	1%
RLI	84,076.34	84,100.00	100%	23.66	0%
New	43,599.48	44,295.00	98%	695.52	2%
Total Residential Programs	2,192,660.68	2,205,295.38	99%	12,634.70	1%
Market Evaluation	67,201.75	68,000.00	99%	798.25	1%
Outreach	344,403.70	344,500.00	100%	96.30	0%
Total Residential Non-Incentive	2,604,266.13	2,617,795.38	99%	13,529.25	1%
Residential Incentives					
REEM	6,060,569.78	6,066,637.41	100%	6,067.63	0%
RLI	236,769.48	406,227.79	58%	169,458.31	42%
New	123,600.00	762,200.00	16%	638,600.00	84%
Total Residential Incentives	6,420,939.26	7,235,065.20	89%	814,125.94	11%
Total Residential Programs	**9,025,205.39**	**9,852,860.58**	**92%**	**827,655.19**	**8%**

Residential Energy Efficiency Measures (REEM) Program

REEM Program Objective

This program consisted of five major initiatives including:

- High Efficiency Water Heating
- High Efficiency Lighting
- High Efficiency Air Conditioning
- High Efficiency Appliances
- Energy Awareness, Measurement and Controls Systems.

The largest initiative, the CFL program, was administered through indirect upstream incentives to customers via lighting distributors and manufacturers. Second to the CFL program, was the High Efficiency Water Heating (HEWH) Program, of which the Solar Water Heating (SWH) Program was the greatest part. While this program experienced a challenging year due to the economic climate, it made strides with a new program and incentive schedules.

The two largest contributors were:

 # 1 Contributor – High Efficiency Lighting (CFL) (81.6% kWh and 78.1% kW)
CFL at the retailers and distributed through grass roots organizations.

 # 2 Contributor – High Efficiency Water Heating (HEWH) (5.0% kWh and 6.9% kW)
Solar Water Heating (SWH) Program was the largest contributor to HEWH.

REEM Program Impacts

For PY10, the REEM Program achieved savings of 53,643,302 kWh (first year) and 8,525 kW savings with $6,060,569 in incentives. In relative terms, 94.4% of Residential Program incentives captured 94.2% and 95.8% of kWh (first year) and kW savings, respectively. See Table 56 for details.

Table 56 – REEM Program Impacts

PY2010 REEM - Residential Energy Efficiency Measures Program Impacts

Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
CFL - Residential	1,661,081	6,660	78.1%	43,753,804	81.6%	218,769,021	62.9%	5.0	3.0	$ 29,883,063	63.4%	$ 9,954,399	20.0%	$ 2,696,172	44.5%
Solar Water Heating - Contractor - PBFA $750	1,376	510	6.0%	2,297,448	4.3%	34,461,725	9.9%	15.0	0.5	$ 4,507,301	9.6%	$ 9,103,571	18.3%	$ 1,027,400	17.0%
ENERGY STAR - Refrigerator - ARRP/SEP	3,078	270	3.2%	2,047,368	3.8%	28,663,151	8.2%	14.0	0.9	$ 3,181,147	6.8%	$ 3,445,537	6.9%	$ 153,900	2.5%
ENERGY STAR - Clothes Washer	9,255	203	2.4%	1,541,628	2.9%	18,499,536	5.3%	12.0	0.4	$ 2,803,906	6.0%	$ 6,264,342	12.6%	$ 462,750	7.6%
ENERGY STAR - Refrigerator with Recycling	1,394	38	0.4%	927,115	1.7%	12,979,605	3.7%	14.0	0.7	$ 1,132,486	2.4%	$ 1,566,280	3.2%	$ 176,495	2.9%
ENERGY STAR - Refrigerator	10,654	146	1.7%	903,510	1.7%	12,649,147	3.6%	14.0	0.1	$ 1,494,228	3.2%	$ 12,136,622	24.4%	$ 532,700	8.8%
ENERGY STAR - Window AC	2,973	454	5.3%	898,966	1.7%	10,787,587	3.1%	12.0	1.8	$ 1,552,745	3.3%	$ 868,985	1.7%	$ 218,925	3.6%
ENERGY STAR - Dishwasher	3,676	27	0.3%	199,038	0.4%	2,388,453	0.7%	12.0	0.5	$ 1,061,686	2.3%	$ 2,129,246	4.3%	$ 183,800	3.0%
ENERGY STAR - Ceiling Fan	3,398	50	0.6%	458,699	0.9%	2,293,496	0.7%	5.0	0.5	$ 262,877	0.6%	$ 514,483	1.0%	$ 135,920	2.2%
HVAC - Ductless Split - Residential	581	89	1.0%	175,800	0.3%	2,109,601	0.6%	12.0	0.4	$ 454,076	1.0%	$ 1,209,050	2.4%	$ 63,910	1.1%
Heat Pumps - Residential	168	38	0.4%	204,334	0.4%	1,839,010	0.5%	9.0	0.9	$ 253,441	0.5%	$ 268,654	0.5%	$ 29,400	0.5%
Solar Water Heating - $1,000 - PBFA $250/ARRA$750	182	17	0.2%	75,744	0.1%	1,136,165	0.3%	15.0	0.1	$ 148,585	0.3%	$ 1,239,073	2.5%	$ 45,500	0.8%
High Efficiency Water Heater	533	12	0.1%	68,898	0.1%	620,086	0.2%	9.0	1.0	$ 267,934	0.6%	$ 260,927	0.5%	$ 24,810	0.4%
Solar Water Heating - Contractor - PBFA $1,000	13	5	0.1%	21,764	0.0%	326,454	0.1%	15.0	0.5	$ 42,697	0.1%	$ 93,606	0.2%	$ 12,300	0.2%
Solar Water Heating - $1,750 - PBFA $250/ARRA $1,500	80	4	0.0%	19,069	0.0%	286,036	0.1%	17.1	0.1	$ 37,411	0.1%	$ 560,013	1.1%	$ 20,000	0.3%
LED Introduction - Residential	100	2	0.0%	15,338	0.0%	76,691	0.0%	18.6	5.8	$ 9,772	0.0%	$ 1,698	0.0%	$ 1,698	0.0%
Whole House Energy Metering	4	0	0.0%	10,693	0.0%	53,464	0.0%	1.0	0.2	$ 5,407	0.0%	$ 23,588	0.0%	$ 23,531	0.4%
Solar Attic Fan	14	0	0.0%	6,135	0.0%	30,676	0.0%	12.5	0.3	$ 3,151	0.0%	$ 9,181	0.0%	$ 425	0.0%
Whole House Fan	13	0	0.0%	5,697	0.0%	28,485	0.0%	5.4	0.3	$ 2,926	0.0%	$ 10,485	0.0%	$ 975	0.0%
HVAC - Package & Split Units	1	0	0.0%	1,113	0.0%	16,699	0.0%	25.6	0.3	$ 1,652	0.0%	$ 5,000	0.0%	$ 700	0.0%
AC Annual Tune Up - Residential	17	2	0.0%	11,140	0.0%	11,140	0.0%	1.5	0.6	$ 1,603	0.0%	$ 2,886	0.0%	$ 850	0.0%
Accounting Record	-	-	0.0%	-	0.0%	-	0.0%			$ -	0.0%	$ -	0.0%	$ 248,408	4.1%
Total	**1,698,591**	**8,525**	**100.0%**	**53,643,302**	**100.0%**	**348,026,226**	**100.0%**	**6.5**	**0.9**	**$ 47,108,094**	**100.0%**	**$ 49,667,627**	**100.0%**	**$ 6,060,569**	**100.0%**

REEM Program Expenditures

The REEM Program required a significant amount of program funding for incentives due to the increased popularity of ENERGY STAR® incentives. The Solar Water Heating Program was affected by the economic conditions similar to the commercial and industrial programs this year.

Table 57 – REEM Program Expenditures

	PY2010 Allocations	PY2010 Budget R4	% Spent	Unspent	% Unspent
REEM Operations	2,064,984.86	2,076,900.38	99%	11,915.52	1%
REEM Incentives	6,060,569.78	6,066,637.41	100%	6,067.63	0%
REEM Total	8,125,554.64	8,143,537.79	100%	17,983.15	0%

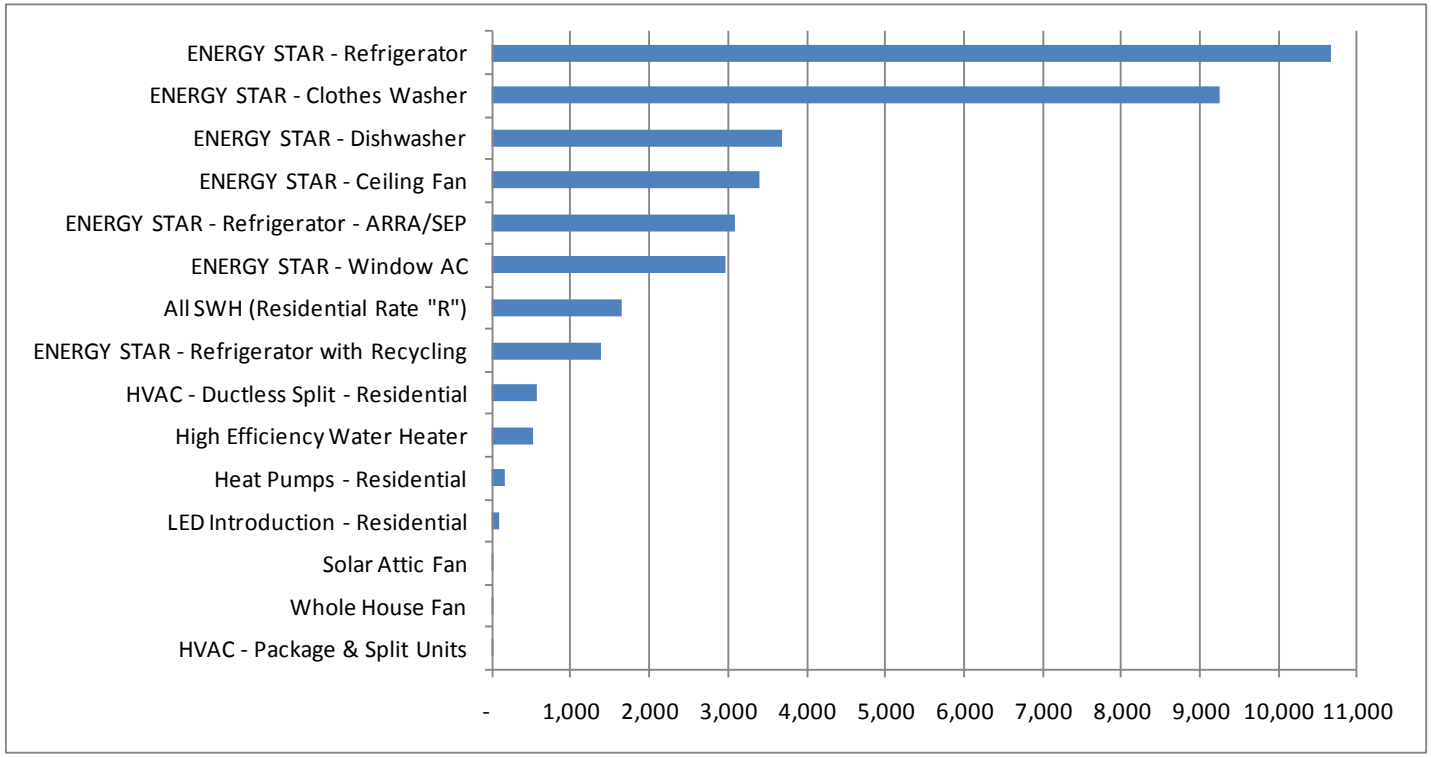
REEM Program Overall Accomplishments (individual incentive accomplishments follow)

Popular Offerings – Table 58 summarizes the participation of REEM incentives by measure. The table demonstrates the popularity of the ENERGY STAR® incentives.

Quality Customer Support – During PY10, Hawaii Energy's residential call center handled over 20,000 customer calls ranging from, "What kind of refrigerator should I buy?" to, "How I should size my solar system?" and everything in between. Hawaii Energy's residential customer base has matured and is more educated with regard to energy efficiency. In response, Hawaii Energy's call center representatives have been tasked with learning more about energy efficiency to better advise callers.

Customer Experience Management – As a secondary measure in the pursuit of customer loyalty and awareness, Hawaii Energy launched a Customer Experience Management (CEM) tool, Medallia. This software generates an automated customer email survey for the ENERGY STAR rebate and Solar Water Heater Inspection programs. Medallia enabled Hawaii Energy to email the customer immediately upon receipt of the incentive check or following a solar inspection to measure how Hawaii Energy met their expectations and any future improvements. For the first time, if the customer falls below a certain score, Hawaii Energy has the opportunity to immediately contact the customer to address their concerns and gain valuable program feedback in order to adjust internal processes immediately.

Table 58 – REEM Rebated Units



REEM Program Accomplishments by Incentive Offering

High Efficiency Water Heating (HEWH) (including Solar Water Heating)

For PY10, the HEWH Program achieved savings of 2,687,258 kWh (first year) and 585 kW savings with $1,159,410 in incentives. In relative terms, 19.9% of REEM incentives captured 5.0% and 6.9% of kWh (first year) and kW savings, respectively.

Retailer Interaction - Having aggregated the Heat Pumps and High Efficiency Water Heaters program in PY09 with a common rebate application, Hawaii Energy focused on retailer execution in PY10. Across all islands, Hawaii Energy visited stores selling water heaters to both explain the program and reinforce the importance of selling energy efficient water heaters and heat pumps. These visits were very productive, providing important 'face to face' interaction with sales people and ensuring program literature was prominently displayed and understood by retailers and customer alike.

Expansion of Retailer Base - We were also able to expand our reach to some of the independently owned retailers on Oahu and the neighbor islands and bring them into the HEWH program.

Table 59 – REEM HEWH Program Impacts

PY2010 High Efficiency Water Heating Program Impacts

Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
SWH - Contractor - PBFA $750	1,376	510	87.1%	2,297,448	85.5%	34,461,725	89.1%	15.0	0.5	$ 4,507,301	85.7%	$ 9,103,571	79.0%	$ 1,027,400	88.6%
SWH - $1K - PBFA $250/ARRA$750	182	17	2.9%	75,744	2.8%	1,136,165	2.9%	15.0	0.1	$ 148,585	2.8%	$ 1,239,073	10.8%	$ 45,500	3.9%
SWH - Contractor - PBFA $1,000	13	5	0.8%	21,764	0.8%	326,454	0.8%	15.0	0.5	$ 42,697	0.8%	$ 93,606	0.8%	$ 12,300	1.1%
SWH - $1,750 - PBFA $250/ARRA $1,500	80	4	0.7%	19,069	0.7%	286,036	0.7%	17.1	0.1	$ 37,411	0.7%	$ 560,013	4.9%	$ 20,000	1.7%
High Efficiency Water Heater	533	12	2.0%	68,898	2.6%	620,086	1.6%	9.0	1.0	$ 267,934	5.1%	$ 260,927	2.3%	$ 24,810	2.1%
Heat Pumps - Res.	168	38	6.5%	204,334	7.6%	1,839,010	4.8%	9.0	0.9	$ 253,441	4.8%	$ 268,654	2.3%	$ 29,400	2.5%
Total	**2,352**	**585**	**100%**	**2,687,258**	**100%**	**38,669,475**	**100%**	**14.4**	**0.5**	**$ 5,257,370**	**100%**	**$ 11,525,844**	**100%**	**$ 1,159,410**	**100%**

HEWH - Solar Water Heating (SWH)

The SWH Program had an additional funding source from the American Recovery and Reinvestment Act (ARRA) for the majority of PY10, which presented a number of opportunities and challenges for the program.

Instant Rebate Program – The SWH Program struggled for the first half of PY10. After conferring with the Hawaii Solar Energy Association (HSEA) and the PUC, Hawaii Energy introduced a "Bonus Rebate" of $750 in March, effectively doubling the rebate to $1,500 per system. In addition to spurring industry activity, Hawaii Energy took the action as an opportunity to learn more about ratepayers through the "Bonus Rebate" application, which asked a few simple questions aimed at improving its programs. This "Bonus Rebate" effectively doubled demand and was fully subscribed within four weeks. After the $1,500 rebate was exhausted, supplemental ARRA funding was secured to provide a $1,000 rebate after a short, but painful absence of available instant rebates. This budget for the $1,000 instant rebate was exhausted a few weeks prior to the end of PY10.

Interest Buy-Down Program – The SWH Program introduced a new program, "Hot Water, Cool Rates" in November of 2010. Co-funded with PBF and ARRA funds, this "solar interest buy-down" program bought down the cost of a loan by applying a $1,000 incentive towards the interest of a loan offered by local lending institutions. $250 was PBF funded, while $750 was ARRA funded. In March 2011, the "Bonus Rebate" of $750 was also offered to participants of "Hot Water, Cool Rates" to ensure program parity that would have otherwise stalled this new program.

The Interest Buy-Down Program has continued to gain traction in the market. Participating Contractors were at first hesitant to offer this financing solution to prospective customers, however, during the two-week period following the exhaustion of the $750 bonus rebate, it was the only active incentive program. Although not intentional, the delay in securing funds to supplement the instant rebate program led a number of Participating Contractors to take a renewed interest in "Hot Water, Cool Rates". In addition to more Contractors gaining confidence in this new program, local lending institutions continue to join the program as Participating Lenders.

Solar Water Heating Inspections – Initial plans to lower inspection rates to 50% of all systems were suspended due to the ARRA requirement that 100% of systems were inspected. Hawaii Energy continued to leverage this value-added service by educating homeowners with collateral and answering questions as they arose.

Participating Contractor Meetings – Hawaii Energy continued to meet with its network of Participating Contractors on Oahu, Maui and the Big Island. These half-day sessions provided a forum to update contractors on program results, new programs like "Hot Water, Cool Rates" and to provide an opportunity for honest and open dialogue aimed to improve the program. This year, Hawaii Energy provided meeting dates in both Hilo and Kona to better serve the needs of Big Island contractors.

Table 60 – REEM Solar System Installations by Island (PBF)

PY2010 Solar Water Heating Projects by Island

Island	Installations		Total Incentive Amount	Program Level Energy Savings (kWh/ 1st Yr.)	Program Level Lifetime Energy Savings (kWh/ Life)
Hawaii	279	$	172,500	366,543	5,498,142
Maui	195	$	131,650	284,829	4,272,433
Molokai	2	$	1,350	3,317	49,752
Oahu	1,242	$	849,450	1,868,977	28,034,654

Table 61 presents a ranking of participating contractors in terms of their activity in the Solar Water Heating program. While this list reflects PBF-funded systems, it resembles overall activity regardless of funding source.

Table 61 – REEM Solar System Installations (PBF Funded) by Participating Contractor

PY2010 Retrofit Solar Water Heater Applications Received by Contractor

Row Labels	Applications	Incentives	% Applications	Cummulative %
HAWAIIAN ISL SOLAR, INC.	290	$197,000	16.9%	16.9%
PONCHOS SOLAR SERVICE- OAHU	221	$149,550	12.9%	29.7%
ALTERNATE ENERGY - OAHU	106	$75,900	6.2%	35.9%
HALEAKALA SOLAR, INC.	99	$66,150	5.8%	41.7%
SOLAR HELP HAWAII	91	$59,500	5.3%	47.0%
DRAINPIPE PLUMBING & SOLAR	80	$53,300	4.7%	51.6%
C&J SOLAR SOLUTIONS	78	$50,400	4.5%	56.2%
SOLAR SERVICES HAWAII	60	$40,300	3.5%	59.7%
RT'S PLUMBING, INC	48	$23,000	2.8%	62.5%
ISLAND SOLAR SERVICE, INC. - OAHU	42	$31,500	2.4%	64.9%
FOREST CITY HAWAII	41	$30,750	2.4%	67.3%
KEITH SHIGEHARA PLUMBING, INC.	37	$19,150	2.2%	69.4%
SONSHINE SOLAR CORP.	37	$25,750	2.2%	71.6%
ENERGY UNLIMITED, INC.	35	$23,250	2.0%	73.6%
GIANT SOLAR, LLC	33	$21,700	1.9%	75.6%
HAWAIIAN SOLAR & PLUMBING	33	$23,250	1.9%	77.5%
PACIFIC ENERGY STRATEGIES, LLC.	30	$17,300	1.7%	79.2%
MAUI PACIFIC SOLAR, INC.	29	$19,750	1.7%	80.9%
HI-TECH PLUMBING CORPORATION	28	$21,500	1.6%	82.5%
BONTERRA SOLAR SERVICES	27	$19,550	1.6%	84.1%
PONCHO'S SOLAR SERVICE - BIG ISL	26	$19,000	1.5%	85.6%
KONA SOLAR SERVICE, LLC	24	$16,500	1.4%	87.0%
AFFORDABLE SOLAR CONTRACTING	23	$12,250	1.3%	88.4%
HI-POWER SOLAR, LLC	20	$14,500	1.2%	89.5%
GRAND SOLAR	17	$12,250	1.0%	90.5%
APOLLO SOLAR	13	$9,750	0.8%	91.3%
SUN KING - MAUI	11	$6,250	0.6%	91.9%
SUN KING - OAHU	10	$7,500	0.6%	92.5%
SOLAR REPAIR	9	$6,750	0.5%	93.0%
OTHER	120	$81,650	7.0%	100.0%
GRAND TOTAL	**1,718**	**$1,154,950**	**100.0%**	

High Efficiency Lighting

For PY10, the High Efficiency Lighting Program achieved savings of 43,769,142 kWh (first year) and 6,661 kW savings with $2,697,870 in incentives. In relative terms, 46.4% of REEM incentives captured 81.6% and 78.1% of kWh (first year) and kW savings, respectively.

CFLs and LEDs – Like with ENERGY STAR appliances, Hawaii Energy drove the CFL program to new levels. Many challenges were encountered with a geographically diverse manufacturer, distributor, and retailer network. Customers can benefit from the discounted CFLs at City Mill, Costco, Don Quijote, Safeway, Lowes, Home Depot, Longs Drugs/CVS, Sam's Club and Wal-Mart.

Much effort was spent increasing program participation (via a signed Memorandum of Understanding), common rebate submittal forms, sales forecasting templates, and timely submission of these forms. Hawaii Energy conducted frequent store visits to ensure correct program participation and signage utilization.

PY10 began with high rebates straddling the two dollar per bulb level, which successfully jump started volumes. Beginning in September, downward pressure was applied to rebate levels such that the per bulb rebate level dipped below the one dollar mark by program year end.

Table 62 – REEM High Efficiency Lighting Program Impacts

PY2010 REEM - High Efficiency Lighting Program Impacts

Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
CFL - Residential	1,661,081	6,660	100%	43,753,804	100%	218,769,021	100%	5.0	3.0	$ 29,883,063	100%	$ 9,954,399	100%	$ 2,696,172	99.9%
LED Introduction - Residential	100	2	0.0%	15,338	0.0%	76,691	0.0%	18.6	5.8	$ 9,772	0.0%	$ 1,698	0.0%	$ 1,698	0.1%
Total	**1,661,181**	**6,661**	**100%**	**43,769,142**	**100%**	**218,845,712**	**100%**	**5.0**	**3.0**	**$ 29,892,835**	**100%**	**$ 9,956,097**	**100%**	**$ 2,697,870**	**100%**

High Efficiency Air Conditioning

For PY10, the High Efficiency Air Conditioning Program achieved savings of 1,546,410 kWh (first year) and 593 kW savings with $420,855 in incentives. In relative terms, 7.2% of REEM incentives captured 2.9% and 7.0% of kWh (first year) and kW savings, respectively.

Window Air Conditioners – Hawaii Energy continued to be proactive in managing results by curtailing the Window AC rebate after demand was found to be unusually excessive. Rather than promoting efficiency, the program inadvertently increased the purchase of cheap ENERGY STAR® compliant window air conditioners. In response, Hawaii Energy adjusted the qualifying product range and incentive and soon after, demand promptly and dramatically declined to normal levels.

Solar Attic Fans and Whole House Fans – Hawaii Energy introduced incentives for new energy saving devices including solar attic whole and house fans. A limited volume of these incentives were offered after consulting with leading vendors to assess energy saving potentials and plans for future verification. Solar attic fans are intended to cools the roof and may reduce the load on air conditioning systems, while whole house fans draw cooler, outside air through interior living spaces, thus pushing hot air out of the home and out through attic vents. The effect creates a cooling breeze that negates the need to run air conditioning.

Table 63 – REEM High Efficiency Air Conditioning Program Impacts

PY2010 REEM - High Efficiency Air Conditioning Program Impacts

Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
ESTAR - Window AC	2,973	454	76.6%	898,966	58.1%	10,787,587	70.7%	12.0	1.8	$ 1,552,745	68.2%	$ 868,985	33.2%	$ 218,925	52.0%
ESTAR - Ceiling Fan	3,398	50	8.4%	458,699	29.7%	2,293,496	15.0%	5.0	0.5	$ 262,877	11.5%	$ 514,483	19.7%	$ 135,920	32.3%
HVAC - Ductless Split - Res.	581	89	15.0%	175,800	11.4%	2,109,601	13.8%	12.0	0.4	$ 454,076	19.9%	$ 1,209,050	46.2%	$ 63,910	15.2%
HVAC - Package & Split Units	1	0	0.0%	1,113	0.1%	16,699	0.1%	25.6	0.3	$ 1,652	0.1%	$ 5,000	0.2%	$ 700	0.2%
Solar Attic Fan	14	0	0.0%	6,135	0.4%	30,676	0.2%	12.5	0.3	$ 3,151	0.1%	$ 9,181	0.4%	$ 425	0.1%
Whole House Fan	13	0	0.0%	5,697	0.4%	28,485	0.2%	5.4	0.3	$ 2,926	0.1%	$ 10,485	0.4%	$ 975	0.2%
Total	**6,980**	**593**	**100%**	**1,546,410**	**100%**	**15,266,544**	**100%**	**9.9**	**0.9**	**$ 2,277,426**	**100%**	**$ 2,617,185**	**100%**	**$ 420,855**	**100%**

High Efficiency Appliances

For PY10, the High Efficiency Appliances Program achieved savings of 3,571,291 kWh (first year) and 413 kW savings with $1,355,745 in incentives. In relative terms, 23.3% of REEM incentives captured 6.7% and 4.8% of kWh (first year) and kW savings, respectively.

Since PY09, Hawaii Energy has continued to expand its retailer community to neighboring Hawaii and Maui counties, with a current total of 177 retail participants. This includes many new independently owned retailers along with all of the "Big Box" retailers in the state. Hawaii Energy's Trade Ally Team regularly visits all retailers throughout the program year to keep them current on rebate levels, promotions and to ensure proper display of Hawaii Energy Point-of-Purchase (POP). Throughout the program year, retailers are regularly updated via email and phone.

As evidence that the general public continues to become more aware of energy conservation, Hawaii Energy saw a similar level of ENERGY STAR® appliance rebate applications as seen in PY09. For PY10, over 30,000 ENERGY STAR appliance rebates applications were received. In addition to growing public awareness, this growth was also achieved due to a more active appliance retailer mentioned above.

Refrigerator with Recycling – This program was launched in March and was modeled after the successful ARRA Refrigerator Trade-in program. As Hawaii Energy found last year when doing the original ARRA program, extraordinary measures had to be taken to ensure proper recycling was done in each County. Therefore, this new program was only offered to retailers and haulers that could demonstrate a clean chain of custody for their refrigerator recycling operations.

Working to create a sound chain of custody to recycle appliances, Hawaii Energy approached the local authorized county recycling organizations on Maui and the Big Island where the past program had been challenging. The recycling best practices of Hawaii Energy's Oahu-based recycling partner were presented to these organizations by Hawaii Energy with a proposal that if these best practices were adopted, Hawaii Energy could ensure a reliable and stable flow of refrigerators to be recycled. In the past, for example, the entire haul away inventory on the Big Island was sent to a refurbishment company, which eventually ended up back on the grid. On the Big Island, Hawaii Energy established a promising relationship with Big Island Scrap. On Maui, Hawaii Energy developed a great partner in Schnitzer Steel who is currently the only metal recycler performing both refrigerant and oil removal on Maui at their Pu'unene location.

Garage Refrigerator/Freezer Bounty Program – With recycling best practices now implemented on Maui and the Big Island, Hawaii Energy was able to launch a Bounty Program on Oahu, Maui and the Big Island in the final weeks of PY10. This program offered a rebate to customers who unplugged and recycled a working refrigerator and/or freezer. The Oahu-based program includes a mandatory pick-up service, while the neighbor island requires the unit to be dropped off at a participating facility.

To date, this program recycled several hundred units that would have remained on the grid consuming electricity. With these new Industry Partners properly recycling appliances, Hawaii Energy has a solid foundation upon which to grow the recycling component of its PY11 programs including a continuance of the Bounty Program.

Due to its launch just prior to the close of PY10, all rebates and savings will be realized in PY11.

Table 64 – REEM High Efficiency Appliances Program Impacts

PY2010 REEM - High Efficiency Appliances Program Impacts

Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
ESTAR - Clothes Washer	9,255	203	49.0%	1,541,628	43.2%	18,499,536	39.8%	12.0	0.4	$ 2,803,906	43.2%	$ 6,264,342	28.3%	$ 462,750	34.1%
ESTAR - Refrigerator w/ Recycling	1,394	38	9.1%	927,115	26.0%	12,979,605	27.9%	14.0	0.7	$ 1,132,486	17.4%	$ 1,566,280	7.1%	$ 176,495	13.0%
ESTAR - Refrigerator	10,654	146	35.4%	903,510	25.3%	12,649,147	27.2%	14.0	0.1	$ 1,494,228	23.0%	$ 12,136,622	54.9%	$ 532,700	39.3%
ESTAR - Dishwasher	3,676	27	6.5%	199,038	5.6%	2,388,453	5.1%	12.0	0.5	$ 1,061,686	16.4%	$ 2,129,246	9.6%	$ 183,800	13.6%
Total	**24,979**	**413**	**100%**	**3,571,291**	**100%**	**46,516,741**	**100%**	**13.0**	**0.3**	**$ 6,492,306**	**100%**	**$ 22,096,491**	**100%**	**$ 1,355,745**	**100%**

Energy Awareness, Measurement and Control Systems

For PY10, the Energy Awareness, Measurement and Control Systems Program achieved savings of 53,464 kWh (first year) and 0.3 kW savings with $23,531 in incentives. In relative terms, 0.4% of REEM incentives captured 0.02% and ~0% of kWh (first year) and kW savings, respectively.

Room Occupancy Sensors – Difficulties in implementing this measure with a specific retailer delayed the introduction of this measure. An alternate strategy is being devised for PY11.

Whole House Energy Metering – Hawaii Energy successfully launched this program with a variable rebate. With many devices coming on the market, the program should witness growth of this measure.

Residential Energy Awareness and Action Competitions – Hawaii Energy launched the ARRA-funded Peer Group Comparison program pilot in the Ewa Beach/Kapolei community. This consisted of an outbound mailer measuring each neighbor to that of another neighbor in their peer group (similar sized home and demographics). Initial calls from the customer responding to mailings ranged from inquiry about the program to anger (save paper, privacy, low ranking). This was the expected outcome of the mailers, which are designed to illicit a strong response followed by a behavioral change. Customers were shown how to login to their account and enter information specific to their home, followed by a discussion of how they could save money. Typically during the call, customers decided to continue their participation in the program. This Program launched toward the end of the year and will appear in PY11 impacts.

Table 65 – REEM Energy Awareness, Measurement and Control Systems Program Impacts

PY2010 REEM - Energy Awareness, Measurement and Control Systems Program Impacts

Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
Whole House Energy Metering	4	0.3	0.0%	10,693	0.0%	53,464	0.0%	1.0	0.2	$ 5,407	0.0%	$ 23,588	0.0%	$ 23,531	0.4%
Total	**4**	**0.3**	**0%**	**10,693**	**0%**	**53,464**	**0%**	**5.0**	**0.2**	**$ 5,407**	**0%**	**$ 23,588**	**0%**	**$ 23,531**	**0%**

Special Programs Targeting Island Equity and Outreach

For PY10, Special Programs achieved savings of 2,046,714 kWh (first year) and 270 kW savings with $153,850 in incentives. In relative terms, 2.6% of REEM incentives captured 3.8% and 3.2% of kWh (first year) and kW savings, respectively.

These programs were conceived, designed and launched as Hawaii Energy continues to find creative ways to leverage available funding and collaborate with diverse organizations across the state.

Trade-Up for Cool Cash – The ARRA refrigerator program launched in PY09 carried through into PY10 and accounts for a significant portion of the PY10 results below.

Refrigerator and Clothes Washer Trade-In – With Funds left over from the initial ARRA refrigerator program launched in PY09, Hawaii Energy launched another Trade-In program, whereby a $250 rebate was offered to ratepayers of the Big Island and Maui for qualifying ENERGY STAR® refrigerators and clothes washers ($50 was PBF funded, while $200 was ARRA funded). Not only did this program exhaust the budgeted funding for 750 units, it also provided the neighbor island retailers with much needed business during a difficult year.

Collaboration with Council for Native Hawaiian Affairs (CNHA) – Hawaii Energy launched a program by working in concert with the Council for Native Hawaiian Affairs and the Department of Hawaiian Home Lands (DHHL). This was a focused program for Hawaiian Home Lands residents only in Hilo with a targeted mailing and community outreach effort lead by CNHA, whereby qualifying applicants received a $250 rebate for a qualifying ENERGY STAR clothes washer.

CFL 100% Incentive – Towards the end of PY10, Hawaii Energy rolled out a 100% CFL Incentive on Maui and the Big Island through two key retail partners, Longs and Costco. This was helpful in adopting CFL usage and creating additional equity in the neighbor island communities.

Table 66 – REEM Special Programs: Refrigerator and Clothes Washer Trade-In Impacts

PY2010 REEM - Special Projects Impact

Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
ESTAR - Refrigerator - ARRA/SEP	3,077	270	39.5%	2,046,714	36.4%	28,653,994	38.1%	14.0	0.9	$ 3,180,131	32.9%	$ 3,444,236	13.5%	$ 153,850	10.2%
Total	**3,077**	**270**	**100%**	**2,046,714**	**100%**	**28,653,994**	**100%**	**14.0**	**0.9**	**$ 3,180,131**	**100%**	**$ 3,444,236**	**100%**	**$ 153,850**	**100%**

Residential Low Income (RLI) Program

RLI Program Objective

The RLI Program aimed to enable qualified low-income residents, defined by 150% of the Federal Poverty Guidelines, to receive energy saving devices such as CFLs, power strips and low flow showerheads, at no cost.

RLI Program Accomplishments

Hawaii Energy's Residential Low Income program was introduced to government, nonprofit and local community agencies such as Housing and Urban Development (HUD), Honolulu Community Action Program (HCAP), Maui Economic Opportunities (MEO), Hawaii County Economic Opportunity Council (HCEOC), Hawaii Public Housing Authority (HPHA), Department of Hawaiian Home Lands (DHHL), the Council of Native Hawaiian Advancement (CNHA) and the Blue Planet Foundation. Organizations such as the Blue Planet Foundation were particularly helpful in engaging regional areas such as the island of Molokai, which was known to have a high level of poverty. Table 71 illustrates the measures distributed by Island.

Table 67 – RLI Program Measure Count by Island

PY2010 RLI - Residential Low Income Program Measure Counts

Category	Hawaii	Lanai	Maui	Molokai	Oahu	Total
CFL - Residential	36,885	-	15,684	-	24,903	77,472 Units
Energy Hero Gift Packs - Low Flow Showerheads	100	-	100	-	300	500 Units
RLI Energy Hero Gift Packs - Smart Strips	90	-	384	-	468	942 Units
Solar Water Heating - RLI Solar Inspections ARRA WAP	74	3	89	15	198	379 Units
Total	**37,149**	**3**	**16,257**	**15**	**25,869**	**79,293 Units**

Hawaii Energy established rapport with these local community action agencies and nonprofit organizations to promote energy conservation via low income housing projects.

Hawaii Energy offered home audit training and complimentary energy efficiency devices to these organizations to leverage their resources and ensure proper education and delivery to this customer segment. These measures helped create greater self-sufficiency in targeted households. The organizations were instrumental in facilitating the delivery of conservation products within community. The Blue Planet Foundation distributed 61,401 CFLs for Hawaii Energy's program across Oahu, Maui and Hawaii Island in PY10. Further efforts by Hawaii Energy on Hawaii Island included the Hawaii County Economic Opportunity Council (HCEOC), the Kohala Center and Pahoa High School. Smaller initiatives by Hawaii Energy distributed CFLs throughout Oahu and Hana, Maui.

ARRA / Weatherization Assistance Program (WAP) - RLI Solar Inspections

The federal government's ARRA / WAP provided Hawaii with funding for 650 SWH installations statewide, starting in 2009. The Office of Community Services (OCS) was selected to administer the program, targeted at Hawaii's low income housing for qualifying families with 4 or more per household and "high" energy usage.

While Hawaii Energy could not provide a SWH rebate for these federally funded installations, Hawaii Energy continued to offered complimentary installation inspections to ensure high quality installations.

In addition, we were able to get the agencies to adopt and embrace Hawaii Energy's Solar Water Heating Standards & Specifications. A weekly status report was provided to appropriate county organizations detailing all inspection details. See Tables 68 and 69 for further details.

Table 68 – ARRA / WAP (RLI Solar Inspections) by Islands

PY2010 ARRA/WAP Solar Inspections

Island	Inspections	Total Incentive Amount	Program Level Savings (kWh/Yr.)
Hawaii	74	$ 5,793	30,412
Lanai	3	$ 151	1,244
Maui	89	$ 6,001	36,896
Molokai	15	$ 1,101	6,219
Oahu	198	$ 7,255	82,953
Total	**379**	**$ 20,301**	**157,724**

Table 69 – ARRA / WAP (RLI Solar Inspections) by Participating Contractor

PY2010 ARRA/WAP Solar Inspections

Participating Contractor	Inspections	% Inspections	Cummulative % Inpsections
MAUI PACIFIC SOLAR, INC.	75	19.8%	19.8%
ALTERNATE ENERGY - MAUI	69	18.2%	38.0%
PONCHOS SOLAR SERVICE- OAHU	55	14.5%	52.5%
GRAND SOLAR	53	14.0%	66.5%
SAVING OAHUS SOLAR, LLC.	27	7.1%	73.6%
SOLAR HELP HAWAII	25	6.6%	80.2%
BUILT TO LAST PLUMBING	23	6.1%	86.3%
C&J SOLAR SOLUTIONS	14	3.7%	90.0%
COMMERCIAL PLUMBING, INC.	8	2.1%	92.1%
ROYAL FLUSH PLUMBING	8	2.1%	94.2%
ALTERNATE ENERGY - OAHU	8	2.1%	96.3%
HAWAIIAN ISL SOLAR, INC.	6	1.6%	97.9%
GIANT SOLAR, LLC	4	1.1%	98.9%
AFFORDABLE SOLAR CONTRACTING	2	0.5%	99.5%
BONTERRA SOLAR SERVICES	1	0.3%	99.7%
DRAINPIPE PLUMBING & SOLAR	1	0.3%	100.0%
Total	379	100.0%	

RLI Program Impacts

For PY10, RLI achieved savings of 2,314,972 kWh (first year) and 370 kW savings with $236,769 in incentives. In relative terms, 3.7% of Residential Program incentives captured 4.1% and 4.2% of kWh (first year) and kW savings, respectively. See Tables 70 and 71.

Table 70 – RLI Program Impacts

PY2010 RLI - Residential Low Income Programs Impacts

Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
CFL - Residential	77,472	311	84.0%	2,026,053	87.5%	10,130,266	70.6%	5.0	3.0	$ 1,384,559	71.6%	$ 464,832	17.3%	$ 198,419	83.8%
SWH - RLI Inspections ARRA WAP	379	33	9.0%	157,724	6.8%	2,365,858	16.5%	15.0	0.1	$ 303,819	15.7%	$ 2,207,849	82.1%	$ 20,301	8.6%
Energy Hero Gift Packs - LFS	500	20	5.4%	80,298	3.5%	1,605,953	11.2%	20.0	98.2	$ 199,989	10.3%	$ 2,037	0.1%	$ 2,035	0.9%
RLI Energy Hero Gift Packs - SS	942	6	1.5%	50,897	2.2%	254,484	1.8%	5.0	2.8	$ 44,241	2.3%	$ 16,014	0.6%	$ 16,014	6.8%
Total	**79,293**	**370**	**100%**	**2,314,972**	**100%**	**14,356,561**	**100%**	**6.2**	**0.7**	**$ 1,932,608**	**100%**	**$ 2,690,732**	**100%**	**$ 236,769**	**100%**

LFS = Low Flow Showerheads; SS = Smart Strips (advanced power strips)

Table 71 – RLI Program Impacts by Island

PY2010 RLI - Residential Low Income Program Energy (kWh) Impacts

Category	Hawaii	Lanai	Maui	Molokai	Oahu	Total	
CFL - Residential	956,790	-	410,423	-	658,840	2,026,053	kWh
Energy Hero Gift Packs - Low Flow Showerheads	15,842	-	15,982	-	48,473	80,298	kWh
RLI Energy Hero Gift Packs - Smart Strips	4,798	-	20,652	-	25,447	50,897	kWh
Solar Water Heating - RLI Solar Inspections ARRA WAP	30,412	1,244	36,896	6,219	82,953	157,724	kWh
Total	**1,007,843**	**1,244**	**483,954**	**6,219**	**815,712**	**2,314,972**	**kWh**

RLI Program Expenditures

RLI participants typically are hard-to-reach, therefore the cost per energy saved ($/kWh) for program is higher due to the greater amount of operations effort and higher incentives required, sometimes up to full cost incentive and direct installation of measures.

Hawaii Energy purchased items to provide direct to RLI customers such as advance power strips, showerheads and CFLs. The remaining inventory of items not distributed in PY10 is being credited back to the PUC. This accounts for the majority of the 42% unspent incentive funds. See Table 72 for details.

Table 72 – RLI Program Expenditures

	PY2010 Allocations	PY2010 Budget R4	% Spent	Unspent	% Unspent
RLI Operations	84,076.34	84,100.00	100%	23.66	0%
RLI Incentives	236,769.48	406,227.79	58%	169,458.31	42%
RLI Total	320,845.82	490,327.79	65%	169,481.97	35%

Residential New (RNEW) Program

RNEW Program Objective

The push for these programs was to transform the marketplace by introducing new actions such as equipment tune-ups and new home energy modeling. These programs start off small to collaborate with industry players and work out operational and incentives that will be effective in increasing the reach and participation of these activities.

RNEW Program Accomplishments

Residential Energy Services & Maintenance Programs

Solar Water Heater (SWH) Tune-Up Pilot – With over 60,000 program systems installed over a 15 year period, Hawaii Energy identified the need to promote system maintenance. Based on maintenance services already offered by Hawaii Energy's Participating Contractors, a 20-point tune-up service was designed to ensure the system was fully functional and would have a useful life of at least 15 years. Systems of at least 6 years of age qualified for an instant rebate reducing the cost of the service. Qualifying systems were selected by Hawaii Energy based on criteria that ensured island and intra-island equity in addition to Participating Contractor equity. Over 10,000 letters were mailed to qualifying households informing them of their selection in the pilot. The letter touted the merits of the program and either directed them to a list of Participating Contractors or listed their installing contractor.

Feedback to Hawaii Energy from letter recipients and contractors showed a positive initial response rate. An evaluation of the pilot will be conducted following its completion in October 2011. Due to its launch date in the final months of PY10, all impacts of this pilot will be realized in PY11.

Residential Design and Audit Programs

Efficiency Inside Home Design – Unlike its predecessor, this program eliminated prescriptive measures in favor of energy modeling to make comparisons between energy code compliant designs and enhanced designs. This approach had many advantages including:

- The ability to hold military home developments to the same Code Standards and State Laws as private developer;
- The ability to base energy savings on computer energy modeling programs to compare a code-built homes to the home designs being offered by the developer;
- Providing the developer the maximum flexibility in designing their homes to dovetail with existing federal tax credits and ENERGY STAR® programs;
- Possible collaboration among developers, designers, energy consultants and Hawaii Energy to maximize utilization of incentives through comparing model scenarios;
- A number of developers constructing net-zero homes with PV systems considered as an efficiency measure.

Hawaii Energy presented this program to developers, modeling and testing consulting firms and received applications from three developers utilizing the same consulting firm. There were discussions with several other developers and consultants that have contributed to several more participants for PY11.

Hawaii Energy has found that all participating developers are building homes 30% better than International Energy Conservation Code (IECC) 2006 requirements. In fact, some models are being built at Net-Zero or with optional Net-Zero PV packages. In early discussions, developers provided valued feedback that raised Hawaii Energy's cognizance to issues facing developers, including:

- The need to design and equip homes to respond to home buyer market forces;
- Homes are not competitive for sale in Hawaii if they are not designed with A/C;
- There are limitations in Hawaii's building code and density requirements that do not allow "classic" Hawaiian architecture such as rooms open to outside hallways encouraging homes to be built without or minimal A/C;
- There is a challenge with appraisers that reward homes that have greater "enclosed" square footage over large lanais and central courtyards that again would encourage outdoor living and minimize A/C use.

Table 73 demonstrates modeling results for a project that has the four scenarios presented in the application worksheet. The as-constructed scenario achieves a 38% improvement over an IECC 2006 compliant home with changes to exterior color, spray foam insulation and high performance windows. The next level of performance would be accomplished by using reflective roof technology, lightening the exterior finish, and decreasing the solar heat gain coefficient through window upgrades, resulting in a 46% improvement over IECC 2006 codes.

With the program established, prospective participants are coming forward and/or recruited. As modeling is conducted earlier in the design stage, Hawaii Energy will be in an excellent position to develop incentives and best practices to move new homes to the highest level of performance prior to their construction.

Table 73 – Efficiency Inside

Efficiency Inside - Hawaii Energy New Construction Home Construction Incentive Program

Contractor /Project /Phase	Type / Units	Start / End	Modeled Scenarios	Scenario Energy Usage (kWh/year)	Over Baseline Savings (kWh/year)	% Change	Roof Type	Roof Insulation	Ceiling Insulation	Garage Insulation	Exterior Color	Tightness @ 50 pa	U Value	SHGC	AC Type	AC Sizing	Solar Thermal	Energy Star Appl.	CFLs	LED	Low Wattage T8	PV (kW)	Per Unit Incentive / Total Incentive / Project kWh / $/kWh	Project Status	
Builder #1	SFD	Jul-2010	1. Baseline - IECC 2006	15,315			Dark	R19		R11	Dark	7.0	0.60	0.40	Gen.	5.0	x						$600	Approved	x
Kimohale	70	Jun-2010	2. As Constructed	9,459	5,856	38%	Dark	R19.8		R11	Medium	2.8	0.34	0.30	Gen.	2.0	x	x	x		x		$42,000	Modeled	x
			3. Next Level of Performance	8,252	7,063	46%	Reflect.	R19.8		R13	Light	2.8	0.30	0.22	Gen.	2.0	x	x	x		x		409,889	Inspected	100%
Description			4. Net Zero	-	15,315	100%	Reflect.	R19.8		R13	Light	2.8	0.30	0.22	Gen.	2.0	x	x	x			5.1	$ 0.10	Tested	x
Sq. Ft. / Gar.	1,306	N/A	Spray foam insulation largest contributor to the improvement on tightness and allowing of the AC downsizing. Additional next level benefits are architectual (roof type/color and exterior color) and additional cost items (upgraded window systems).																					M&V	x
Volume	14,760																							Paid	x
Floors / Bed	1	3																						Canceled	

RNEW Program Impacts

For PY10, the New Residential Program (RNEW) achieved savings of 950,106 kWh (first year), but negligible kW savings with $123,600 in incentives. In relative terms, 1.9% of Residential Program incentives captured 1.7% and 0% of kWh (first year) and kW savings, respectively. See Table 74.

Table 74 – New Residential Program Impacts

PY2010 RNEW - New Residential Programs Incubator Impacts

Category	Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB/TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives ($)	%
New Home - Energy Modeling	3	-	0.0%	950,106	100%	19,002,119	100%	20.0	10.4	$ 1,289,176	100%	$ 123,600	100%	$ 123,600	100%
Total	**3**	**-**	**0.0%**	**950,106**	**100%**	**19,002,119**	**100%**	**20.0**	**10.4**	**$ 1,289,176**	**100%**	**$ 123,600**	**100%**	**$ 123,600**	**100%**

RNEW Program Expenditures

The RNEW Programs took some time to get started. Hawaii Energy expects them to be in full implementation and have significant interest in PY11. See Table 75 for details.

Table 75 – New Residential Program Expenditures

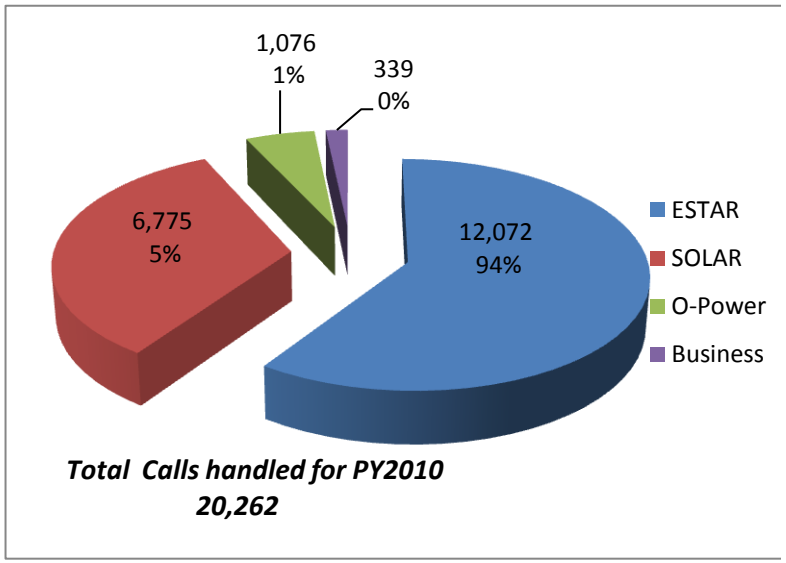
	PY2010 Allocations	PY2010 Budget R4	% Spent	Unspent	% Unspent
Residential New Operations	43,599.48	44,295.00	98%	695.52	2%
Residential New Incentives	123,600.00	762,200.00	16%	638,600.00	84%
Residential New Total	167,199.48	806,495.00	21%	639,295.52	79%

IX. OTHER PROGRAM ACTIVITY

During its second year, the Program experienced a number of successes and lessons learned that have enabled Hawaii Energy to plan for future program expansion and improvement from a firm foundation. Some of the key successes and lessons learned from PY10 are divided into the following categories and explained:

- Overall Program Operations
- Expanded Outreach Efforts
- Complementary Administration of ARRA Programs
- Leadership in the Larger Clean Energy Effort

Table 76 – Hawaii Energy Incoming Calls



Overall Program Operations

Highest Number of Total Incentive Checks Disbursed
In PY10, over 37,500 residential and business customer incentive checks were processed. This is an increase of 29% compared to PY09.

Timely and Secure Check Processing
The programs continued to benefit from its robust rebate check payment process with quality assurance mechanisms and Positive Pay feature that ensures check fraud concerns are kept to a minimum. With the incredible volume this year we were still able to manage keeping within the stated 6 to 8 week processing time within the program year.

Program Call Center
In PY10, the call center fielded over 20,200 calls with 94% regarding the ENERGY STAR® Appliance Program, 5% the Residential Solar Water Heating Program, and the remaining 1% for OPOWER and Business Program inquires, see Table 76, 20,200 calls was approximately a 35% increase in volume from PY09 which demonstrates increased interest in the Program offerings. Last year, only 53% of the calls were relating to ENERGY STAR®. The large increase was likely from the interest created from ARRA co-funded programs.

Expanded Outreach Efforts

Hawaii Energy increased outreach efforts to reach new potential participants as well as to provide greater impact in the areas of efficiency and conservation education. Outreach key messaging was expanded to include behavior change to decrease consumption in addition to simply encouraging participation in the program.

The Program continued to develop partnerships with trade allies and community-based outreach groups. These allies provide a force multiplier in improving the program's education and marketing of energy efficiency and conservation efforts to its customers. They assisted the Program with shared advertising, marketing, sponsorships, education, strategies, networking, reciprocal website-pointers, residential low income customer contacts, direct install efforts and compact fluorescent lamp (CFL) and light emitting diode lamp (LED) distributions.

Expos, Presentations and Conferences

In September, Hawaii Energy co-hosted the Energy Expo 2010 with the Hawaiian Electric Companies at the Hilton Hawaiian Village Resort. Highlights of the Expo included: luncheon speeches by the 2010 gubernatorial candidates, former Lieutenant Governor Duke Aiona and now Governor Neil Abercrombie, twenty (20) speakers presenting twelve (12) workshops, five hundred and thirty two (532) attendees from across the islands, and fifty-five (55) companies hosting booths in the exhibition hall. The Expo was a great success and brought many compliments to the Program.

Over the year, the Program increased its presence at expos and conferences as compared to PY09. In addition to the Energy Expo in September, Hawaii Energy hosted booths at: Live Energy Lite, Oahu Joint Military Spouse Conference, Hawaii National Guard Family Day, Rebuild Hawaii, St. Philomena Going Green Faire, Hawaii Building Facility & Property Management Expo, Koko Marina Go Green Event, Green Team Celebration at Hawaii Medical Service Association (HMSA), Molokai Agriculture Fair, Workforce 2011 Job & Career Fair, Pioneer Electric Annual Summer Trade Show, Kupu's Annual Environmental Fair, and iConserve Energy Public Rally. Having a presence at these diverse venues enabled the team to meet and answer questions of niche potential participants who likely did not know about the program.

In addition to supporting expos and conferences, Hawaii Energy hosted or co-hosted CFL exchanges across the State. On the Big Island alone, the Program was instrumental in the exchange of over twenty-thousand (20,000) CFLs through partnering with at least twenty-three (23) school and community organizations. The exchanges were a great opportunity to create interest and introduce people to the program.

In December, Hawaii Energy coordinated a Consortium for Energy Efficiency (CEE) - sponsored webinar titled "Partnering with Water Utilities." Participants included Board of Water Supply and water utilities from Honolulu, Maui and Hawaii counties. This free webinar helped to build ally collaboration in an area where the Program had not previously made much penetration beyond distributing restricted flow showerheads and water conservation educational materials as part of the Solar Water Heating Program. Hawaii Energy understands and appreciates the value of these new found partnerships and uses this as an example to help us develop new relationships in areas where we have barely scratched the surface.

Learning from the success of the solar program presentations held annually in February that provide program updates to solar contractors on Oahu, Maui and the Big Island, Hawaii Energy hosted a series called "Energy Efficiency Program Informational Update Workshops" for a wide range of audiences on Oahu to increase interest and participation in the program. The team is continuing to develop ways to leverage existing successful outreach ideas to have a greater impact on first trial of new offerings.

Website & Social Media

Hawaii Energy realizes the fantastic marketing potential of an interesting, useful, dynamic website. The website is a cost-effective way to provide program information that residents and businesses.

The information provided on the website creates interest and encourages immediate participation in the program offerings, and provides education that will generate long-term participation. The web content also explores conservation and renewable energy to address Hawaii's energy goals and to draw more visitors.

In August, the Program launched the redesigned Hawaii Energy website (www.hawaiienergy.com) which included upgrades such as individualized pages for residents and businesses to find information, a program calendar and relevant news articles. The format was designed to provide customized information based on the viewer's situation. Continuously through the year, team members reviewed and refined the website.

There were two major additions to the website that occurred later in the year to attract more visitors to the site.

- *Forum* – One was launched mid-year and was a web forum administrated by Hawaii Energy experts to provide a platform for the community to ask questions, debate, and learn about energy efficiency, conservation, and renewable energy.

- *Event Promotion* – The second addition occurred in March and was inviting Hawaii conservation organizations to let the Program know of their events that could be shared and promoted on Hawaii Energy's online calendar. These organizations appreciate that the Program is supporting their mission as well as Hawaii Energy benefits from increased visits to the website. Hawaii Energy continued to partner our website with our social media accounts on Twitter and Facebook to generate buzz and encourage repeat visits.

Television Advertising & Sponsorships

In October, Energy Awareness Month, Hawaii Energy was a co-sponsor with Blue Planet Foundation for *Hawaii Home Energy Makeover 2!* The program was aired three times over a three month period on local television. During the statewide broadcast, the Program premiered the "Not Another Drop" commercial. The advertisement was to highlight oil as the primary source of Hawaii's electricity production and draw people to our website. This commercial was nominated for a National ADDY® Award and won a Silver ADDY® in the Television category. The ADDY® Awards are the world's largest advertising competition. There were 1,382 entries received at the national level competition where awards included 87 professional gold ADDY® Awards and 156 professional silver ADDY® Awards.

In February, Hawaii Energy co-sponsored a six-show series called "Hawaii: The State of Clean Energy" broadcasted via *Hawaii News Now* on KGMB state-wide. Our co-sponsors included Department of Business, Economic Development & Tourism (DBEDT) and Hawaiian Electric Company (HECO). These shows offer an excellent platform to educate while advertising the program. The audience tuning into this show would be more interested in Hawaii Energy offerings than the general population, thus Hawaii Energy advertisements are were placed during commercial breaks. The Program was asked to provide expertise on the show content to educate the public and increase awareness of our offerings.

Educating Participants to Encourage Greater Participation

The Program enhanced the value of the Solar Water Heater (SWH) inspections in PY10 by offering informative collateral depending on the incentive type. For standard incentive applicants, informative energy conservation and efficiency collateral was offered. For those on Oahu, an additional piece of collateral was offered on behalf of the Board of Water Supply. For the new Solar Interest Buy-down incentive, customers were offered the energy conservation and efficiency collateral and additionally, a low flow showerhead. With the purchase of a SWH, these participants made a substantial investment in efficiency. The program hopes these people will appreciate and take interest in these outreach materials to become (or continue to be) an active participant in Hawaii Energy's offerings.

Focus on Residential Low Income (RLI) and Small Business – Hard-to-Reach Customers

Hawaii Energy has a high interest in reaching underserved markets, the Program utilized community-based outreach and marketing allies to deliver direct install measures such as advanced power strips, CFLs and low flow water showerheads to RLI and hard-to-reach customers. This strategy resulted in greater RLI and hard-to-reach penetration than that of all previous years of the predecessor program. In addition, it generated strong supportive feedback from our RLI outreach allies and customers.

To stimulate small business and nonprofit organization activity, the Program launched a new limited time program called *Lighting the Future* where participants were introduced to LED lamps. Hawaii Energy held a competitive bidding process and selected Toshiba as its supplier due to their discounted pricing and a promotional opportunity. The *Lighting the Future* program provided a great promotional opportunity to hard-to-reach customers who likely were not aware of our offerings. The Program will continue to explore hard-to-reach and aid this market that is facing extreme difficulty in the state of the economy. Hawaii Energy strives to help boost these businesses and organizations through giving advice and incentives for additional efficiency upgrades that will positively affect their bottom-line.

Administration of Complementary ARRA Stimulus Programs

At the request of the State Energy Office and the PUC late in PY09, the Program negotiated and signed supplemental contracts with the PUC to administer an additional $7M in stimulus funds from the American Recovery and Reinvestment Act (ARRA) which the State Energy Office designated for specific energy efficiency programs. Considerable workforce time and effort was spent modifying our programs to accommodate the integration of new ARRA programs with our existing programs. The programs were designed to leverage one another and most incentives were co-funded with ARRA and PBFA funding. The initial results of the first executed program, *Trade-Up for Cool Cash* (clunker refrigerator turn-in and ENERGY STAR® purchase), were spectacular and far exceeded expectations. The ARRA programs were successful in acting as a stimulus to the PBFA program offerings. During PY10, most of the ARRA funds were exhausted and the remaining ARRA-funded programs will continue in PY11 with matrixed resources as they ramp down.

Highlights of the ARRA programs that occurred in PY10 included the following (further details are found where the offerings helped leverage business and residential programs in Sections VI and VII respectively):

- Completed processing of all *Trade-Up for Cool Cash* incentives, which was a $250 rebate on an ENERGY STAR® refrigerator to qualified applicants who traded-in their old, inefficient refrigerator for a new ENERGY STAR model and the old refrigerators were properly recycled upon trade-in
- Launched,the *Hui Up* Program to the island of Molokai in May having the same requirements as the *Trade Up for Cool Cash* Program with approximately 100 rebates being offered
- Committed all $850,000 in incentives of the Customized Program for Government and Nonprofit Incentives (examples include Pali Momi and Castle Medical Center)
- Launched pilot residential peer group comparison in April; the program is planned for full adoption by the PBFA in PY11
- Partnered with Department of Hawaiian Home Lands (DHHL) and Council for Native Hawaiian Advancement (CNHA) to offer $250 rebates for ENERGY STAR washing machines and refrigerators to this hard to reach market
- Offered a limited time, $250 rebate on ENERGY STAR refrigerators for qualified residents of the Hawaii and Maui Counties to help increase island equity; the Program period was March 7th through March 21st
- Offered a limited time bonus incentives to Hot Water, Cool Rates (Solar Interest Loan Buydown Program) and the PBFA regular solar rebate program of up to an additional $750 for qualified residents; the offer began March 21st and ended when the funds were exhausted on April 18th; this quadrupled sales for the Supplemental Solar Program and significantly increased subscription to the Solar Interest Loan Buydown Program; all incentives were exhausted for both programs from this bonus offering.

Leadership in the Larger Clean Energy Effort

Leadership Roles

The Program continued its leadership role in development and implementation of the Hawaii Clean Energy Initiative (HCEI), serving on the HCEI Steering Committee and the End Use Efficiency Working Group (EUEWG). Further, the Program is a standing member of the Hawaii Energy Policy Forum (HEPF), a University of Hawaii (UH)-sponsored think-tank on state energy policy issues, and the Consortium for Energy Efficiency (CEE), an international trade group for Programs such as Hawaii Energy.

At the PUC's direction, Hawaii Energy, in its role as the PBFA continued as a participant/party in the Energy Efficiency Portfolio Standard (EEPS) docket and joined as a party with the On-Bill Financing docket. These dockets require input from and collaboration with the PBFA to ensure energy conservation and efficiency interests are adequately represented and reach maximum potential as part of the overall state energy strategy. Hawaii Energy hosted and attended multiple meetings to support both dockets during PY10.

Hawaii's Critical Energy Needs Suggest Additional Program Success Metrics

The Program's experience suggests the use of "deemed savings" alone to determine success may be insufficient to meet the bigger critical energy consumption reduction needs of the Hawaii Clean Energy Initiative. Because of Hawaii's severe energy situation, there is a clear need to know with some certainty what real progress is being made in reaching the state's energy savings goals on a macro basis. This issue needs to be explored further to determine what is required and how best to meet the requirements. As an initial step towards acquiring more actual measured data, we introduced programs such as the Central Plant Optimization that includes pre, post and on-going metering. The Program will continue to explore in PY11.

American Council for an Energy-Efficient Economy (ACEEE) Ranks Hawaii 12th Out of 50 States in Energy Efficiency

In its State Scorecard for 2011, the prestigious American Council for an Energy-Efficient Economy (ACEEE) ranked Hawaii 12th among states in Energy Efficiency for a second year. The ranking was based on metrics capturing best practices and effective leadership in energy efficiency policy and program implementation.

Hawaii's ranking was 3rd in total energy savings. The scorecard compares each state's energy-efficiency policies in six ways: utility and public benefits programs and policies, transportation policies, building energy codes, combined heat and power, state government initiatives and appliance efficiency standards.

The Hawaii Energy Team is proud of the improvements cited. Hawaii Energy has identified ways to improve and acknowledge there is still a great deal of work to be done.

Table 77 – ACEEE 2011 State Energy Efficiency Score Card (pg. 17)

Table 8. 2009 Incremental Electricity Savings by State

Rank	State	2009 Total Incremental Electricity Savings (MWh)	Savings as Percent of Electricity Sales	Score
1	Vermont[1]	90,235	1.64%	5.0
2	Nevada	438,622	1.28%	5.0
3	Hawaii[2]	113,159	1.12%	4.5
4	Rhode Island[3]	81,543	1.07%	4.0
5	Minnesota[4]	637,845*	1.00%	4.0
6	Iowa	409,735*	0.94%	3.5
7	California[5]	2,293,007	0.88%	3.5
8	Wisconsin[6]	583,506	0.88%	3.5
9	Massachusetts[7]	458,658	0.84%	3.5
10	Connecticut[8]	250,373	0.84%	3.0

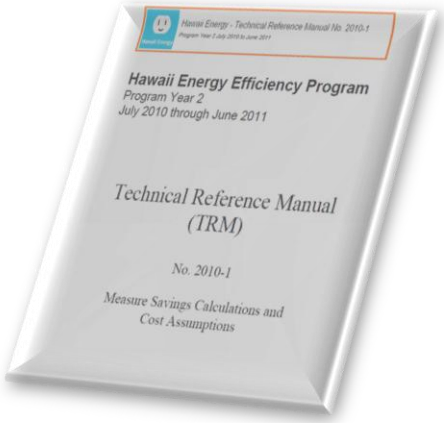
X. KEY REPORTING ASSUMPTIONS

All energy efficiency and conservation programs need to estimate the average amount of energy and demand that is saved for installations of standard measures. This allows an effective program to promote these standard measures across markets with an incentive amount that is appropriate for the amount of energy and/or demand that is typically saved. Hawaii Energy maintains this documentation in the Technical Resource Manual (TRM). This section describes how the TRM was developed and the key assumptions that were used to estimate the energy (kWh) savings and demand (kW) reduction impacts claimed by the program. Some changes have been made from the first program year to reflect the recommendations of the Program Evaluator.

The TRM is intended to be a flexible and living document. There will be measures that are not yet characterized; new measures that will be added as new program designs are implemented; new information will be gathered through evaluations or research; and savings for current measures will change as their markets change.

Description of the TRM

The TRM provides methods, formulas and default assumptions for estimating energy and peak demand impacts for measures and projects that receive financial incentives from Hawaii Energy. It is organized by program, end use, and measure. It describes how the Program estimates energy savings from each measure. The PY10 TRM represents a total of 78 measures for both residential and commercial programs and is shown as Attachment G.



Overview of TRM Value Derivation

In the TRM, each measure includes a description of the typical baseline (average) energy use and the high efficiency energy use for that type of technology. The energy saved is typically the differential between the two. The energy use of the baseline technology may include some estimation of market status related to various types of older, less efficient equipment. The final savings values are compared against the previous evaluation studies performed for the Hawaiian Electric Companies' Programs, as described in this report.

Data assumptions are based on Hawaii specific data, when and where available. Where Hawaii data was not available, data from neighboring regions is used where available and in some cases, engineering judgment is used. Data sources used, in the general order of preference but not necessarily limited to, include:

- Energy and Peak Demand Impact Evaluation Report of the 2005-2007 Demand Management Programs – KEMA
- HECO IRP-4: Energy Efficiency Potential Study (HECO DSM Docket)
- 2004 – 2005 Database for Energy Efficiency Resources (CA DEER database)
- 2007 – 2008 Database for Energy Efficiency Resources (CA DEER database) Update
- Other EE Program Design Information (e.g. Efficiency Maine, Focus on Energy, etc.)
- CEUS – The California Commercial Building End-Use Survey
- Field verification of measure performance

The savings estimates for each measure were initially drawn from the KEMA Evaluation Report for 2005 through 2007 since this report was the most recent information available on specific markets. The values in this report were built upon previous evaluation reports and in field measurements.

Since there were many measures that used "average" field measured data and no mathematical savings derivations, the calculation approach in the TRM attempted to develop these savings calculations based on typical measure characteristics. The primary use of the KEMA report values was to guide market assumptions, especially for the baseline energy use, to more accurately estimate the typical savings.

Customer level savings are based on many variables including: measure life, market sectors, base versus enhanced case, persistence and coincidence factors. Claimed savings were compared against other sources, such as savings values used in other jurisdictions and research documentation from KEMA, the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE), the National Renewable Energy Laboratory (NREL), and other organizations.

Application of System Loss Factors

The amount of energy saved at a customer site is not equal to the amount saved at the electric utility plant supplying the energy to that site. There are system losses in the transmission and distribution of the energy to the site. This results in a larger savings at the power plant than at the customer site. To account for this larger impact on the system the "system loss factor" needs to be estimated. The system loss factors were provided by HECO, MECO and HELCO. They do not vary by measure, but by island, and are listed in Table 78.

The system loss factors were applied to the estimated Customer Level savings for each measure to calculate the impact on the system of a particular measure. The resulting System Level savings was used to estimate the overall impact to the reduced cost of not producing the saved energy. This "avoided cost" is the overall economic benefit and used within one of the primary cost benefit measures for the Program, called a Total Resource Cost (TRC) test.

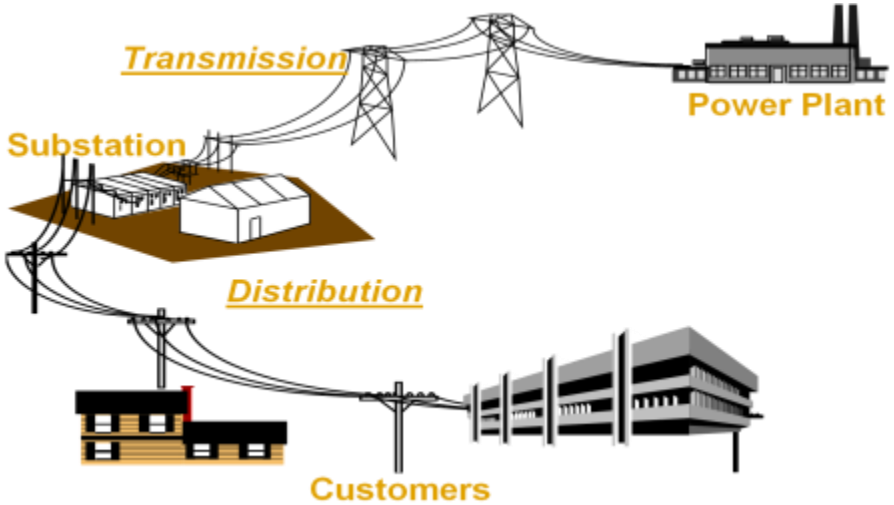


Table 78 – System Loss Factors

County Customer to System Loss Factor		
Oahu	Maui	Hawaii
11.17%	9.96%	9.00%

Net-to-Gross Ratio

The Net-to-Gross (NTG) Ratio is used to adjust the System Level Energy savings to determine the energy saving that is attributed to the Program, or "Program Level Savings."

Program Level savings are those directly attributed to Hawaii Energy Program actions by separating out the impacts that are a result of other influences, such as consumer self-motivation or free-riders. Free-riders are rate-payers or participants who received an incentive and/or education by the Program, but the incentive and/or education did not play a role in their decision to purchase the savings measure.

Table 29 shows the NTG ratios used for their 2008 program year (HECO 2008 A&S report). Hawaii Energy utilizes the combined program total NTG ratio of 73%.

Table 79 – Net-to-Gross Values HECO PY2008

Program	Net to Gross Ratio		Savings	
	Energy	Demand	Net Energy Savings 2008	Gross Energy Savings 2008
1. CIEE	0.6530	0.6640	45,798,527	70,135,569
2. CINC	0.5960	0.6100	17,469,147	29,310,648
3. CICR	0.7590	0.7550	28,749,233	37,877,777
4. ESH	0.8500	0.8500	32,203,749	37,886,763
5. REWH	0.7290	0.7310	8,237,872	11,300,236
6. RNC	0.8410	0.8850	8,267,217	9,830,222
7. RLI	1.0000	1.0000	7,899,869	7,899,869
TOTAL			148,625,614	204,241,087

Development of Avoided Costs

As described above, the primary overall economic benefit for the State is the avoided cost for the energy that is saved. The total avoided cost of all the energy that is saved is called the Total Resource Benefit (TRB). To estimate the TRB for individual measures or for the total savings for the program, the cost per MWh supplied and the system capacity cost per kW need to be estimated into the future.

HECO Avoided Costs Not Appropriate

HECO-provided avoided energy and capacity costs for future years are shown in Table 80. The avoided cost values for energy and capacity were deemed inappropriate to use for reasons that included a negative avoided cost value for energy in the years 2015 to 2023 and no capacity costs for years 2010 to 2014.

Table 80 – HECO IRP 4 Avoided Costs

HECO / IRP4 Avoided Costs		
Year	**$/MWh**	**$/kW**
2006	$109.62	$180.20
2007	$107.16	$181.14
2008	$102.19	$181.14
2009	$106.89	$181.14
2010	$98.90	$0.00
2011	$100.41	$0.00
2012	$104.04	$0.00
2013	$103.69	$0.00
2014	$108.86	$0.00
2015	($139.65)	$1,530.33
2016	($132.67)	$1,704.00
2017	($118.95)	$1,537.80
2018	($115.35)	$1,412.69
2019	($109.01)	$1,304.38
2020	($104.57)	$1,207.27
2021	($100.02)	$1,149.38
2022	($109.30)	$1,112.04
2023	($111.41)	$1,076.56
2024	$137.80	($411.76)
2025	$144.46	($744.16)

Proxy Avoided Cost Developed

The avoided cost that is used for PY10 is estimated using an extrapolation of the avoided energy data provided by HECO. The energy and capacity cost data from the first few years was then extrapolated over 20 years. Table 81 shows this extrapolation. This table was deemed a reasonable estimate of actual avoided energy and capacity costs as it was more in line with the avoided costs used in many other programs. Therefore, these avoided costs were used to calculate the TRB.

Table 81 – Program Avoided Cost Table

		Discount Rate		
		6%	HECO IRP4 Avoided Cost	
Year	Period	NPV Multiplier	$/kW/yr.	$/kWh/yr.
2010	1	1.00	$ 280	$ 0.099
2011	2	0.94	$ 306	$ 0.100
2012	3	0.89	$ 339	$ 0.104
2013	4	0.84	$ 353	$ 0.104
2014	5	0.79	$ 371	$ 0.109
2015	6	0.75	$ 383	$ 0.112
2016	7	0.70	$ 386	$ 0.113
2017	8	0.67	$ 388	$ 0.114
2018	9	0.63	$ 389	$ 0.114
2019	10	0.59	$ 392	$ 0.115
2020	11	0.56	$ 391	$ 0.115
2021	12	0.53	$ 395	$ 0.116
2022	13	0.50	$ 398	$ 0.117
2023	14	0.47	$ 397	$ 0.117
2024	15	0.44	$ 401	$ 0.118
2025	16	0.42	$ 406	$ 0.119
2026	17	0.39	$ 409	$ 0.120
2027	18	0.37	$ 416	$ 0.122
2028	19	0.35	$ 423	$ 0.124
2029	20	0.33	$ 429	$ 0.126

Updating the TRM

The Technical Reference Manual is designed to be a living document that is reviewed and revised accordingly. The TRM manual is continually reviewed by Program personnel and the Program Evaluator to determine any additions or changes needed.

There are four main reasons to update TRM values:

- *New Measure Additions* – As new technologies become cost effective, they will be characterized and added to the manual. In addition, new program delivery design may result in the need for new measure characterization.

- *Existing Measure Updates* – Updates will be required for a number of reasons; examples include: increase in the federal standard for efficiency of a measure; new information from field tests; altered qualification criteria; decrease in measure cost; or a new evaluation that provides a better value of an assumption for a variable. As programs mature, characterizations need to be updated to meet the changes in the market.

- *Retiring Existing Measures* – When the economics of a measure become such that it is no longer cost effective or the free rider rate is so high that it is not worth supporting, the measure shall be retired.

- *Third-Party Measurement and Verification (M&V) Contractor TRM Review* – Annually the M&V contractor will provide a review of the current TRM and make recommendation based on current market research and in field savings verification of measures.

XI. CONCLUSION

In drafting this PY10 Annual Report, the Hawaii Energy Team is reminded of the exciting progress we have made over the past two years. We know how fortunate we are to have this opportunity to be a part of the Hawaii Energy Conservation and Efficiency Program, and we are proud of the real contribution we are able to make to Hawaii's clean energy future. Each Team member pledges to do our very best each day for the Hawaii citizens that we serve and to always maintain the highest standards of integrity and fairness in administration of the Program.

Appreciation to the Hawaii Energy Ohana

We want to thank everyone who helped us this year in supporting the growth and development of the Hawaii Energy Conservation and Efficiency Program. Working with our allies, supporters and customers, we are continuing to make a significant impact on solving Hawaii's energy problems.

Mahalo to all,

The PY11 Hawaii Energy Team

XII. DESCRIPTION OF ATTACHMENTS

Attachment A: Acronym List
A list of the commonly used Hawaii Energy acronyms.

Attachment B: PY2010 Program Participation List
A report of program impacts by program and measure, including gross and net, annualized and lifecycle savings.

Attachment C: PY2010 Monthly & Quarterly Reports
All Monthly and Quarterly Reports of the program year. The reports summarize program activities and provide detailed program savings and expenditures.

Attachment D: Contractor Budget (Attachment F from Contract)
The detailed contractor budget as defined in the HEEP contract between the Hawaii Public Utilities Commission and SAIC (contract attachment F) as well as the budget progression of changes approved by the PUC.

Attachment E: Performance Incentive Mechanism (Attachment C from Contract)
The Performance Incentive Mechanism as defined in the HEEP contract between the Hawaii Public Utilities Commission and SAIC (contract attachment C). The attachment includes an overview, description of performance indicators and documentation and verification details.

Attachment F: PY2010 Annual Plan
The program annual plan which provides SAIC's strategies and plans for administration and delivery of the Hawaii Energy portfolio for PY10 (July 1, 2010 to June 30, 2011). Through this plan Hawaii Energy set forth overall strategies to increase program participation, maximize energy savings, and encourage the development of energy efficiency markets.

Attachment G: Technical Reference Manual
The program reference manual which provides methods, formulas, and default assumptions for estimating energy and peak impacts of incentivized projects and measures. The reference manual is organized by program, end use and measure.

Attachment H: PY2010 Outreach Report
A two-part report of Hawaii Energy's Outreach activities consisting of (1) A summary of education and training activities and (2) A summary of advertising and marketing activities.