Hawaii Energy
YOUR CONSERVATION & EFFICIENCY PROGRAM

SAIC®

Annual Report – Program Year 2011
(July 1, 2011 – June 30, 2012)

Submitted to:
Hawaii Public Utilities Commission

Submitted by:
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Submitted:

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Hawaii Energy is a rate-payer 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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MESSAGE FROM THE PROGRAM MANAGER

Hawaii Energy

Aloha Hawaii Energy Stakeholders,

On behalf of the entire Hawaii Energy Team, I am proud to present SAIC's Third Annual Report as Public Benefits Fee Administrator (PBFA) serving the electric utility ratepayers of Hawaii, Lanai, Maui, Molokai and Oahu. This Report presents the accomplishments of the Program's offerings as supported by its subcontractors and allies for Program Year 2011, which began July 1, 2011 and ended June 30, 2012. It can be downloaded with its full Appendix from our website at HawaiiEnergy.com.

We have come a long way since we took over the energy conservation and efficiency program in 2009. And, although many things have changed and many new innovations have been implemented, our Team's collective passion for what we do remains a steadfast constant.

You are definitely going to find this year's Report compelling, both as to what has been accomplished and what challenges still lay ahead in Hawaii's energy future. For those who think we have picked all the low hanging efficiency opportunities, we have a few surprises in this Report. And for those who think energy efficiency is all about higher efficiency appliances, wait till you see what we are doing with individual behavior change.

It is an exciting time to be in the energy efficiency industry and we are thankful to have this opportunity to make such meaningful contributions to our State. We are also most grateful for the extraordinary support of our trade, government and non-profit allies and the Hawaii Public Utilities Commission (PUC) oversight, without whom our important mission would be impossible.

Finally, we are hopeful that this Report will not only educate and tell our story, but also motivate the personal commitment of each reader to the critical cause of energy conservation and efficiency in Hawaii. Only through the dedicated and knowledgeable efforts of every individual working towards our common clean energy goals can we ensure a sustainable future for ourselves and our keiki.

Mahalo nui loa,

H. Ray Starling

H. Ray Starling
Program Manager, Hawaii Energy

BACKGROUND

Hawaii Energy

Program Origins

In 2006, the Hawaii Legislature (see Hawaii Revised Statutes 269-121 through 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 or the PBFA) 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 Hawaii Electric Utilities 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 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, followed by a second two-year budget of $67.2M. For both contracts, 70% of the contract value was designated for direct incentives in the form of direct cash incentives or services.

BACKGROUND

Hawaii Energy

Historical Summary: Program Years 2009 & 2010

Hawaii Energy Team - Program Year 2011

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 utilities. 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. At the close of Program Year 2011 (PY11), Hawaii Energy had grown to a staff of 25 employees.

While few changes were made to the existing rebate offerings in the first Program Year, important changes were made in the Program's operation particularly with regard to the solicitation and inclusion of ideas that stretched traditional efficiency paradigms. The Program leveraged SAIC's 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 required to operate the previous DSM program. Additionally, the Program enlisted trade allies and community-based organizations to support the Program's education, outreach and marketing efforts. This force-multiplier effect enabled the Program to reach a record number of new customers – particularly low-income and hard-to-reach customers.In its first year, the Program concluded a smooth transition of responsibilities from the utilities. By the close of Program Year 2009 (PY09) (ended June 30, 2010), the PBFA delivered $11.9M in ratepayer funds directly to commercial and residential customers in the form of cash incentives and services. Ratepayers receiving these incentives invested $29.9M of their own money to implement these rebated measures. The total customer energy savings from these rebated measures were 139.8 GWh, with yearly bill savings of $29.2M. Over the lifetime of these investments, customer energy savings will be 1,222 GWh, with a bill savings of $255.4M. With these results, the PBFA met or exceeded all but one of its minimum incentive performance goals (Island Equity), resulting in a Performance Award of $676,018.58 (including tax) or 96.6% of the Program's potential target performance incentives for PY09

In its second year, Program Year 2010 (PY10) (ended June 30, 2011), the PBFA delivered $13.7M in ratepayer funds directly to commercial and residential customers in the form of cash incentives and services. Ratepayers receiving these incentives invested $99.7M of their own money to implement these rebated measures. The first-year customer energy savings from these rebated measures were 142.2 GWh, with a bill savings of $48.1M. Over the lifetime of these investments, customer energy savings will be 1,417 GWh, with a bill savings of $473.2M. The full PY9 and PY10 Annual Reports are available at www.HawaiiEnergy.com.

Program Overview

On June 30, 2012, Hawaii Energy closed PY11, its third year as Hawaii's ratepayer-funded energy conservation and efficiency program serving the islands of Hawaii, Lanai, Maui, Molokai, and Oahu as PBFA. The year was overwhelmingly successful with contract requirements and Performance Incentive Goals substantially met. PY11 also saw the conclusion of the offerings created and/or enhanced through the additional funding from the American Recovery and Reinvestment Act (ARRA) provided through the State Energy Office.

During PY11, the PBFA spent $25.7M in ratepayer funds (considering expected award) out of a $32.3M approved budget, leaving $6.5M in PBF budget surplus at year-end. At the time of this report's publication, the PBFA is awaiting the PUC's dispensation of a carryover request to employ these surpluses in PY12. Of the total PBFA expenditures for PY11, $17.1M (or 68%, after considering expected performance award) went directly to commercial and residential customers in the form of cash incentives and energy-efficiency giveaways.

Ratepayers receiving the incentives invested $81.7M of their own money to implement the rebated measures. The total customer energy savings (unverified at present) from these rebated measures was 159.2 GWh, with a cost savings of $51.7M shown in Table 1. Over the lifetime of the rebated measures, the customer energy savings will be 1,339 GWh, with a cost savings of $407.6M, yielding a 500% return on investment (in 2011 dollars at 2011 electric rates). This translates into the equivalent of 324,446 barrels (bbls) of imported oil saved in the first year and 2,729,026 bbls of imported oil saved over the lifetime of the underlying rebated measures as reflected on **Table 1.**

Table 1 - PY11 Customer Energy Cost Savings

Customer First Year Energy Cost Savings (June 2012 Effective Marginal kWh Rates)

Island	*R*	*G*	*K*	*J*	*P*	*DS*	*Total*	*kWh - 1st yr.*	*$/kWh*
Hawaii Island	$ 5,477,425	$ 400,030	$ -	$ 376,102	$ 1,330,958	$ -	$ 7,584,516	18,421,711	$ 0.4117
Lanai	$ 11,745	$ -	$ -	$ -	$ 3,377	$ -	$ 15,123	32,153	$ 0.4703
Maui	$ 3,813,251	$ 308,698	$ -	$ 299,031	$ 1,469,180	$ -	$ 5,890,162	15,516,454	$ 0.3796
Molokai	$ 21,877	$ 26,487	$ -	$ 3,824	$ -	$ -	$ 52,188	105,046	$ 0.4968
Oahu	$ 21,983,084	$ 861,806	$ 263	$ 8,192,816	$ 7,091,250	$ 1,770,030	$ 38,129,220	125,147,985	$ 0.3047
Totals	**$ 31,307,384**	**$ 1,597,022**	**$ 263**	**$ 8,871,774**	**$ 9,894,766**	**$ 1,770,030**	**$ 51,671,208**	**159,223,349**	**$ 0.3245**

Customer Measure Lifetime Energy Cost Savings (June 2012 Effective Marginal kWh Rates)

Island	*R*	*G*	*K*	*J*	*P*	*DS*	*Total*	*kWh - Life*	*$/kWh*
Hawaii Island	$ 34,876,744	$ 3,742,396	$ -	$ 4,156,367	$ 10,326,805	$ -	$ 53,102,312	130,270,897	$ 0.4076
Lanai	$ 62,599	$ -	$ -	$ -	$ 16,886	$ -	$ 79,484	168,834	$ 0.4708
Maui	$ 23,935,725	$ 2,454,148	$ -	$ 3,598,106	$ 16,357,973	$ -	$ 46,345,951	124,986,520	$ 0.3708
Molokai	$ 193,167	$ 341,906	$ -	$ 57,267	$ -	$ -	$ 592,340	1,187,423	$ 0.4988
Oahu	$ 134,891,270	$ 8,598,409	$ 3,939	$ 98,209,267	$ 65,764,088	$ 26,277,940	$ 307,466,973	1,082,669,808	$ 0.2840
Totals	**$ 193,959,505**	**$ 15,136,859**	**$ 3,939**	**$ 106,021,007**	**$ 92,465,751**	**$ 26,277,940**	**$ 407,587,061**	**1,339,283,481**	**$ 0.3043**

Program Objectives

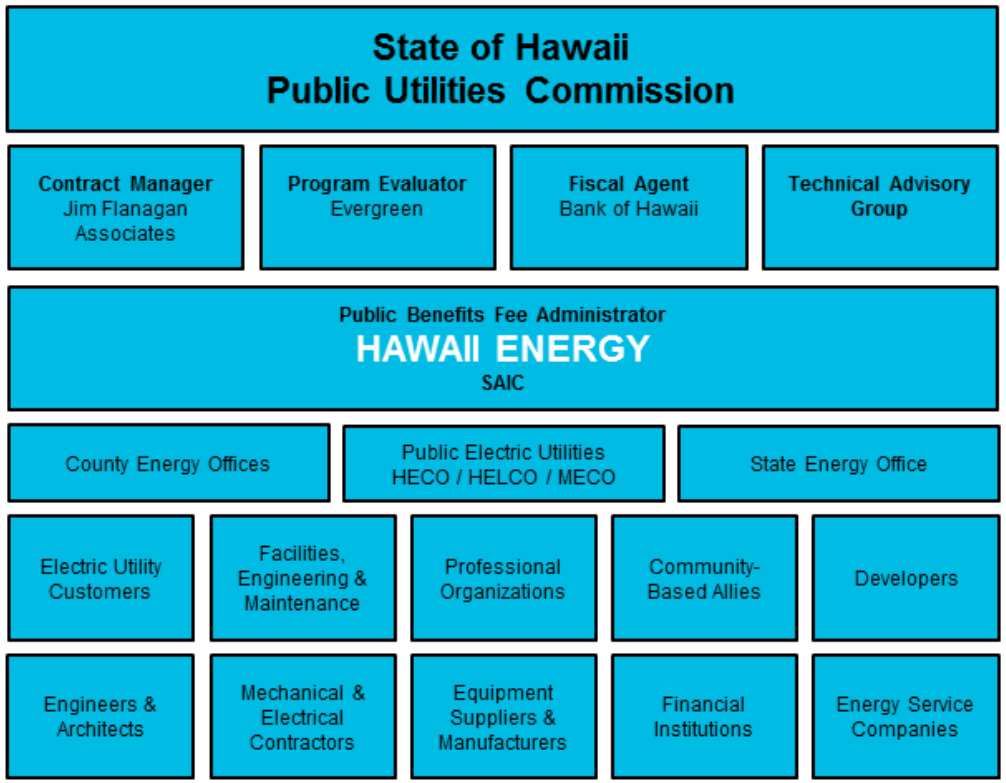
In addition to meeting substantially all of the PBFA Contract requirements and Performance Incentive Goals, the Program's broader objectives for PY11 included:

- Reduce the state's demand for electricity and by doing so, decrease the state's dependence on imported fuel
- Expand the Program's outreach to the neighbor islands and other hard-to-reach constituents
- Support the Hawaii Clean Energy Initiative and other related efforts aimed at improving Hawaii's energy sustainability
- Leverage strategic agencies and allies as "force multipliers" to extend the Program's outreach
- Serve as one of the state's critical leaders, advocates and sources of information for energy conservation and efficiency efforts
- Explore new innovative strategies in energy conservation and efficiency
- Evolve the Program to affect behavior change through transformational programs, peer comparisons and enhanced information to increase personal awareness of energy consumption, as well as traditional cash incentives for implementing energy efficiency measures
- Reach out to small businesses on a more individualized basis to enhance their viability as a going concern during the current economic downtown.

Program Organization – Oversight and Support

During PY11, the PBFA collaborated with a wide variety of support organizations and oversight entities. These oversight entities were comprised of the Hawaii Public Utilities Commission (PUC), Contract Manager (Jim Flanagan Associates), Program Evaluator (Evergreen Economics), Fiscal Agent (Bank of Hawaii) and a 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 the Program's supportive trade allies and community groups, Hawaii Energy continually worked to improve the accountability, functionality, offerings, efficiency and cost-effectiveness of the Program. Program oversight and support operatives are shown in **Table 2**.

Table 2 – Program (PBFA) Oversight and Support Organizations



Program Organization

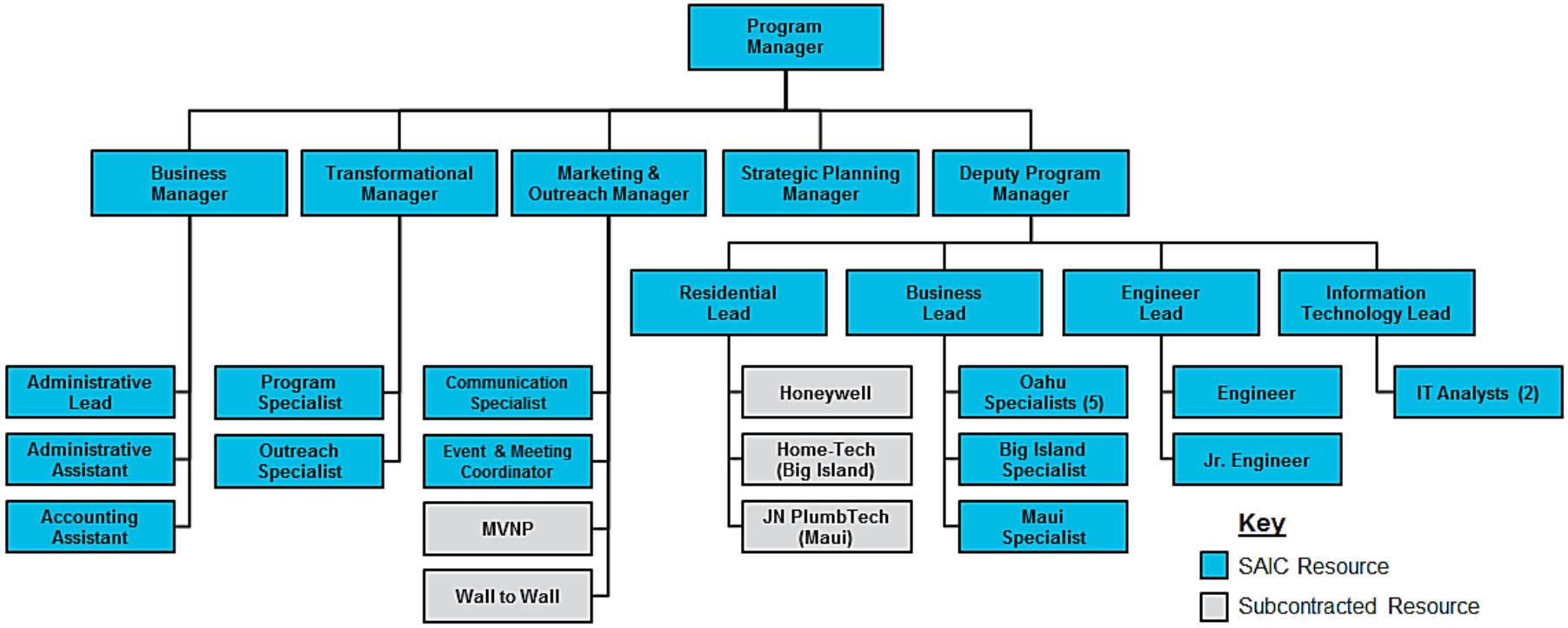
The foundation of the Program's organization is a core team of SAIC professionals in Honolulu, supported by off-site staff of uniquely skilled professionals throughout SAIC's organization nationwide. The Program has a number of key subcontractors that together round out the Hawaii Energy team. These key subcontractors are:

- **Blue Planet Foundation (55 Merchant Street, 17th Floor, Honolulu, Hawaii 96813)**
  - Local non-profit organization committed to ending the use of fossil fuels on Earth, starting in Hawaii; conducted CFL exchange on behalf of the Program.
- **EEFG, Inc. (657 Mission St., Suite 200, San Francisco, California 94105)**
  - Provided education, training, coaching and analysis to help energy users and service providers realize and express the true value of improving energy efficiency.
- **Helen N. Wai, LLC (P.O. Box 2524, Nanakuli, Hawaii 96792)**
  - Provided training to assist communities and organizations in the areas of financial literacy and energy efficiency.
- **Home-Tech (P.O. Box 7305, Hilo, Hawaii 96720)**
  - Provided solar water heating systems and commercial equipment inspections on Hawaii Island.
- **Honeywell (220 South King Street, Suite 1460, Honolulu, Hawaii 96813)**
  - Provided customer service and administrative functions to support the residential programs and provides check processing services for both residential and business incentive programs.
- **JN Plumb Tech (102 Alaapapa Place, Makawao, Hawaii 96768)**
  - Provided 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)**
  - Provided marketing, outreach and public relations strategy and support.
- **Wall-to-Wall Studios (1128 Nuuanu Avenue, Suite 203, Honolulu, Hawaii 96817)**
  - Provided marketing and advertising creative design services and media placement.

The Program continued to grow in PY11, with key hires in the residential program, communications and outreach.

The Program's organization at the close of PY11 is shown in **Table 3** below:

Table 3 – PY11 Program Organizational Chart



Program Performance Indicators and Related Targets - Overview

The following Performance Indicators were established in the PBFA Contract in order to set measureable performance targets that meet the PUC's objectives and to provide the basis for financial incentives as a reward for superior performance in achieving explicit Program goals. The Performance Indicators for PY11 are:

1. Cumulative Annual Electric Energy Savings (Program Level)
2. Peak Demand (Program Level)
3. Total Resource Benefit (Program Level)
4. Market Transformation
5. Island Equity (Broad Participation)

Table 4 defines the minimum, target and maximum award levels for each Performance Indicator used to measure the Program's performance.

Details of each indicator and its related target follow.

Table 4 - PY11 Performance Indicators

PY2011 Performance Indicators	Min	Target	Max
First Year Energy Reduction	81,375,319	108,500,425 kWh	119,350,468
Peak Demand Reduction	12,301	16,401 kW	18,041
TRB NPV of Utility Cost Avoidance	$ 92,984,671	$ 116,230,842	$ 139,477,007
Market Transformation			
Project Implementations		2 tasks each from Government and Education	
Island Equity			
C&C Honolulu		74.4%	+/- 20% of Targets
County of Hawaii		12.6%	+/- 20% of Targets
County of Maui		13.0%	+/- 20% of Targets

Performance Indicator #1: Cumulative Annual Electric Energy Savings (Program Level)

Target: 108,500,425 kWh

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 electricity costs.

The Program Level Energy Savings Target of 108,500,425 kWh currently equates to 1,343,625 MMBTUs or avoided use of 221,089 bbls of liquid fossil fuels in Hawaii, see **Table 5**. This equates to enough energy to power 17,700 homes for a year.

Table 5 - Estimation of Potential Fossil Fuel Avoidance

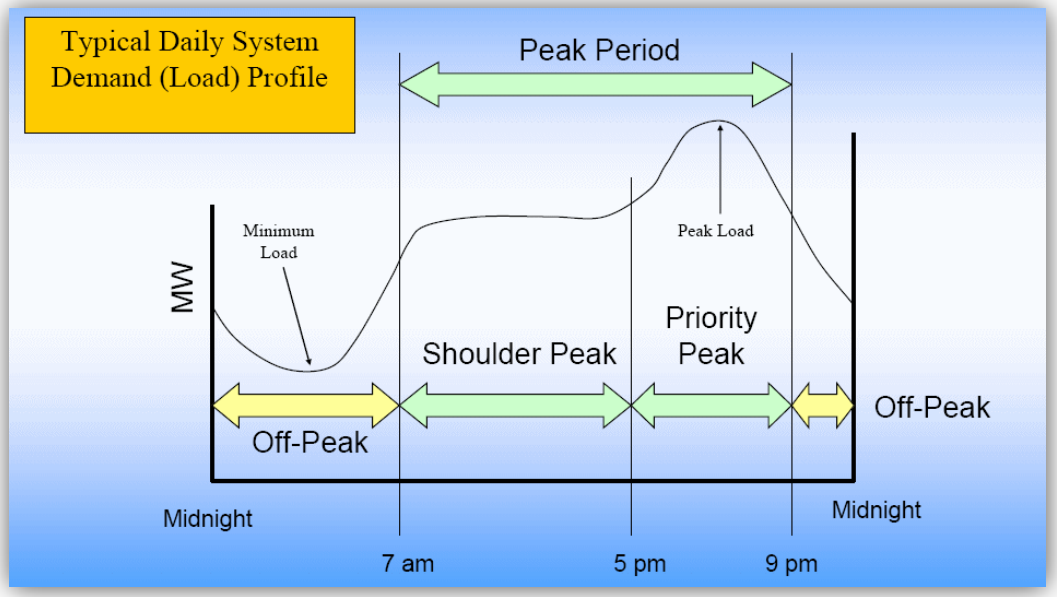
PY2011 - Potential Barrels (BBLs) of Fossil Fuels Avoided				
Annual Program Level Energy Savings Target		108,500,425	kWh/Yr.	
Average Program Attribution to System Level Impact	÷	81%		
System Level Gross Generation Energy Impact		133,951,142	kWh/Yr.	
PY2011 Electrical Generation Source Distribution				
Renewable Energy Sold		1,055,477,000	kWh/Yr.	10%
Fossil-Fuel Energy Sold	+	9,526,908,000	kWh/Yr.	90%
		10,582,385,000	kWh/Yr.	
System Level Gross Generation Energy Impact		133,951,142	kWh/Yr.	
% System Average Fossil-Fuel Generation	x	90%		
Reduction Target Impact in Fossil-Fuel Generation		120,590,983	kWh/Yr.	
PY2011 Energy Avoided into Generators				
Fossil- Fuel Energy Generated		120,590,983	kWh/Yr.	
Avg. System Generating Heat Rate	x	11,142	BTU/kWh	
Energy Required for Fossil-Fueled Electricity Production		1,343,624,728,858	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 Naptha		5,335,500	BTU/BBL	2%
Average System BTU/BBL		6,077,310	BTU/BBL	100%
Energy Required for Fossil-Fueled Electricity Production		1,343,624,728,858	BTU/Yr.	
Average System BTU/BBL	÷	6,077,310	BTU/BBL	
Number of Barrels of Fossil-Fuel Avoided		221,089	BBLs/Yr.	
Number of Barrels of Fossil-Fuel Avoided		221,089	BBLs/Yr.	
Potential Cost per BBL for Fossil Fuels	x $	100	per BBL	
Potential Fossil Fuel Cost Savings to Utility	$	22,108,873	per Yr.	

Performance Indicator #2: Peak Demand Savings

Target: 16,401 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 16,401 kW is equivalent to the power required to operate 4,100 water heaters at 4 kW each.



Performance Indicator #3: Total Resource Benefit (TRB)

Target: $116,230,842

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 2011 escalated for a 20-year period was the basis for the analysis. The TRB 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 "net present value" for comparing alternative costs and benefits in the same year's dollars.

Table 6 provides an example of the TRB calculation as if this project consisted of a single measure with an eight (8) year life achieving the program demand (kW) and energy (kWh) targets. In the implementation of specific Program measures, individual calculations are done for each measure then summed together to determine the Program TRB result.

Table 6 - 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%		Utility Avoided Cost		NPV for each Year		Cumulative NPV		25	25,000	$ 45,000	
									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
2011	1	1.00	$ 306	$ 0.100	$ 306	$ 0.1004	$ 306	$ 0.1004	$ 7,641	$ 2,510	$ 10,151	0.23
2012	2	0.94	$ 339	$ 0.104	$ 319	$ 0.0982	$ 625	$ 0.1986	$ 15,628	$ 4,964	$ 20,592	0.46
2013	3	0.89	$ 353	$ 0.104	$ 314	$ 0.0923	$ 939	$ 0.2908	$ 23,486	$ 7,271	$ 30,757	0.68
2014	4	0.84	$ 371	$ 0.109	$ 311	$ 0.0914	$ 1,251	$ 0.3822	$ 31,265	$ 9,556	$ 40,821	0.91
2015	5	0.79	$ 383	$ 0.112	$ 303	$ 0.0890	$ 1,554	$ 0.4712	$ 38,840	$ 11,781	$ 50,621	1.12
2016	6	0.75	$ 386	$ 0.113	$ 289	$ 0.0848	$ 1,842	$ 0.5560	$ 46,055	$ 13,901	$ 59,956	1.33
2017	7	0.70	$ 388	$ 0.114	$ 273	$ 0.0803	$ 2,116	$ 0.6363	$ 52,888	$ 15,908	$ 68,796	1.53
2018	8	0.67	$ 389	$ 0.114	$ 259	$ 0.0760	$ 2,374	$ 0.7123	$ 59,358	$ 17,808	$ 77,167	1.71
2019	9	0.63	$ 392	$ 0.115	$ 246	$ 0.0722	$ 2,620	$ 0.7846	$ 65,505	$ 19,614	$ 85,120	1.89
2020	10	0.59	$ 391	$ 0.115	$ 231	$ 0.0679	$ 2,851	$ 0.8525	$ 71,286	$ 21,312	$ 92,599	2.06

Performance Indicator #4: Market Transformation

Target: Two task options in Government Clean Energy Strategy and two task options in Clean Energy Educational & Training Support

Transformational efforts are those which involve education, training and other legislative support activities that may not result in direct quantifiable energy savings. These efforts contribute to development of an infrastructure and mindset that will result in societal changes and increased energy savings in the future, but have not been a required part of the Program in past years. **Table 7** provides a summary of the Market Transformation task options for PY11.

Table 7 - Summary of Transformational Programs

GOVERNMENT CLEAN ENERGY STRATEGY & SUPPORT	Identify Partners & Develop Programs	Identify Partners & Develop Programs
	Support Hawaii Clean Energy Initiatives (HCEI)	Government Clean Energy Strategy & Support
	Support Federal Government Energy Programs or Projects	
	Support State Organizations and State Legislature	
	Support County Energy Offices	
	Support Government Programs for Native Hawaiian and Hard to Reach	
	Participate in Hawaii Energy Policy forum (HEPF)	
	Support Rebuild Hawaii	
	Support Grant Proposal(s) for Sustainability in Hawaii	
	Tasks to be Determined with Contract Manager	
CLEAN ENERGY EDUCATION & TRAINING SUPPORT	Identify Partners & Develop Programs	Identify Partners & Develop Programs
	Outreach to Hard to Reach Low Income	Energy Efficiency through Financial Literacy
	Energy Education for Department of Hawaiian Homeland Communities	
	K-12 Energy Efficiency Training	Workforce Pipeline Development within Primary Schools
	5-8 Locally Developed Training	
	Tasks to be Determined with Contract Manager	
	Outreach to Hard to Reach Small Business	Workforce Development for Business
	Energy Resource Center(s)	
	Green Workforce Development & Training	
	"Welcome to Hawaii" Energy Education Video	

Performance Indicator #5: Island Equity (Broad Participation)

Target: +/- 20% of each county's Contribution to the PBF

The Island Equity target is intended to promote the equitable participation in the Program among the counties. For PY11, "equitable" would achieve the goal that for every dollar contributed to the PBF, a dollar would be returned to its county of origin through rebates, incentives and Program administrative support.

Table 8 lists the results of the PY11 contributions to the PBF by county.

Table 8 - County Contribution to PBF

PY11 PBFA Contribution by County

County	Res Investment	Bus Investment	PBFA Investment	%
Hawaii	$ 2,468,950	$ 2,007,187	$ 4,476,137	12.6%
Maui	$ 2,386,748	$ 2,259,342	$ 4,646,090	13.0%
Honolulu	$ 10,856,950	$ 15,638,467	$ 26,495,417	74.4%
Totals	**$ 15,712,648**	**$ 19,904,996**	**$ 35,617,644**	**100.0%**

Performance Incentive for Achieving Targets

Under the PBFA Contract, Program Performance Incentives are provided from a "performance pool" created through a holdback of $55,708 from each monthly invoice (prior to tax) for SAIC work performed. A total of $668,500 was withheld over the PY11, 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, or a portion thereof based on the percentage of targets met. If the PBFA exceeds its targets, up to an additional $133,000 could be awarded.

The maximum performance bonus potential for PY11 is $833,001 as shown in **Table 9**.

Table 9 - PY11 Potential Performance Incentive Awards

PY2011 Performance Incentives	Min	Target	Max	Weight	Target
				100%	$ 700,000
First Year Energy Reduction	75%	100%	124%		
	$ 183,750	$ 245,000	$ 303,188	35%	$ 245,000
Peak Demand Reduction	75%	100%	124%		
	$ 26,250	$ 35,000	$ 43,313	5%	$ 35,000
TRB NPV of Utility Cost Avoidance	80%	100%	124%		
	$ 224,000	$ 280,000	$ 346,500	40%	$ 280,000
Market Transformation	100%	100%	100%		
	$ 70,000	$ 70,000	$ 70,000	10%	$ 70,000
Broad Participation "Island Equity"	100%	100%	100%		
	$ 70,000	$ 70,000	$ 70,000	10%	$ 70,000
If All Indicator Metrics meet this level:	Min	Target	Max		
Performance Incentive Potential	$ 574,000	$ 700,000	$ 833,001		

Performance Award Claim Summary

During PY11, the Program Performance Award Claim is $726,090.41 (including tax) or 103.7% of the Program's potential target performance incentives.

The Program's Performance Award Claim Summary based on the Program's Net Savings Impacts (kWh, kW and TRB), Market Transformation and Island Equity results are contained in **Table 10**.

Table 10 - PY11 Performance Award Claim Summary

PY2011 Performance Award Claim Summary	Target	Results	% of Target	Award Claim
First Year Energy Reduction	108,500,425 kWh	**128,785,968 kWh**	119%	$ 303,188.00
Peak Demand Reduction	16,401 kW	**17,260 kW**	105%	$ 39,355.98
TRB NPV of Utility Cost Avoidance	$ 116,230,842	**$ 127,957,545**	110%	$ 313,546.43
Market Transformation			100%	$ 70,000.00
Government	2	**6**		
Education	2	**10**		
Island Equity				
C&C Honolulu	$ 12,707,969	**$ 11,287,179**	-11%	
County of Hawaii	$ 2,146,885	**$ 2,803,186**	31%	$ -
County of Maui	$ 2,228,399	**$ 2,992,888**	34%	
Performance Award Claim				**$ 726,090.41**

The tables on the subsequent pages provide the detailed calculations for each metric following the guidelines in Attachment C in the PBFA Contract.

Cumulative Annual Electric Energy Savings (Program Level)

Total Program: $303,188

The Program Energy Reduction was 128,786 MWh, which exceeded the maximum target value of 119,350 MWh by 9,436 MWh (7.9%) resulting in the maximum award amount to be claimed.

See calculations in **Table 11** for details.

Table 11 - Energy Reduction Award Claim Calcuation

ENERGY REDUCTION - PY2011 Administrators Performance vs. Performance Metrics Calculations

Cumulative Annual Electric Energy Savings	Min.	Target	Max.				
Energy Award Potential	$ 183,750	$ 245,000	$ 303,188				
	75%	100%	110%				
Energy Reduction Goals	81,375,319	108,500,425	119,350,468	kWh			
Incentive Calculations	Meet Min.	Min-Target	Target-Max		Total		
Pool Award Potential	$ 183,750	$ 61,250	$ 58,188		$ 303,188	Max	
Energy Goal Pools	81,375,319	÷ 27,125,106	10,850,043		119,350,468	kWh	
Award Amount / Rate	$ 183,750	$ 0.00226	$ 0.00536	/kWh			
Energy Achievement	81,375,319	27,125,106	10,850,043		128,785,968	kWh	
Award Amount / Rate	183,750	x $ 0.00	$ 0.01	/MWh			
Energy Achievement Award Claim	$ 183,750.00	$ 61,250.00	$ 58,188.00		$ 303,188.00	Calculated	
					$ 303,188.00	Claim	

Peak Demand Savings Award Claim: $39,355.98

The Combined Peak Demand Reduction was 17,260 kW, which exceeded the target savings level by 859 kW (5.2%) resulting in an award claim of $39,355.98. This award is calculated from $35,000 for meeting the target of 100% and $4,355.98 for the remaining savings of 859 kW awarded at a rate of $5.07/kW achieved beyond the target.

See calculations in **Table 12** for details.

Table 12 - Demand Reduction Award Claim Calculation

DEMAND REDUCTION - PY2011 Administrators Performance vs. Performance Metrics Calculations

Combined Annual Electric Demand Savings	**Min.**		**Target**		**Max.**			
Demand Reduction Award Potential	$ 26,250		$ 35,000		$ 43,313			
	75%		100%		110%			
Demand Reduction Goals	12,301		16,401		18,041	kW		
Incentive Calculations	**Meet Min.**		**Min-Target**		**Target-Max**		**Total**	
Pool Award Potential	$ 26,250		$ 8,750		$ 8,313		$ 43,313	max
Demand Goal Pools	12,301	÷	4,100		1,640		18,041	kW
Award Amount / Rate	$ 26,250		$ 2.13		$ 5.07	/kW		
Demand Savings Achievement	12,301		4,100		859		17,260	kW
Award Amount / Rate	26,250	x	$ 2.13		$ 5.07	/kW		
Demand Savings Achievement Calculation	$ 26,250		$ 8,750		$ 4,356		$ 39,355.98	calculated
							$ 39,355.98	Claim

PERFORMANCE INDICATOR RESULTS

Hawaii Energy

Total Resource Benefit (TRB) Award Claim: $313,546.43

The TRB achievement of $127,957,545 NPV is 110% of the target amount between the target and maximum level. This award claim of $313,546.43 is calculated from $280,000 for meeting the target of 100% and $33,546.43 for the remaining 10% awarded at a rate of $3,324/percent achieved beyond the target.

See calculations in **Table 13** for details.

Table 13 - TRB Award Claim Calculation

TOTAL RESOURCE BENEFIT - PY2011 Administrators Performance vs. Performance Metrics Calculations

TRB Target Metrics	Min.	Target	Max.	
TRB Award Potential	$ 224,000	$ 280,000	$ 346,500	
TRB Goal Pools in Metrics %	80%	100%	120%	
TRB Goals in $	$ 92,984,671	$ 116,230,842	$ 139,477,007	NPV of Utility Benefits

Incentive Calculations	Meet Min.		Min-Target	Target-Max		Total	
Pool Award Potential	$ 224,000		$ 56,000	$ 66,500		$ 346,500	max
TRB Goal Pools in Metrics %	80%	÷	20%	20%		120%	
Award Amount / Rate	$ 224,000		$ 2,800	$ 3,325	/ %		
TRB Achievement in $						$ 127,957,545	
TRB Goals in $						÷ $ 116,230,842	
TRB Achievement in Metrics %	80%		20%	10%		110%	
Award Amount / Rate	224,000	x	$ 2,800.00	$ 3,325.00	/ %		
TRB Energy Achievement Award Claim	$ 224,000		$ 55,999.99	$ 33,546.43		$ 313,546.43	Calculated
						$ 313,546.43	Claim

Market Transformation Award Claim: $70,000

The Market Transformation claim of $70,000 is based on accomplishing at least two tasks within each of the two Transformational initiatives broadly described as Government Clean Energy Strategy & Support (Government) and Clean Energy Education & Training Support (Education). Each of these broad initiatives provided 10 multi-faceted options for the Program to pursue at its discretion and evolved as described the Market Transformation Program Performance section of this report.

See **Table 14** for details.

Table 14 - Market Transformation Award Calculation

MARKET TRANSFORMATION - PY2011 Administrators Performance vs. Performance Metrics Calculations					
	Award Potential	Target	Achievement	Target Met	Claim
Government Clean Energy		2	6	Yes	
Clean Energy Education		2	10	Yes	
Tranformational Programs	$ 70,000	4	16	Yes	$ 70,000

Island Equity (Broad Participation) Award Claim: $0

Although island equity targets appear to have a broad target range (+/- 20%), the Program missed achieving its PY11 goal by spending an excess of approximately $550,000 of the PBF in Hawaii and Maui Counties.

See calculations in **Table 15** for details.

Table 15 - Island Equity Award Claim Calculation

ISLAND EQUITY - PY2011 Administrators Performance vs. Performance Metrics Calculations

	Target Range	PBF Contribution	% PBF	Equity Targeted Incentives ($)	Achieved Incentives ($)	% PBF	+/- % of Target	Target Met	Award Potential	Claim
Honolulu	+/- 20%	$ 26,495,417	74.4%	$ 12,707,969	$ 11,287,179	66.1%	-11.2%	Yes		
Hawaii	+/- 20%	$ 4,476,137	12.6%	$ 2,146,885	$ 2,803,186	16.4%	30.6%	over		
Maui	+/- 20%	$ 4,646,090	13.0%	$ 2,228,399	$ 2,992,888	17.5%	34.3%	over		
Total		$ 35,617,644	100%	$ 17,083,253	$ 17,083,253	100%			$ 70,000	$ -

PY11 Annual Plan Budget

Pursuant to the Program's approved PY11 Annual Plan dated July 5, 2012, the Program's budget for the Program Year was $32.1M (not including performance awards in excess of target levels). Incentive funds totaled $22.2M of which $2.2M was for Transformational, and $10M were in Non-Incentive costs. The budget was approximately split 45%/55% between Residential and Business programs as seen in **Table 16**, which was a change from the first two Program years as directed by PUC.

In addition, during the first three quarters of PY11, the Program continued to administer a $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, although none of the ARRA projects and related funding contributed towards the PBFA goals. The ARRA funding was exhausted as of March 31, 2012 and the unspent funds were less than $25,000.

Table 16 - PY11 Annual Plan Budget

Activity	Non-Incentive	Incentive	Total
Residential Programs			
REEM	1,968,983	7,731,438	9,700,421
1 RESM	116,146	608,000	724,146
RHTR	136,861	649,053	785,914
Total Residential Programs	**2,221,990**	**8,988,491**	**11,210,481**
Residential Market Evaluation	**55,100**	**0**	**55,100**
Residential Outreach	**1,065,950**	**0**	**1,065,950**
Total Residential Services and Initiatives	**3,343,040**	**8,988,491**	**12,331,531**
Business Programs			
BEEM	917,882	5,697,100	6,614,982
CBEEM	866,259	1,459,833	2,326,092
BESM	397,373	3,027,000	3,424,373
BHTR	375,005	802,000	1,177,005
Total Business Programs	**2,556,519**	**10,985,933**	**13,542,452**
Business Market Evaluation	**152,475**	**0**	**152,475**
Business Outreach	**1,376,945**	**0**	**1,376,945**
Total Business Services and Initiatives	**4,085,939**	**10,985,933**	**15,071,872**
Total Residential and Business Services and Initiatives	**7,428,979**	**19,974,424**	**27,403,403**
Transformational Programs			
Residential Transformational Programs	0	987,505	987,505
Business Transformational Programs	0	1,206,950	1,206,950
Total Transformation Services and Initiatives	**0**	**2,194,455**	**2,194,455**
Total Supporting Services	**2,091,909**	**0**	**2,091,909**
Total Tax on Non-Incentive	**448,623**	**0**	**448,623**
Estimated Contractor Costs	**9,969,511**	**22,168,879**	**32,138,390**

1 Due to the small size of the budgets, RESM includes RESM plus CESH.

Budget Revisions

There were three (3) revisions to the PY11 budget over the Program Year to meet the changing needs of the Program and allow it to maintain smooth operations without exceeding each budget category as set forth in the Annual Plan Budget.

The revisions and variations are included as **Table 17**; descriptions of each revision follow.

First Revision (R1)

The first budget revision was approved in April 2012 and was intended to reallocate funds within rate class based on a revised and more accurate forecast of the Program's future spend trend. The changes included:

- A shift of $850,000 from the "BEEM" Incentive budget category to the "CBEEM" Incentive budget category. This shift was a result of increased subscription of customized incentives exceeding what was originally planned due to two and half years of efforts to improve customer participation in the "CBEEM" incentive program since PY09.
- A reallocation of $220,000 from "RESM", "RHTR" and "Residential Outreach" Non-Incentive budget categories to "REEM" Non-Incentive budget category. For the last six (6) months PY11, SAIC had intended to shift the administration of the Solar Water Heating program and related application processing, from Honeywell to SAIC. In late December 2011, SAIC made the strategic decision to leave the Solar Hot Water processing with Honeywell until further notice, rather than ramp up SAIC staffing to take over the work.

Second Revision (R2)

The second revision was approved in May 2012 and focused on shifting more funds within rate class into the "CBEEM" Incentive budget category based on an increasing spend trend in the "CBEEM" incentive program. The changes included:

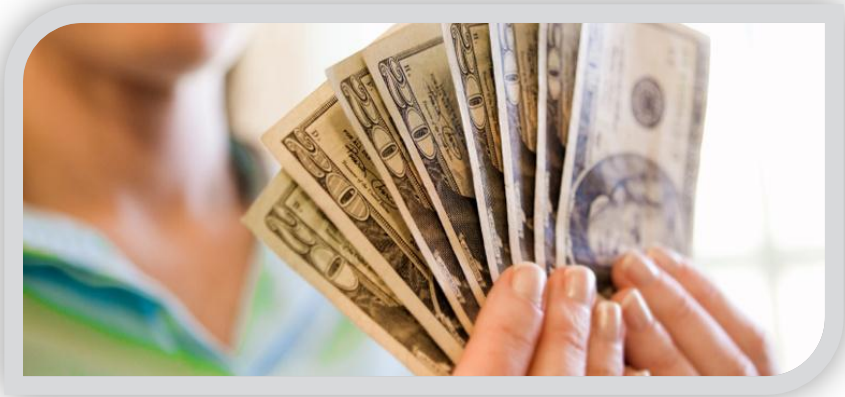
Reallocated $1,080,000 from "BEEM", and "BESM" Incentive budget categories to "CBEEM" Incentive budget category. This substantially larger spend in the "CBEEM" incentive program was a combination of the following events:

- Several LED lighting projects did not include ENERGY STAR® qualified products and therefore did not qualify for the "BEEM" Incentive program. However, since they met custom standards they did qualify for the "CBEEM" incentive program.
- Several "CBEEM" projects anticipated for a completion date within PY12 were completed and therefore paid within PY11.
- A couple of "CBEEM" projects did not meet the ARRA funding deadline to hold firm the ARRA funding closed out date of March 31, 2012. Therefore, they were paid with the PBFA fund in PY11.

Third Revision (R3)

The third revision was approved in August 2012 and shifted funds within rate class to accommodate end-of-year demand and resource needs. The changes included:

- A shift of $50,000 from the "REEM" Incentive budget category to the "RHTR" Incentive budget category. The $50,000 shift was intended to cover the Hawaii County Economic Opportunity Council (HCEOC) Solar Heating System Incentive payments occurring in June.
- A transfer of $90,000 from the "BESM" Incentive budget category to the "BEEM" Incentive budget category. After the Second Revision, the Program realized that the remaining funds in "BEEM" Incentive category would not be sufficient to cover all outstanding "BEEM" incentive payments remaining in PY11. This was a key learning opportunity to improve the Program's forecasting capabilities in order to reduce the burden of more frequent budget reallocation requests in the future.
- A reallocation of $75,000 from the "Residential Outreach" Non-Incentive budget category to the "REEM" Non-Incentive budget category to cover oversubscribed Honeywell time and material costs in the June period.
- A shift of $55,000 from the "RESM" and "Residential Market Evaluation" Non-Incentive budget categories to the "RHTR" Non-Incentive budget category. The $55,000 shift was the direct result of reallocating certain CFL Exchange (Neighbor Island Bulb Blitz project executed by Blue Planet Foundation) charges from Incentive category to Non-Incentive category per our Contract Manager's request.
- Transferred $10,000 from the "CBEEM" Non-Incentive budget category to the "BESM" Non-Incentive budget category to cover oversubscribed "BESM" SAIC labor costs in the June period.



BUDGET PROGRESSION & EXPENDITURES

Hawaii Energy

Table 17 - PY11 Budget Progression

	PY2011 Contract	PY2011 (R1) dated April 5, 2012	R1 Minus Contract	PY2011 (R2) dated May 22, 2012	R2 Minus R1	PY2011 (R3) dated August 5, 2012	R3 Minus R2
Residential Programs							
Residential Non-Incentive							
REEM	1,968,983	2,188,983	220,000	2,188,983	-	2,263,983	75,000
RESM	116,146	76,146	(40,000)	76,146	-	46,146	(30,000)
RHTR	136,861	116,861	(20,000)	116,861	-	171,861	55,000
Subtotal Residential Non-Incentive	2,221,990	2,381,990	160,000	2,381,990	-	2,481,990	100,000
Residential Market Evaluation	55,100	55,100	-	55,100	-	30,100	(25,000)
Residential Outreach	1,065,950	905,950	(160,000)	905,950	-	830,950	(75,000)
Total Residential Non-Incentive	**3,343,040**	**3,343,040**	-	**3,343,040**	-	**3,343,040**	-
Residential Incentives							
REEM	7,731,438	7,731,438	-	7,731,438	-	7,681,438	(50,000)
RESM	608,000	608,000	-	608,000	-	608,000	-
RHTR	649,053	649,053	-	649,053	-	699,053	50,000
Total Residential Incentives	**8,988,491**	**8,988,491**	-	**8,988,491**	-	**8,988,491**	-
Residential Transformational Incentives	**987,505**	**987,505**	-	**987,505**	-	**987,505**	-
Total Residential Programs	**13,319,036**	**13,319,036**	-	**13,319,036**	-	**13,319,036**	-
Business (C&I) Programs							
Business Non-Incentive							
BEEM	917,882	917,882	-	917,882	-	917,882	-
CBEEM	866,259	866,259	-	866,259	-	856,259	(10,000)
BESM	397,373	397,373	-	397,373	-	407,373	10,000
BHTR	375,005	375,005	-	375,005	-	375,005	-
Subtotal Business Non-Incentive	**2,556,519**	**2,556,519**	-	**2,556,519**	-	**2,556,519**	-
Business Market Evaluation	152,475	152,475	-	152,475	-	152,475	-
Business Outreach	1,376,945	1,376,945	-	1,376,945	-	1,376,945	-
Total Business Non-Incentive	**4,085,939**	**4,085,939**	-	**4,085,939**	-	**4,085,939**	-
Business Incentives							
BEEM	5,697,100	4,847,100	(850,000)	4,467,100	(380,000)	4,557,100	90,000
CBEEM	1,459,833	2,309,833	850,000	3,389,833	1,080,000	3,389,833	-
BESM	3,027,000	3,027,000	-	2,327,000	(700,000)	2,237,000	(90,000)
BHTR	802,000	802,000	-	802,000	-	802,000	-
Total Business Incentives	**10,985,933**	**10,985,933**	-	**10,985,933**	-	**10,985,933**	-
Business Transformational Incentives	**1,206,950**	**1,206,950**	-	**1,206,950**	-	**1,206,950**	-
Total Business Programs	**16,278,822**	**16,278,822**	-	**16,278,822**	-	**16,278,822**	-
Supporting Services							
Supporting Services	2,091,909	2,091,909	-	2,091,909	-	2,091,909	-
Total Supporting Services	**2,091,909**	**2,091,909**	-	**2,091,909**	-	**2,091,909**	-
Subtotal Non-Incentive (Prior to Tax)	9,520,888	9,520,888	-	9,520,888	-	9,520,888	-
Less Performance Incentives (Prior to Tax)	(700,000)	(700,000)	-	(700,000)	-	(700,000)	-
Subtotal Non-Incentive less Performance Incentives (PI)	8,820,888	8,820,888	-	8,820,888	-	8,820,888	-
Total Tax on Non-Incentive Without PI	448,623	448,623	-	448,623	-	448,623	-
Performance Incentive (Inclusive of Tax)	700,000	700,000	-	700,000	-	700,000	-
Subtotal Non-Incentive Billed	**9,969,511**	**9,969,511**	-	**9,969,511**	-	**9,969,511**	-
Subtotal Incentives Billed	**19,974,424**	**19,974,424**	-	**19,974,424**	-	**19,974,424**	-
Subtotal Transformational Incentives	**2,194,455**	**2,194,455**	-	**2,194,455**	-	**2,194,455**	-
Subtotal Estimated Contractor Costs	**32,138,390**	**32,138,390**	-	**32,138,390**	-	**32,138,390**	-
Performance Awards in Excess of Target Levels	133,000	133,000	-	133,000	-	133,000	-
Total Estimated Contractor Costs, Including Performance Awards in Excess of Target Levels	**32,271,390**	**32,271,390**	-	**32,271,390**	-	**32,271,390**	-

Portfolio Expenditures

The Program maintained a conservative approach in expending the Non-Incentive and Incentive resources throughout PY11. By year close, the Program expended 77% of the Incentive budget, 93% of the Non-Incentive budget (inclusive of $700K holdback) and 84% of the Transformation budget. There was a carryover totaling $5.6M, specifically $4.7M in Incentive funds, $628K in Non-Incentive funds and $350K in Transformation funds. The Program has submitted a request that these funds be carried over to augment the PY12 budget and is awaiting the PUC's approval. Note that performance incentives are awards and will not carryover. Details of the final PY11 allocations and unspent funds by program category are included in **Table 18**.

Specific details within each of the Residential and Business program expenditures are provided in their respective sections.

Table 18 - PY11 Program Expenditures and Unspend Funds

	Allocations to Date	PY11 Budget R3	Percent Spent	Unspent	Percent Unspent
Residential Programs					
Residential Program Ops and Management					
REEM	$2,245,588.53	$2,263,983.00	99%	$18,394.47	1%
RESM	$39,873.84	$46,146.00	86%	$6,272.16	14%
RHTR	$159,140.67	$171,861.00	93%	$12,720.33	7%
Total Residential Programs	$2,444,603.04	$2,481,990.00	98%	$37,386.96	2%
Residential Market Evaluation	$24,994.24	$30,100.00	83%	$5,105.76	17%
Residential Outreach	$814,699.66	$830,950.00	98%	$16,250.34	2%
Total Residential Non-Incentive	$3,284,296.94	$3,343,040.00	98%	$58,743.06	2%
Residential Incentives					
REEM	$6,018,551.81	$7,681,438.00	78%	$1,662,886.19	22%
RESM	$73,238.69	$608,000.00	12%	$534,761.31	88%
RHTR	$654,553.69	$699,053.00	94%	$44,499.31	6%
Subtotal Residential Incentives	$6,746,344.19	$8,988,491.00	75%	$2,242,146.81	25%
Residential Transformational	$959,961.54	$987,505.00	97%	$27,543.46	3%
Total Residential Incentives	$7,706,305.73	$9,975,996.00	77%	$2,269,690.27	23%
Total Residential Programs	**$10,990,602.67**	**$13,319,036.00**	**83%**	**$2,328,433.33**	**17%**
Business (C&I) Programs					
Business Programs Ops and Management					
BEEM	$880,009.18	$917,882.00	96%	$37,872.82	4%
CBEEM	$693,225.70	$856,259.00	81%	$163,033.30	19%
BESM	$400,969.06	$407,373.00	98%	$6,403.94	2%
BHTR	$352,160.53	$375,005.00	94%	$22,844.47	6%
Total Business Programs	$2,326,364.47	$2,556,519.00	91%	$230,154.53	9%
Business Market Evaluation	$150,341.65	$152,475.00	99%	$2,133.35	1%
Business Outreach	$1,225,685.42	$1,376,945.00	89%	$151,259.58	11%
Total Business Non-Incentive	$3,702,391.54	$4,085,939.00	91%	$383,547.46	9%
Business Incentives					
BEEM	$4,542,585.25	$4,557,100.00	100%	$14,514.75	0%
CBEEM	$2,986,107.59	$3,389,833.00	88%	$403,725.41	12%
BESM	$773,579.91	$2,237,000.00	35%	$1,463,420.09	65%
BHTR	$237,094.36	$802,000.00	30%	$564,905.64	70%
Subtotal Business Incentives	$8,539,367.11	$10,985,933.00	78%	$2,446,565.89	22%
Business Transformational	$884,731.46	$1,206,950.00	73%	$322,218.54	27%
Total Business Incentives	$9,424,098.57	$12,192,883.00	77%	$2,768,784.43	23%
Total Business Programs	**$13,126,490.11**	**$16,278,822.00**	**81%**	**$3,152,331.89**	**19%**
Total Services and Initiatives	**$24,117,092.78**	**$29,597,858.00**	**81%**	**$5,480,765.22**	**19%**
Supporting Services					
Supporting Services	$1,905,722.85	$2,091,909.00	91%	$186,186.15	9%
Total Supporting Services	**$1,905,722.85**	**$2,091,909.00**	**91%**	**$186,186.15**	**9%**
Subtotal Non-Incentive (Prior to Tax)	$8,892,411.33	$9,520,888.00	93%	$628,476.67	7%
Less Performance Incentives (Prior to Tax)	-$668,500.32	-$700,000.00		-$31,499.68	
Subtotal Non-Incentive Less Performance Incentives (PI)	$8,223,911.01	$8,820,888.00		$596,976.99	
Total Tax on Non-Incentive Without PI	$387,510.70	$448,623.00		$61,112.30	
Performance Incentive Award (Inclusive of Tax)		$700,000.00		$700,000.00	
Subtotal Non-Incentive Billed	$8,611,421.71	*$9,969,511.00*	*86%*	$1,358,089.29	
Subtotal Residential and Business Customer Incentives	$15,285,711.30	*$19,974,424.00*	*77%*	$4,688,712.70	
Subtotal Transformational Incentives	$1,844,693.00	*$2,194,455.00*	*84%*	$349,762.00	
Sub-Total Estimated Contractor Costs	**$25,741,826.01**	***$32,138,390.00***	***80%***	***$6,396,563.99***	
Performance Awards in Excess of Target Levels		$133,000.00		$133,000.00	
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels		**$32,271,390.00**		**$6,529,563.99**	

Introduction: How Customer, System and Program Level Savings are Related

There are 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).

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 PY11 operations across all programs and counties is 73%.

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Hawaii Energy

Portfolio Energy and Demand Savings

The Program Energy Savings for PY11 were:

- **First Year** – 128,785,968 kWh
  (52.5% in Residential and 47.5% in Business Programs)
- **Lifetime** – 1,092,119,272 kWh
  (39.1% in Residential and 60.9% for Commercial Programs)

The difference in percentage contributions between first year and lifetime savings is due to the relative weight of CFLs and the Peer Group Comparison in the residential portfolio. These measures have a relatively short measure lives (5 years and 1 year, respectively) as compared to longer lived measures in the business portfolio. Residential measures have an average measure life of 6.3 years, while business measures have an average measure life of 10.9 years.

The Program Peak Demand reduction for Program Year was:

- **Peak Demand** – 17,260 kW (52.3% from Residential and 47.7% from Business)

The following tables provide a summary of the Residential and Business programs in the context of their level of activity, incentives, energy-saving impacts and cost effectiveness at the Program, System and Customer levels.

- **Table 19:** Cumulative Annual Electric Energy Savings (Program Level) by Budget Category
- **Table 20:** Cumulative Annual Electric Energy Savings (System Level) by Budget Category
- **Table 21:** Cumulative Annual Electric Energy Savings (Customer Level) by Budget Category

PORTFOLIO THIRD YEAR IMPACTS

Hawaii Energy

Table 19 - Cumulative Annual Electric Energy Savings (Program Level) by Budget Category								
PY11 Hawaii Energy - Program Level Impact Summary by Budget Category								
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 $/kWh
Business	**3,842**	**198,408**	**$ 8,553,375**	**8,225**	**61,151,217**	**664,916,368**	**$ 0.140**	**$ 0.013**
BEEM	2,643	180,569	$ 4,532,253	5,262	34,929,190	307,394,522	$ 0.130	$ 0.015
CBEEM	274	274	$ 2,557,244	2,526	22,519,610	319,908,401	$ 0.114	$ 0.008
BESM	588	6,439	$ 1,217,580	236	2,045,013	27,601,468	$ 0.595	$ 0.044
BHTR	337	11,126	$ 246,298	200	1,657,404	10,011,977	$ 0.149	$ 0.025
Residential	**43,882**	**1,998,898**	**$ 6,685,185**	**9,035**	**67,634,751**	**427,202,903**	**$ 0.099**	**$ 0.016**
REEM	43,298	1,929,725	$ 6,000,750	8,747	65,511,035	406,826,773	$ 0.092	$ 0.015
RESM	335	357	$ 73,596	8	91,481	811,559	$ 0.804	$ 0.091
RHTR	249	68,816	$ 610,840	280	2,032,234	19,564,571	$ 0.301	$ 0.031
Variance			$ 47,151			-		
Total	**47,724**	**2,197,306**	**$ 15,285,711**	**17,260**	**128,785,968**	**1,092,119,272**	**$ 0.119**	**$ 0.014**

Program	Incentives ($)	Total Resource Benefit (TRB)	Total Resource Cost (TRC)	Driven Benefit Ratio (TRB/ Incentive $)	Driven Investment Ratio (TRC / Incentive $)	Benefit Test (TRB/TRC)
Business	**$ 8,553,375**	**$ 74,951,149**	**$ 47,584,790**	**8.8**	**5.6**	**1.6**
BEEM	$ 4,532,253	$ 38,207,626	$ 26,591,243	8.4	5.9	1.4
CBEEM	$ 2,557,244	$ 32,534,972	$ 17,668,804	12.7	6.9	1.8
BESM	$ 1,217,580	$ 2,944,953	$ 2,740,765	2.4	2.3	1.1
BHTR	$ 246,298	$ 1,263,598	$ 583,978	5.1	2.4	2.2
Residential	**$ 6,685,185**	**$ 53,006,396**	**$ 34,078,045**	**7.9**	**5.1**	**1.6**
REEM	$ 6,000,750	$ 52,443,496	$ 33,338,359	8.7	5.6	1.6
RESM	$ 73,596	$ 75,950	$ 128,846	1.0	1.8	0.6
RHTR	$ 610,840	$ 486,950	$ 610,840	0.8	1.0	0.8
Variance	$ 47,151					
Total	**$ 15,285,711**	**$ 127,957,545**	**$ 81,662,835**	**8.4**	**5.3**	**1.6**

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Table 20 - Cumulative Annual Electric Energy Savings (System Level) by Budget Category								
PY11 Hawaii Energy - System Level Impact Summary by Budget Category								
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 $/kWh
Business	**3,842**	**198,408**	**$ 8,553,375**	**11,267**	**83,768,791**	**910,844,340**	**$ 0.102**	**$ 0.009**
BEEM	2,643	180,569	$ 4,532,253	7,209	47,848,206	421,088,387	$ 0.095	$ 0.011
CBEEM	274	274	$ 2,557,244	3,460	30,848,781	438,230,686	$ 0.083	$ 0.006
BESM	588	6,439	$ 1,217,580	324	2,801,388	37,810,231	$ 0.435	$ 0.032
BHTR	337	11,126	$ 246,298	274	2,270,417	13,715,037	$ 0.108	$ 0.018
Residential	**43,882**	**1,998,898**	**$ 6,685,185**	**12,377**	**92,650,343**	**585,209,457**	**$ 0.072**	**$ 0.011**
REEM	43,298	1,929,725	$ 6,000,750	11,982	89,741,145	557,296,950	$ 0.067	$ 0.011
RESM	335	357	$ 73,596	11	125,317	1,111,725	$ 0.587	$ 0.066
RHTR	249	68,816	$ 610,840	384	2,783,882	26,800,782	$ 0.219	$ 0.023
Variance			$ 47,151	-	-	-		
Total	**47,724**	**2,197,306**	**$ 15,285,711**	**23,644**	**176,419,134**	**1,496,053,797**	**$ 0.087**	**$ 0.010**

Program	Incentives ($)	Total Resource Benefit (TRB)	Total Resource Cost (TRC)	Driven Benefit Ratio (TRB/ Incentive $)	Driven Investment Ratio (TRC / Incentive $)	Benefit Test (TRB/TRC)
Business	**$ 8,553,375**	**$ 102,672,021**	**$ 47,584,790**	**12.0**	**5.6**	**2.2**
BEEM	$ 4,532,253	$ 52,338,638	$ 26,591,243	11.5	5.9	2.0
CBEEM	$ 2,557,244	$ 44,568,397	$ 17,668,804	17.4	6.9	2.5
BESM	$ 1,217,580	$ 4,034,073	$ 2,740,765	3.3	2.3	1.5
BHTR	$ 246,298	$ 1,730,913	$ 583,978	7.0	2.4	3.0
Residential	**$ 6,685,185**	**$ 72,601,664**	**$ 34,078,045**	**10.9**	**5.1**	**2.1**
REEM	$ 6,000,750	$ 71,830,690	$ 33,338,359	12.0	5.6	2.2
RESM	$ 73,596	$ 104,003	$ 128,846	1.4	1.8	0.8
RHTR	$ 610,840	$ 666,971	$ 610,840	1.1	1.0	1.1
Variance	$ 47,151					
Total	**$ 15,285,711**	**$ 175,273,685**	**$ 81,662,835**	**11.5**	**5.3**	**2.1**

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Table 21 - Cumulative Annual Electric Energy Savings (Customer Level) by Budget Category

PY11 Hawaii Energy - Customer Level Impact Summary by Budget Category

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 $/kWh
Business	**3,842**	**198,408**	**$ 8,553,375**	**10,161**	**75,534,390**	**821,039,825**	**$ 0.113**	**$ 0.010**
BEEM	2,643	180,569	$ 4,532,253	6,500	43,149,226	379,701,913	$ 0.105	$ 0.012
CBEEM	274	274	$ 2,557,244	3,119	27,795,271	394,757,235	$ 0.092	$ 0.006
BESM	588	6,439	$ 1,217,580	293	2,530,984	34,131,183	$ 0.481	$ 0.036
BHTR	337	11,126	$ 246,298	249	2,058,909	12,449,494	$ 0.120	$ 0.020
Residential	**43,882**	**1,998,898**	**$ 6,685,185**	**11,180**	**83,688,959**	**518,243,656**	**$ 0.080**	**$ 0.013**
REEM	43,298	1,929,725	$ 6,000,750	10,819	81,031,189	503,280,916	$ 0.074	$ 0.012
RESM	335	357	$ 73,596	10	113,591	1,004,309	$ 0.648	$ 0.073
RHTR	249	68,816	$ 610,840	351	2,544,179	13,958,431	$ 0.240	$ 0.044
Variance			$ 47,151					
Total	**47,724**	**2,197,306**	**$ 15,285,711**	**21,341**	**159,223,349**	**1,339,283,481**	**$ 0.096**	**$ 0.011**

Program	Incentives ($)	Total Resource Benefit (TRB)	Total Resource Cost (TRC)	Driven Benefit Ratio (TRB/ Incentive $)	Driven Investment Ratio (TRC / Incentive $)	Benefit Test (TRB/TRC)
Business	**$ 8,553,375**	**$ 92,557,397**	**$ 47,584,790**	**10.8**	**5.6**	**1.9**
BEEM	$ 4,532,253	$ 47,189,779	$ 26,591,243	10.4	5.9	1.8
CBEEM	$ 2,557,244	$ 40,153,727	$ 17,668,804	15.7	6.9	2.3
BESM	$ 1,217,580	$ 3,642,388	$ 2,740,765	3.0	2.3	1.3
BHTR	$ 246,298	$ 1,571,503	$ 583,978	6.4	2.4	2.7
Residential	**$ 6,685,185**	**$ 65,549,920**	**$ 34,078,045**	**9.8**	**5.1**	**1.9**
REEM	$ 6,000,750	$ 64,849,796	$ 33,338,359	10.8	5.6	1.9
RESM	$ 73,596	$ 93,919	$ 128,846	1.3	1.8	0.7
RHTR	$ 610,840	$ 606,205	$ 610,840	1.0	1.0	1.0
Variance	$ 47,151					
Total	**$ 15,285,711**	**$ 158,107,317**	**$ 81,662,835**	**10.3**	**5.3**	**1.9**

Savings at Customer, System and Program Levels

Program Level Savings translates from program participants (customers) achieving first-year savings based upon the energy efficiency measures they purchased or otherwise installed.

This first-year Customer Energy Savings was 159,223,349 kWh per year (1.7% of PY11 Sales), while the Customer Peak Demand Savings was 21,341 kW (1.4% of PY11 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.

The following tables provide summaries of cumulative energy savings and peak demand savings in the context of program budgets categories and island, specifically:

- **Table 22:** Customer, System and Program Energy Savings by Budget Category
- **Table 23:** Peak Demand Energy Savings by Budget Category
- **Table 24:** Peak Demand Energy Savings by Island
- **Table 25:** Customer, System and Program Energy Savings by Island

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Hawaii Energy

Table 22 - Customer, System and Program Energy Savings by Budget Category					
PY11 Energy (kWh) Reduction by Impact Level by Budget Category					
	Customer Level Savings	System Losses	System Level Savings	Net-to-Gross Ratio	Program Level Savings
Business	**75,534,390**	**10.9%**	**83,768,791**	**73.0%**	**61,151,217**
BEEM	43,149,226	10.9%	47,848,206	73.0%	34,929,190
CBEEM	27,795,271	11.0%	30,848,781	73.0%	22,519,610
BESM	2,530,984	10.7%	2,801,388	73.0%	2,045,013
BHTR	2,058,909	10.3%	2,270,417	73.0%	1,657,404
Residential	**83,688,959**	**10.7%**	**92,650,343**	**73.0%**	**67,634,751**
REEM	81,031,189	10.7%	89,741,145	73.0%	65,511,035
RESM	113,591	10.3%	125,317	73.0%	91,481
RHTR	2,544,179	9.4%	2,783,882	73.0%	2,032,234
Total	**159,223,349**	**10.8%**	**176,419,134**	**73.0%**	**128,785,968**
% of Customer Level Savings			111%		81%

Table 23 - Peak Demand Energy Savings by Budget Category					
PY11 Demand (kW) Reduction by Impact Level by Budget Category					
	Customer Level Savings	System Losses	System Level Savings	Net-to-Gross Ratio	Program Level Savings
Business	**10,161**	**10.9%**	**11,267**	**73.0%**	**8,225**
BEEM	6,500	10.9%	7,209	73.0%	5,262
CBEEM	3,119	10.9%	3,460	73.0%	2,526
BESM	293	10.6%	324	73.0%	236
BHTR	249	10.2%	274	73.0%	200
Residential	**11,180**	**10.7%**	**12,377**	**73.0%**	**9,035**
REEM	10,819	10.8%	11,982	73.0%	8,747
RESM	10	10.1%	11	73.0%	8
RHTR	351	9.3%	384	73.0%	280
Total	**21,341**	**10.8%**	**23,644**	**73.0%**	**17,260**
% of Customer Level Savings			111%		81%

Table 24 - Peak Demand Energy Savings by Island					
PY11 Demand (kW) Reduction by Impact Level and by Island					
	Customer Level Savings	**System Losses**	**System Level Savings**	**Net-to-Gross Ratio**	**Program Level Savings**
Hawaii Island	2,551	9.0%	2,781	73.0%	2,030
Lanai	1	9.6%	1	73.0%	1
Maui	2,098	10.0%	2,307	73.0%	1,684
Molokai	13	9.6%	14	73.0%	11
Oahu	16,678	11.2%	18,541	73.0%	13,535
Total	**21,341**	**10.8%**	**23,644**	**73.0%**	**17,260**
% of Customer Level Savings			111%		81%

Table 25 - Customer, System and Program Energy Savings by Island					
PY11 Energy (kWh) Reduction by Impact Level and by Island					
	Customer Level Savings	**System Losses**	**System Level Savings**	**Net-to-Gross Ratio**	**Program Level Savings**
Hawaii Island	18,421,711	9.0%	20,079,934	73.0%	14,658,352
Lanai	32,153	9.8%	35,320	73.0%	25,783
Maui	15,516,454	10.0%	17,061,893	73.0%	12,455,182
Molokai	105,046	9.7%	115,185	73.0%	84,085
Oahu	125,147,985	11.2%	139,126,802	73.0%	101,562,566
Total	**159,223,349**	**10.8%**	**176,419,134**	**73.0%**	**128,785,968**
% of Customer Level Savings			111%		81%

CFLs & LEDs – A Major Source of Total Combined Program Energy and Demand Savings

Although the Program plans to reduce its dependency on CFLs, residential CFL savings remained a significant contributing measure to the program as shown in **Table 26.**

At the close of PY10, there were major concerns throughout the industry that the limited supply of rare earth phosphors would dramatically increase the market price of CFLs. While there were short-term, modest increases, prices remained flat and the concern of radical increases dissipated by December 2011.

Notable in PY11 was the rise of LED technology in both Residential and Business programs. Continued growth in LEDs is anticipated along with material decreases in market price.

Table 26 - PY11 CFL & LED Statistics

CFL County Comparison	Business	Residential	Total	%
C&C of Honolulu	74,274	1,390,647	1,464,921 bulbs	76.2%
Hawaii County	6,444	239,897	246,341 bulbs	12.8%
Maui County	517	211,298	211,815 bulbs	11.0%
Total	81,235	1,841,842	1,923,077 bulbs	100%

LED County Comparison	Business	Residential	Total	%
C&C of Honolulu	22,831	6,656	29,487 bulbs	53.9%
Hawaii County	4,720	2,513	7,233 bulbs	13.2%
Maui County	15,247	2,749	17,996 bulbs	32.9%
Total	42,798	11,918	54,716 bulbs	100%

CFL Cost Effectiveness	Business	Residential	Total
CFL Incentives	$ 124,733	$ 2,078,768	$ 2,203,501
CFL Program kWh - First Year	12,892,740	53,790,929	66,683,669
First Year $/kWh	$0.010 /kWh	$0.039 /kWh	$ 0.033 /kWh
CFL Program kWh - Life	38,826,406	272,143,250	310,969,656
First Year $/kWh	$0.003 /kWh	$0.008 /kWh	$ 0.007 /kWh

LED Cost Effectiveness	Business	Residential	Total
LED Incentives	$ 1,208,508	$ 252,532	$ 1,461,040
LED Program kWh - First Year	10,560,526	159,490	10,720,017
First Year $/kWh	$0.114 /kWh	$1.583 /kWh	$ 0.136 /kWh
LED Program kWh - Life	57,864,008	797,452	58,661,460
First Year $/kWh	$0.021 /kWh	$0.317 /kWh	$ 0.025 /kWh

Demand Comparison	Business	Residential	Total
CFL Program kW	1,661	7,419	9,080 kW
LED Program kW	1,463	29	1,492 kW
Portfolio kW	8,225	8,875	17,100 kW
CFL % of Demand	20%	84%	53%
LED % of Demand	18%	0%	9%

Energy Comparison	Business	Residential	Total
CFL Program kWh	12,892,740	53,790,929	66,683,669 kWh
LED Program kWh	10,560,526	159,490	10,720,017 kWh
Portfolio kWh	61,151,620	67,634,348	128,785,968 kWh
CFL % of Energy	21%	81%	52%
LED % of Energy	17%	0%	8%

Incentive Comparison	Business	Residential	Total
CFL Incentives	$ 124,733	$ 2,078,768	$ 2,203,501
LED Incentives	$ 1,208,508	$ 252,532	$ 1,461,040
Portfolio Incentives	$ 8,553,495	$ 6,634,578	$ 15,188,073
CFL % of Incentives	1%	31%	15%
LED % of Incentives	14%	4%	10%

CFLs continue to play a large role in the program achieving its savings targets. Although the volume of CFLs increased in both business and residential programs in PY11, their significance will decline in future program years. See **Table 27** for details.

Table 27 - PY11 Impact of Change in CFL Savings Values

CFL Program Impact - PY11 versus PY09/10				
Lamp Count	**Bus**	**Res**	**Total**	
PY09	77,100	1,004,830	1,081,930	Lamps
PY10	60,080	1,738,553	1,798,633	Lamps
PY11	81,235	1,841,842	1,923,077	Lamps
1st Year Energy	**Bus**	**Res**	**Total**	
PY09	4,099,193	52,054,220	56,153,413	kWh
PY10	4,985,218	45,779,857	50,765,075	kWh
PY11	12,892,740	53,790,929	66,683,669	kWh
Savings per Lamp	**Bus**	**Res**	**Total**	
PY09	53.2	51.8	51.9	kWh/Lamp
PY10	83.0	26.3	28.2	kWh/Lamp
PY11	158.7	29.2	34.7	kWh/Lamp

Measure Contribution towards Savings Impacts

In PY11, the Program incentivized over 94 measures in 17 different measure categories. As in PY10, High Efficiency Lighting and Customize Project Measures accounted for the greatest savings impact; however High Efficiency HVAC overtook High Efficiency Appliances as the third most impactful measure category. **Table 28** provides a summary of all measure categories and their respective energy impact for PY11.

- **#1 Contributor - High Efficiency Lighting** - 64.1% first year (down from 66.4% in PY10) and 42.8% lifetime energy savings (down from 52.7% in PY10)
  CFLs and T8/T8LW lighting contributed the most towards the Program as they are the most cost-effective measures a customer can implement.
- **#2 Contributor - Customized Project Measures** - 18.3% first year (up from 15.3% in PY10) and 30.8% lifetime energy savings (up from 21.9% in PY10)
  This measure was dominated by garage active ventilation controls. The reduction of run hours of the motors provided this measure with significant energy savings.
- **#3 Contributor - High Efficiency HVAC** - 6.0% first year and 10.3% the lifetime energy savings
  PY11 saw the market for VRF technology specifically package/split air conditioners grow significantly. They were the largest contributor within high efficiency HVAC. Without this driver, it is likely that chillers would be the third largest contributor. Although the military participated in this category, its influence was much smaller than prior program years.

Table 28 - PY11 Contribution by Category Type in Order of Program Lifetime Energy Impact

PY11 Contribution by Category in Order of Lifetime Energy Impact

Rank	Category	Applications	%	Measure Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Incentives ($)	%	Lifetime Cost ($/kWh)
1	High Efficiency Lighting	19,068	40.0%	2,079,592	11,281	65.4%	82,545,768	64.1%	**467,796,107**	42.8%	$ 4,296,336	28.1%	$ 0.009
2	Customized Project Measures	276	0.6%	276	2,651	15.4%	23,598,513	18.3%	**336,091,948**	30.8%	$ 2,978,270	19.5%	$ 0.009
3	High Efficiency HVAC	3,685	7.7%	6,102	1,514	8.8%	7,688,193	6.0%	**112,186,944**	10.3%	$ 1,965,270	12.9%	$ 0.018
4	High Efficiency Appliances	20,705	43.4%	21,269	435	2.5%	6,218,294	4.8%	**83,585,348**	7.7%	$ 1,591,405	10.4%	$ 0.019
5	High Efficiency Water Heating	2,541	5.3%	2,541	785	4.6%	3,596,336	2.8%	**52,198,660**	4.8%	$ 1,588,519	10.4%	$ 0.030
6	Small Business Direct Install Lighting Retrofits	733	1.5%	8,127	152	0.9%	1,239,761	1.0%	**14,511,131**	1.3%	$ 586,222	3.8%	$ 0.040
7	Building Envelope Improvements	70	0.1%	70	295	1.7%	1,043,829	0.8%	**10,919,710**	1.0%	$ 626,491	4.1%	$ 0.057
8	High Efficiency Water Pumping	10	0.0%	10	30	0.2%	284,797	0.2%	**4,271,948**	0.4%	$ 37,760	0.2%	$ 0.009
9	Commercial Industrial Processes	9	0.0%	32	39	0.2%	226,264	0.2%	**3,393,960**	0.3%	$ 32,100	0.2%	$ 0.009
10	Energy Awareness, Measurement and Control Systems	162	0.3%	5,641	11	0.1%	393,842	0.3%	**2,333,662**	0.2%	$ 128,994	0.8%	$ 0.055
11	Residential Peer Group Comparison	3	0.0%	73,000	-	0.0%	1,704,648	1.3%	**1,704,648**	0.2%	$ 537,377	3.5%	$ 0.315
12	Energy Efficiency Equipment Grants	53	0.1%	53	19	0.1%	87,128	0.1%	**1,306,913**	0.1%	$ 456,700	3.0%	$ 0.349
13	High Efficiency Motors	52	0.1%	200	40	0.2%	67,116	0.1%	**1,006,733**	0.1%	$ 15,177	0.1%	$ 0.015
14	Residential Design and Audits	1	0.0%	1	-	0.0%	24,517	0.0%	**490,333**	0.0%	$ 34,200	0.2%	$ 0.070
15	Residential System Tune-Ups	333	0.7%	331	8	0.0%	66,964	0.1%	**321,226**	0.0%	$ 27,700	0.2%	$ 0.086
16	Building Design, Audits and Commissioning	22	0.0%	36	-	0.0%	-	0.0%	-	0.0%	$ 324,343	2.1%	
17	Residential Direct Installation	1	0.0%	25		0.0%		0.0%		0.0%	$ 11,696	0.1%	
	Accounting Adjustment										$ 47,151		
	Total	**47,724**	**100.0%**	**2,197,306**	**17,260**	**100.0%**	**128,785,968**	**100.0%**	**1,092,119,272**	**100.0%**	**$15,285,711**	**100.0%**	**$ 0.014**

Energy Impacts by Rate Schedule

The Net Energy first year impacts were greatest in the Residential Rate Schedule "R" with 67,839,311 kWh or 52.7% of savings, of which 74% was realized on Oahu. The Oahu Residential rate class provided the greatest savings of 50,187,984 kWh per year of all the rate schedules (39% of PY11 total kWh). A summary of Program energy impacts by rate schedule is provided in **Table 29.**

Table 29 - PY11 Program Energy Impact by Rate Schedule

PY11 Portfolio Energy (kWh) Program Level Impacts by Rate Schedule

Island	R	G	K	J	P	DS	Total	%
Hawaii Island	9,982,417	723,626	-	808,189	3,144,119	-	14,658,352 kWh	11.4%
Lanai	19,650	-	-	-	6,133	-	25,783 kWh	0.0%
Maui	7,612,675	618,690	-	663,510	3,560,306	-	12,455,182 kWh	9.7%
Molokai	36,584	40,669	-	6,832	-	-	84,085 kWh	0.1%
Oahu	50,187,984	2,092,126	722	22,787,288	20,945,429	5,549,017	101,562,566 kWh	78.9%
Total	67,839,311	3,475,110	722	24,265,820	27,655,988	5,549,017	128,785,968 kWh	100.0%
%	52.7%	2.7%	0.0%	18.8%	21.5%	4.3%	100.0%	

Demand impact had similar results with the Residential Rate schedule customers providing 9,066 kW or 52.5% of the demand savings. Oahu Residential Rate Customers provided the greatest savings of 6,699 kW per year of all the rate schedules (38.8%of PY11 total kW). A summary of Program demand impacts by rate schedule is provided in **Table 30.**

Table 30 - PY11 Program Demand Impact by Rate Schedule

PY11 Portfolio Demand (kW) Program Level Impacts by Rate Schedule

Island	R	G	K	J	P	DS	Total	%
Hawaii Island	1,337	88	-	128	476	-	2,030 kW	11.8%
Lanai	0	-	-	-	1	-	1 kW	0.0%
Maui	1,026	84	-	101	473	-	1,684 kW	9.8%
Molokai	3	7	-	0	-	-	11 kW	0.1%
Oahu	6,699	276	0	2,990	2,839	730	13,535 kW	78.4%
Total	9,066	455	0	3,219	3,789	730	17,260 kW	100.0%
%	52.5%	2.6%	0.0%	18.7%	22.0%	4.2%	100.0%	

Program Level Energy Impacts by Program and Rate Class

Table 31 shows the programmatic energy contributions by rate class.

- **# 1 Contributor - Residential Energy Efficiency Measures (REEM) within the Residential Rate Schedule "R"**
  67, 565,014 kWh (52.5% of total program)
  The top three contributors towards this value were residential CFLs, Refrigerator/Freezer Bounty and Solar Water Heating.

- **# 2 Contributor - Business Energy Efficiency Measures (BEEM) within the Business Large Customer Rate Schedule "P"**
  18,937,042 kWh (14.7% of total program)
  Schedule "P" Customers are the biggest energy consumers and they undertake the largest energy-savings projects. Schedule "P" savings were dominated by the condominium and hotel industry with high performance lighting and HVAC projects, and Department of Defense primarily through the military homes.

Table 31 - PY11 Program Level Energy Impacts by Program and Rate Class

PY11 Portfolio Energy (kWh) Program Level Impacts by Program by Rate Schedule

Program	R	G	K	J	P	DS	Total	%
Business Program	**273,297**	**3,425,013**	**722**	**24,248,072**	**27,655,096**	**5,549,017**	**61,151,217 kWh**	**47.5%**
BEEM	75,592	986,725	722	11,261,039	18,937,042	3,668,069	34,929,190 kWh	27.1%
CBEEM	-	455,491	-	12,505,811	7,677,361	1,880,948	22,519,610 kWh	17.5%
BESM	7,286	697,723	-	303,310	1,036,694	-	2,045,013 kWh	1.6%
BHTR	190,420	1,285,074	-	177,912	3,998	-	1,657,404 kWh	1.3%
Residential Program	**67,566,014**	**50,097**	-	**17,748**	**892**	-	**67,634,751 kWh**	**52.5%**
REEM	65,468,986	23,409	-	17,748	892	-	65,511,035 kWh	50.9%
RESM	66,766	24,715	-	-	-		91,481 kWh	0.1%
RHTR	2,030,261	1,973	-	-	-		2,032,234 kWh	1.6%
Total	**67,839,311**	**3,475,110**	**722**	**24,265,820**	**27,655,988**	**5,549,017**	**128,785,968 kWh**	**100.0%**
%	52.7%	2.7%	0.0%	18.8%	21.5%	4.3%	100%	

Program Level Demand Impacts by Program and Rate Class

Table 32 shows the programmatic demand contributions by rate class.

- **# 1 Contributor - Residential Energy Efficiency Measures (REEM) within the Residential Rate Schedule "R"**
  8,743 kW (50.7% of total program)
  The top three contributors towards this value were residential CFLs, Solar Water Heating and Refrigerator/Freezer Bounty.

- **# 2 Contributor - Business Energy Efficiency Measures (BEEM) within the Business Large Customer Rate Schedule "P"**
  2,771 kWh (16.1% of total program)
  Schedule "P" Customers are the biggest energy consumers and they undertake the largest energy-savings projects. Schedule "P" savings were dominated by the condominium and hotel industry with high performance lighting and HVAC projects, and Department of Defense primarily through the military homes.

Table 32 - PY11 Program Level Demand Impacts by Program and Rate Class

PY11 Portfolio Demand (kW) Program Level Impacts by Program by Rate Schedule

Program	R	G	K	J	P	DS	Total	%
Business Program	**35**	**452**	**0**	**3,218**	**3,789**	**730**	**8,225 kW**	**47.7%**
BEEM	12	148	0	1,841	2,771	491	5,262 kW	30.5%
CBEEM	-	80	-	1,309	897	240	2,526 kW	14.6%
BESM	1	73	-	41	121	-	236 kW	1.4%
BHTR	22	150	-	27	1	-	200 kW	1.2%
Residential Program	**9,031**	**4**	-	**1**	**0**	-	**9,035 kW**	**52.3%**
REEM	8,743	3	-	1	0	-	8,747 kW	50.7%
RESM	8	0	-	-	-	-	8 kW	0.0%
RHTR	280	0	-	-	-	-	280 kW	1.6%
Total	**9,066**	**455**	**0**	**3,219**	**3,789**	**730**	**17,260 kW**	**100.0%**
%	52.5%	2.6%	0.0%	18.7%	22.0%	4.2%	100%	

Customer Level Energy Impacts by Program and Rate Class

Table 33 shows the programmatic energy contributions by rate class.

- **# 1 Contributor - Residential Energy Efficiency Measures (REEM) within the Residential Rate Schedule "R"**
  80,978,748 kWh (50.9% of total program)
  The top three contributors towards this value were residential CFLs, Refrigerator/Freezer Bounty and Solar Water Heating

- **# 2 Contributor - Business Energy Efficiency Measures (BEEM) within the Business Large Customer Rate Schedule "P"**
  23,419,763 kWh (14.7% of total program)
  Schedule " P" Customers are the biggest energy consumers and they undertake the largest energy-savings projects. Schedule "P" savings were dominated by the hotel industry with high performance lighting (LED) and HVAC projects.

Table 33 - PY11 Customer Level Energy by Rate Class and Program

PY11 Portfolio Energy (kWh) Customer Level Impacts by Program by Rate Schedule

Program	R	G	K	J	P	DS	Total	%
Business Program	**338,508**	**4,246,907**	**900**	**29,907,665**	**34,202,779**	**6,837,630**	**75,534,390 kWh**	**47.4%**
BEEM	93,716	1,221,037	900	13,893,929	23,419,763	4,519,882	43,149,226 kWh	27.1%
CBEEM	-	561,817	-	15,416,499	9,499,207	2,317,748	27,795,271 kWh	17.5%
BESM	9,156	867,881	-	375,119	1,278,828	-	2,530,984 kWh	1.6%
BHTR	235,636	1,596,173	-	222,119	4,981	-	2,058,909 kWh	1.3%
Residential Program	**83,603,580**	**62,082**	-	**22,198**	**1,099**	-	**83,688,959 kWh**	**52.6%**
REEM	80,978,748	29,144	-	22,198	1,099	-	81,031,189 kWh	50.9%
RESM	83,132	30,459	-	-	-	-	113,591 kWh	0.1%
RHTR	2,541,700	2,479	-	-	-	-	2,544,179 kWh	1.6%
Total	**83,942,088**	**4,308,990**	**900**	**29,929,863**	**34,203,878**	**6,837,630**	**159,223,349 kWh**	**100.0%**
%	52.7%	2.7%	0.0%	18.8%	21.5%	4.3%	100%	

Program Level Demand Impacts by Program and Rate Class

Table 34 shows the programmatic demand contributions by rate class.

- **# 1 Contributor – Residential Energy Efficiency Measures (REEM) within the Residential Rate Schedule "R"**
  10,814 kW (50.7% of total program)
  The top three contributors towards this value were residential CFLs, Solar Water Heating and Refrigerator/Freezer Bounty.

- **# 2 Contributor – Business Energy Efficiency Measures (BEEM) within the Business Large Customer Rate Schedule "P"**
  3,426 kWh (16.1% of total program)
  Schedule "P" Customers are the biggest energy consumers and they undertake the largest energy-savings projects. Schedule "P" savings were dominated by the hotel industry with high performance lighting (LED) and HVAC projects.

Table 34 - PY11 Customer Level Demand by Rate Class and Program

PY11 Portfolio Demand (kW) Customer Level Impacts by Program by Rate Schedule

Program	R	G	K	J	P	DS	Total	%
Business Program	**43**	**560**	**0**	**3,970**	**4,687**	**900**	**10,161 kW**	**47.6%**
BEEM	14	183	0	2,271	3,426	605	6,500 kW	30.5%
CBEEM	-	99	-	1,614	1,111	295	3,119 kW	14.6%
BESM	2	91	-	50	149	-	293 kW	1.4%
BHTR	27	187	-	34	1	-	249 kW	1.2%
Residential Program	**11,174**	**5**	-	**1**	**0**	-	**11,180 kW**	**52.4%**
REEM	10,814	4	-	1	0	-	10,819 kW	50.7%
RESM	10	0	-	-	-	-	10 kW	0.0%
RHTR	350	1	-	-	-	-	351 kW	1.6%
Total	**11,218**	**564**	**0**	**3,972**	**4,687**	**900**	**21,341 kW**	**100.0%**
%	52.6%	2.6%	0.0%	18.6%	22.0%	4.2%	100%	

Energy Efficiency Portfolio Standard (EEPS) Impacts

Application of Third Year Energy Savings towards EEPS Goal

Utilizing demand-side management impacts from 1996 through 2011 and projecting the current impact (PY11) into the future, there are two (2) methods to apply the program energy savings toward the EEPS goal. These two methods are illustrated in **Table 35** on the following page.

- First Year Savings Lasts Forever – 3,871 GWh potential achievements 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 – 1,284 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).

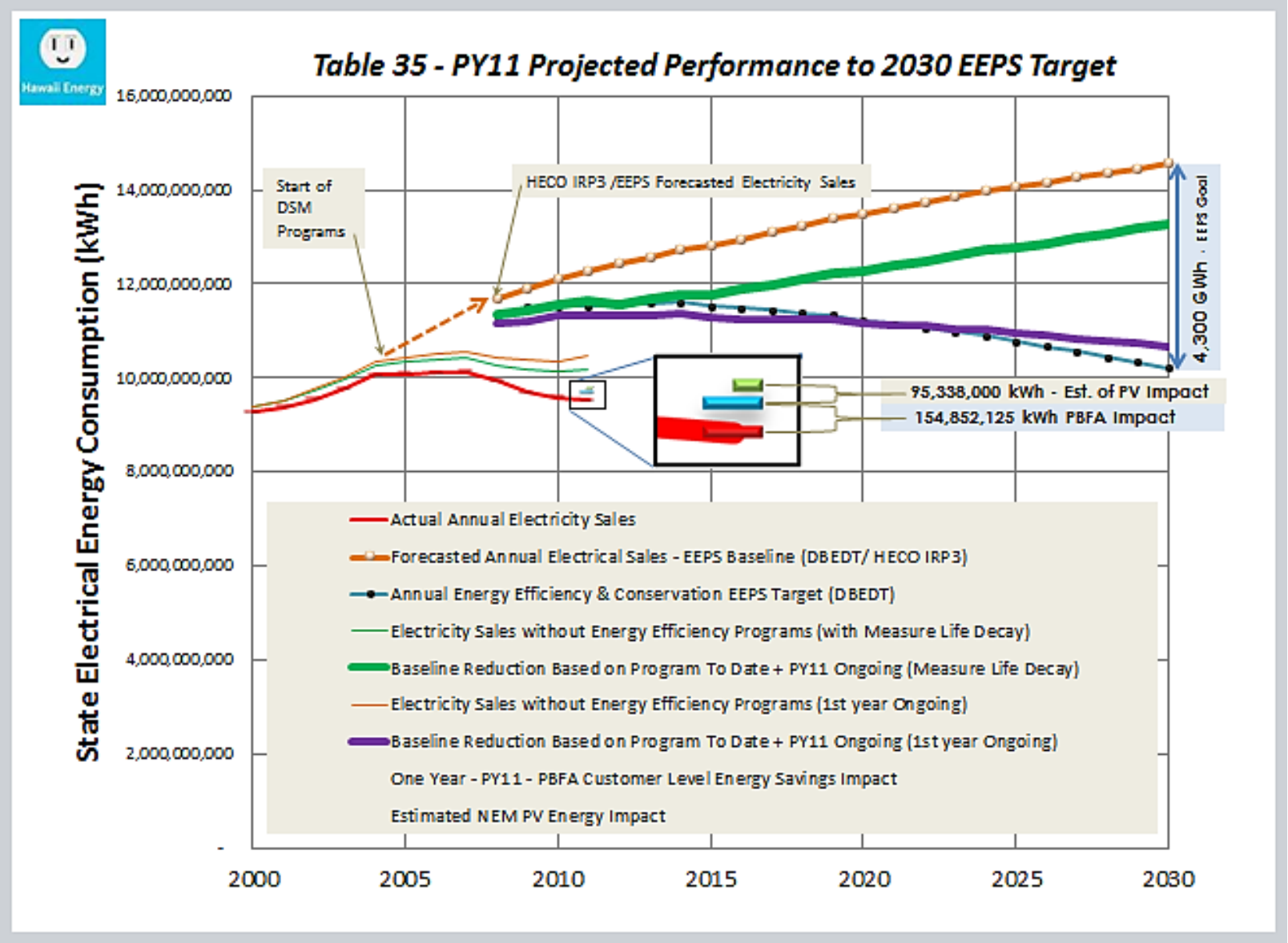
Table Assumptions

Table 35 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.

PORTFOLIO THIRD YEAR IMPACTS

Hawaii Energy



Portfolio Impacts Relative to Load

Tables 36 and 37 show the program Customer Level Impacts as compared to the PY11 electricity sales.

The Customer Level Savings were equivalent to 1.7% of the 2011 annual energy usage and 1.4% 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 1.7% and demand at 1.5%.

Table 36 - PY11 Energy Impacts vs. 2011 Sales

PY11 - Customer and Program Level Energy (kWh) Impacts vs. Sales

Island	2011 kWh Sales*	Customer Level Savings	% of Sales	Program Level Savings	% of Sales
Hawaii	1,103,571,857	18,421,711	1.7%	14,658,352	1.3%
Lanai	24,784,860	32,153	0.1%	25,783	0.1%
Maui	1,125,555,520	15,516,454	1.4%	12,455,182	1.1%
Molokai	30,685,345	105,046	0.3%	84,085	0.3%
Oahu	7,242,310,558	125,147,985	1.7%	101,562,566	1.4%
Total	9,526,908,140	159,223,349	1.7%	128,785,968	1.4%

*HECO Provided

Table 37 - PY11 Demand Impacts vs. Sales

PY11 - Customer and Program Level Demand(kW) Impacts vs. Sales

Island	2011 kW Peak*	Customer Level Reduction	% of Peak	Program Level Reduction	% of Peak
Hawaii	189,200	2,551	1.3%	2,030	1.1%
Lanai	4,700	1	0.0%	1	0.0%
Maui	189,900	2,098	1.1%	1,684	0.9%
Molokai	5,750	13	0.2%	11	0.2%
Oahu	1,141,000	16,678	1.5%	13,535	1.2%
Total	1,530,550	21,341	1.4%	17,260	1.1%

* HECO Provided (noncoincident and nonintegrated)

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 had a net TRB of $127,957,545. **Table 38** below shows the measures and their relative contributions. The top three measures provided 84.3% 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 $59,461,367 (46.5%) down from 71,488,863 (53.1%) in PY10. Residential CFLs alone have a 41.3% first year energy impact contribution to the program and despite a short five (5) year useful life and small per unit savings number. It was the greatest contributor to the TRB at $36,431,019 (28.5%).
- Customized Project Measures – The second largest contributor with $34,250,642 (26.8%) up from $26,470,672 (19.6%) in PY10. The Customized Project measures represents 18.3% of the first year energy contribution; however, the 14.2 year average useful life of these measures provided a significant TRB value.
- High Efficiency HVAC – The third and last measure to offer significant contribution at $14,023,263 (11.0%) was High Efficiency HVAC. The measure has a 7,688,193 kWh first year energy savings and a 14.6 year useful life.

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 PY11 Program Savings were achieved with an estimated TRC of $81,662,835. The largest investment was in Customized Project Measures at $19,460,304 (26.8%) followed by High Efficiency Lighting at $15,303,332 (18.7%).

See **Table 38** for details.

Table 38 - Measure Portfolio TRB & TRC

PY11 Contribution by Category in Order of Lifetime Energy Impact

Rank	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 ($)	%
1	High Efficiency Lighting	11,281	65.4%	82,545,768	64.1%	467,796,107	42.8%	5.7	3.9	$ 59,461,367	46.5%	$15,303,332	18.7%	$ 4,296,336	28.1%
2	Customized Project Measures	2,651	15.4%	23,598,513	18.3%	336,091,948	30.8%	14.2	1.8	$ 34,250,642	26.8%	$19,460,304	23.8%	$ 2,978,270	19.5%
3	High Efficiency HVAC	1,514	8.8%	7,688,193	6.0%	112,186,944	10.3%	14.6	1.2	$ 14,023,263	11.0%	$11,959,480	14.6%	$ 1,965,270	12.9%
4	High Efficiency Appliances	435	2.5%	6,218,294	4.8%	83,585,348	7.7%	13.4	0.6	$ 8,101,852	6.3%	$14,022,035	17.2%	$ 1,591,405	10.4%
5	High Efficiency Water Heating	785	4.6%	3,596,336	2.8%	52,198,660	4.8%	14.5	0.5	$ 6,974,117	5.5%	$14,585,389	17.9%	$ 1,588,519	10.4%
6	Small Business Direct Install Lighting Retrofits	152	0.9%	1,239,761	1.0%	14,511,131	1.3%	11.7	2.7	$ 1,592,260	1.2%	$ 585,943	0.7%	$ 586,222	3.8%
7	Building Envelope Improvements	295	1.7%	1,043,829	0.8%	10,919,710	1.0%	10.5	0.6	$ 1,801,988	1.4%	$ 2,867,728	3.5%	$ 626,491	4.1%
8	High Efficiency Water Pumping	30	0.2%	284,797	0.2%	4,271,948	0.4%	15.0	1.0	$ 442,679	0.3%	$ 445,275	0.5%	$ 37,760	0.2%
9	Commercial Industrial Processes	39	0.2%	226,264	0.2%	3,393,960	0.3%	15.0	1.5	$ 407,807	0.3%	$ 267,644	0.3%	$ 32,100	0.2%
10	Energy Awareness, Measurement and Control Systems	11	0.1%	393,842	0.3%	2,333,662	0.2%	5.9	1.0	$ 247,900	0.2%	$ 239,611	0.3%	$ 128,994	0.8%
11	Residential Peer Group Comparison	-	0.0%	1,704,648	1.3%	1,704,648	0.2%	1.0	0.3	$ 171,147	0.1%	$ 537,377	0.7%	$ 537,377	3.5%
12	Energy Efficiency Equipment Grants	19	0.1%	87,128	0.1%	1,306,913	0.1%	15.0	0.4	$ 174,423	0.1%	$ 456,700	0.6%	$ 456,700	3.0%
13	High Efficiency Motors	40	0.2%	67,116	0.1%	1,006,733	0.1%	15.0	6.9	$ 232,150	0.2%	325871	0.4%	$ 15,177	0.1%
14	Residential Design and Audits	-	0.0%	24,517	0.0%	490,333	0.0%	20.0	0.4	$ 33,731	0.0%	$ 33,750	0.0%	$ 34,200	0.2%
15	Residential System Tune-Ups	8	0.0%	66,964	0.1%	321,226	0.0%	4.8	0.1	$ 42,219	0.0%	$ 83,400	0.1%	$ 27,700	0.2%
16	Building Design, Audits and Commissioning	-	0.0%	-	0.0%	-	0.0%				0.0%	$ 477,300	0.6%	$ 324,343	2.1%
17	Residential Direct Installation	1	0.0%	-	0.0%	-	0.0%				0.0%	$ 11,696	0.0%	$ 11,696	0.1%
	Accounting Adjustment													$ 47,151	0.3%
	Total	17,260	100.0%	128,785,968	100.0%	1,092,119,272	100.0%	8.5	1.6	$ 127,957,545	100.0%	$81,662,835	100.0%	$15,285,711	100.0%

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 1.6 up by 0.2 from PY10. The measures with the highest TRC test values involved delamping, EC Motors and Controllers followed by CO Garage Exhaust Controls. The lowest TRC test values, below 1.0 were for Solar Water Heaters, Central Plant Optimization, Residential Peer Group Comparison and ENERGY STAR® Appliances among others. Refer to **Tables 39 and 40** for details under TRB/TRC.

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 PY11. **Tables 39 and 40** provide the per unit cost and incentives values associated with the Program measures.

Table 39 - PY11 TRC Measure Values

PY11 Contribution by Measure in Order of Lifetime Energy Impact

Rank	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 ($)	%
1	CFL	9,241	53.5%	67,729,562	52.6%	321,428,591	29.4%	4.7	9.3	$ 41,989,686	32.8%	$ 4,528,297	5.5%	$ 2,253,989	14.7%
2	T8 /T8LW	1,169	6.8%	8,359,824	6.5%	110,920,316	10.2%	13.3	1.6	$ 12,754,348	10.0%	$ 7,845,572	9.6%	$ 1,452,847	9.5%
3	CO Garage Exhaust Control	470	2.7%	5,902,799	4.6%	91,106,431	8.3%	15.4	8.2	$ 8,725,544	6.8%	$ 1,068,914	1.3%	$ 694,115	4.5%
4	Low E Glass w/ Wall Insulation	340	2.0%	2,643,692	2.1%	65,747,643	6.0%	24.9	2.6	$ 5,870,806	4.6%	$ 2,219,904	2.7%	$ 246,547	1.6%
5	Appliance Recycling - Bounty	176	1.0%	4,282,173	3.3%	59,950,416	5.5%	14.0	0.8	$ 5,323,654	4.2%	$ 6,481,810	7.9%	$ 752,895	4.9%
6	Chiller Plant Retrofits	557	3.2%	3,229,904	2.5%	58,801,946	5.4%	18.2	0.7	$ 6,653,189	5.2%	$ 9,125,131	11.2%	$ 972,032	6.4%
7	LED	1,479	8.6%	10,647,457	8.3%	58,298,661	5.3%	5.5	1.2	$ 7,831,220	6.1%	$ 6,289,733	7.7%	$ 1,321,104	8.6%
8	Solar Thermal Water Heating	794	4.6%	3,529,345	2.7%	52,850,770	4.8%	15.0	0.5	$ 7,090,984	5.5%	$ 14,782,641	18.1%	$ 2,010,965	13.2%
9	VFD Applications	631	3.7%	3,442,539	2.7%	46,319,392	4.2%	13.5	2.4	$ 5,841,163	4.6%	$ 2,462,749	3.0%	$ 368,682	2.4%
10	HVAC Controls	246	1.4%	2,671,083	2.1%	41,677,789	3.8%	15.6	3.7	$ 4,057,297	3.2%	$ 1,091,743	1.3%	$ 301,185	2.0%
11	HVAC - Packaged/Split	356	2.1%	2,157,062	1.7%	32,355,927	3.0%	15.0	0.7	$ 3,838,002	3.0%	$ 5,335,476	6.5%	$ 772,135	5.1%
12	Clothes Washer	171	1.0%	1,261,242	1.0%	14,300,007	1.3%	11.3	0.4	$ 1,727,208	1.3%	$ 4,167,350	5.1%	$ 504,125	3.3%
13	VRF AC Systems	112	0.7%	904,981	0.7%	13,302,134	1.2%	14.7	1.1	$ 1,439,551	1.1%	$ 1,361,069	1.7%	$ 387,510	2.5%
14	Delamp/Reflector	120	0.7%	926,038	0.7%	12,962,856	1.2%	14.0	12.5	$ 1,451,080	1.1%	$ 115,780	0.1%	$ 103,357	0.7%
15	Air Cooled Chiller	122	0.7%	567,927	0.4%	9,729,419	0.9%	17.1	1.0	$ 1,238,611	1.0%	$ 1,182,071	1.4%	$ 129,442	0.8%
16	Window Tinting	251	1.5%	947,544	0.7%	9,475,437	0.9%	10.0	1.3	$ 1,523,710	1.2%	$ 1,178,600	1.4%	$ 237,143	1.6%
17	Hotel Guestroom HVAC Control	86	0.5%	586,723	0.5%	7,318,874	0.7%	12.5	4.3	$ 868,428	0.7%	$ 204,300	0.3%	$ 49,371	0.3%
18	Fresh Water Pumping Motors	-	0.0%	485,850	0.4%	7,287,752	0.7%	15.0	4.8	$ 556,242	0.4%	$ 115,000	0.1%	$ 47,897	0.3%
19	Refrigeration	52	0.3%	450,229	0.3%	6,992,952	0.6%	15.5	1.3	$ 732,693	0.6%	$ 569,090	0.7%	$ 53,251	0.3%
20	T5 / T8HO	88	0.5%	566,814	0.4%	6,618,824	0.6%	11.7	1.5	$ 813,592	0.6%	$ 543,135	0.7%	$ 43,752	0.3%
21	HID Pulse Start	43	0.2%	446,301	0.3%	6,248,213	0.6%	14.0	1.4	$ 643,465	0.5%	$ 451,222	0.6%	$ 57,245	0.4%
22	Refrigerator	67	0.4%	412,734	0.3%	5,778,281	0.5%	14.0	0.3	$ 697,372	0.5%	$ 2,584,800	3.2%	$ 246,400	1.6%
23	Customized Project Measures	37	0.2%	279,944	0.2%	4,199,166	0.4%	15.0	4.5	$ 464,090	0.4%	$ 102,300	0.1%	$ 23,250	0.2%
24	Heat Pumps	54	0.3%	355,398	0.3%	3,903,234	0.4%	11.0	0.4	$ 468,244	0.4%	$ 1,094,195	1.3%	$ 62,896	0.4%
25	Solar Thermal Dehumidification	-	0.0%	249,960	0.2%	3,749,405	0.3%	15.0	6.0	$ 286,176	0.2%	$ 48,000	0.1%	$ 24,637	0.2%
26	EC Motors and Controllers	28	0.2%	241,744	0.2%	3,626,163	0.3%	15.0	9.6	$ 383,111	0.3%	$ 39,996	0.0%	$ 27,822	0.2%
27	Commercial Kitchen Equipment	39	0.2%	226,264	0.2%	3,393,960	0.3%	15.0	1.5	$ 407,807	0.3%	$ 267,644	0.3%	$ 32,100	0.2%
28	Refrigerator with Recycling	9	0.0%	205,893	0.2%	2,878,554	0.3%	14.0	0.7	$ 255,869	0.2%	$ 372,000	0.5%	$ 38,675	0.3%
29	Delamping	17	0.1%	201,165	0.2%	2,770,789	0.3%	13.8	27.0	$ 279,266	0.2%	$ 10,328	0.0%	$ 12,366	0.1%
30	Central Plant Optimization	23	0.1%	164,356	0.1%	2,465,336	0.2%	15.0	0.6	$ 274,956	0.2%	$ 481,263	0.6%	$ 285,991	1.9%

Table 40 - TRC Measure Values Continued

PY11 Contribution by Measure in Order of Lifetime Energy Impact

Rank	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 ($)	%
31	Split System AC	41	0.2%	205,435	0.2%	2,465,218	0.2%	12.0	0.8	$ 335,406	0.3%	$ 431,734	0.5%	$ 24,750	0.2%
32	PC Power Management	-	0.0%	348,519	0.3%	2,391,494	0.2%	6.9	9.9	$ 213,721	0.2%	$ 21,546	0.0%	$ 21,474	0.1%
33	Commercial Lighting	60	0.3%	381,186	0.3%	2,372,042	0.2%	6.2	1.3	$ 315,267	0.2%	$ 251,961	0.3%	$ 35,707	0.2%
34	Ceiling Fan	48	0.3%	418,812	0.3%	2,094,060	0.2%	5.0	1.9	$ 272,033	0.2%	$ 139,635	0.2%	$ 124,120	0.8%
35	Bi-Level Stairwell And Parking Garage Lighting.	13	0.1%	151,272	0.1%	1,982,695	0.2%	13.1	0.9	$ 199,695	0.2%	$ 212,737	0.3%	$ 16,976	0.1%
36	Window AC	60	0.3%	145,426	0.1%	1,745,108	0.2%	12.0	2.3	$ 338,543	0.3%	$ 145,498	0.2%	$ 20,410	0.1%
37	Residential Peer Group Comparison	-	0.0%	1,704,648	1.3%	1,704,648	0.2%	1.0	0.3	$ 171,147	0.1%	$ 537,377	0.7%	$ 537,377	3.5%
38	Smart Strip - Event Promotion	-	0.0%	337,757	0.3%	1,688,786	0.2%	5.0	1.7	$ 159,151	0.1%	$ 91,511	0.1%	$ 91,511	0.6%
39	Cool Roof Technologies	44	0.3%	96,285	0.1%	1,444,273	0.1%	15.0	0.2	$ 278,278	0.2%	$ 1,689,128	2.1%	$ 389,348	2.5%
40	Submetering	22	0.1%	105,901	0.1%	1,432,325	0.1%	13.5	0.6	$ 191,670	0.1%	$ 295,713	0.4%	$ 93,948	0.6%
41	CEE Listed Premium Efficiency Motors	40	0.2%	67,116	0.1%	1,006,733	0.1%	15.0	0.7	$ 232,150	0.2%	$ 325,871	0.4%	$ 15,177	0.1%
42	EMCS Linked Thermostats	25	0.1%	139,737	0.1%	936,590	0.1%	6.7	1.9	$ 132,126	0.1%	$ 70,043	0.1%	$ 13,633	0.1%
43	Sensors	21	0.1%	93,121	0.1%	744,967	0.1%	8.0	0.3	$ 115,276	0.1%	$ 402,960	0.5%	$ 109,560	0.7%
44	Whole House Fan	74	0.4%	148,075	0.1%	740,373	0.1%	5.0	8.4	$ 184,463	0.1%	$ 21,840	0.0%	$ 13,650	0.1%
45	Dishwasher	13	0.1%	56,690	0.0%	680,281	0.1%	12.0	0.2	$ 97,981	0.1%	$ 418,800	0.5%	$ 52,350	0.3%
46	FB40 to F17	4	0.0%	37,466	0.0%	524,529	0.0%	14.0	4.7	$ 56,143	0.0%	$ 12,025	0.0%	$ 12,025	0.1%
47	Efficiency Inside Home Design	-	0.0%	24,517	0.0%	490,333	0.0%	20.0	1.0	$ 33,731	0.0%	$ 33,750	0.0%	$ 34,200	0.2%
48	Solar Water Heater Tune Up	7	0.0%	63,565	0.0%	317,827	0.0%	5.0	0.5	$ 41,634	0.0%	$ 79,500	0.1%	$ 27,050	0.2%
49	Solar Attic Fans	2	0.0%	60,148	0.0%	300,740	0.0%	5.0	1.5	$ 31,024	0.0%	$ 21,000	0.0%	$ 6,125	0.0%
50	Custom Lighting	-	0.0%	14,588	0.0%	166,037	0.0%	11.4	2.7	$ 13,303	0.0%	$ 4,946	0.0%	$ 4,946	0.0%
51	Induction	6	0.0%	73,598	0.1%	147,196	0.0%	2.0	0.1	$ 18,298	0.0%	$ 132,729	0.2%	$ 19,025	0.1%
52	HID Pulse Start	1	0.0%	8,408	0.0%	117,709	0.0%	14.0	0.9	$ 14,681	0.0%	$ 16,060	0.0%	$ 3,155	0.0%
53	High Efficiency Water Heaters - Electric Resistance	2	0.0%	10,977	0.0%	98,795	0.0%	9.0	0.2	$ 14,953	0.0%	$ 63,750	0.1%	$ 3,880	0.0%
54	MR16	2	0.0%	4,765	0.0%	23,823	0.0%	5.0	0.2	$ 4,931	0.0%	$ 26,799	0.0%	$ 294	0.0%
55	Whole House Energy Metering	0	0.0%	4,021	0.0%	20,103	0.0%	5.0	0.5	$ 2,110	0.0%	$ 4,600	0.0%	$ 2,233	0.0%
56	Vending Miser	-	0.0%	3,989	0.0%	19,947	0.0%	5.0	20.9	$ 1,881	0.0%	$ 90	0.0%	$ 250	0.0%
57	AC Annual Tune Up	1	0.0%	3,399	0.0%	3,399	0.0%	1.0	0.2	$ 585	0.0%	$ 3,900	0.0%	$ 650	0.0%
58	Energy Study	-	0.0%	-	0.0%	-	0.0%			$ -	0.0%	$ 57,219	0.1%	$ 36,011	0.2%
59	Design Assistance	-	0.0%	-	0.0%	-	0.0%			$ -	0.0%	$ -	0.0%	$ 15,000	0.1%
	Accounting Adjustment													$ 47,151	0.3%
	Total	17,260	100.0%	128,785,968	100.0%	1,092,119,272	100.0%	8.5	1.6	$ 127,957,545	100.0%	$ 81,632,835	100.0%	$ 15,285,711	100.0%

Island Equity

In PY11, the Island Equity target was based on incentives spent vs. the PY11 Island Equity target based on energy savings. The program did not meet its Island Equity energy savings minimum targets. The distribution of energy savings were (also shown on **Table 41**):

Table 41 - PY11 Island Equity by Business and Residential

PY11 Island Program Level Energy Savings by Business and Residential % of Islands

County	Island	Total Energy Reduction	% of Total	Business Energy Reduction	% of Total by Island	Residential Energy Reduction	% of Total by Island
Honolulu	Oahu	101,562,566	78.9%	51,512,656	84.2%	50,049,910	74.0%
Hawaii	Hawaii	14,658,352	11.4%	4,691,208	7.7%	9,967,144	14.7%
Maui	Maui	12,455,182	9.7%	4,895,045	8.0%	7,560,137	11.2%
	Molokai	84,085	0.1%	46,577	0.1%	37,508	0.1%
	Lanai	25,783	0.0%	6,133	0.0%	19,650	0.0%
	Total	128,785,968	100.0%	61,151,620	100.0%	67,634,348	100.0%

PY11 Island Customer Level Energy Savings by Business and Residential % of Islands

County	Island	Total Energy Reduction	% of Total	Business Energy Reduction	% of Total by Island	Residential Energy Reduction	% of Total by Island
Honolulu	Oahu	125,147,985	78.6%	63,475,121	84.0%	61,672,864	73.7%
Hawaii	Hawaii	18,421,711	11.6%	5,895,699	7.8%	12,526,012	15.0%
Maui	Maui	15,516,454	9.7%	6,098,164	8.1%	9,418,290	11.3%
	Molokai	105,046	0.1%	58,237	0.1%	46,809	0.1%
	Lanai	32,153	0.0%	7,669	0.0%	24,484	0.0%
	Total	159,223,349	100.0%	75,534,891	100.0%	83,688,458	100.0%

The Program invested 73.9% of its incentive funds in Honolulu, 14.2% in Hawaii, and 11.5% in Maui counties as shown in **Table 42**.

Table 42 - Island Incentive Spending by Island and Rate Schedule

PY11 Portfolio Incentives by Rate Schedule

Island	R	G	K	J	P	DS	Total	%
Hawaii Island	$ 1,543,419	$ 217,434	$ -	$ 148,334	$ 266,986	$ -	$ 2,176,172	14.2%
Lanai	$ 5,541	$ -	$ -	$ -	$ 640	$ -	$ 6,181	0.0%
Maui	$ 871,914	$ 112,500	$ -	$ 138,477	$ 609,993	$ -	$ 1,732,883	11.3%
Molokai	$ 14,567	$ 10,748	$ -	$ 2,350	$ -	$ -	$ 27,665	0.2%
Oahu	$ 4,224,572	$ 531,542	$ 3,600	$ 3,069,324	$ 2,681,068	$ 785,553	$ 11,295,658	73.9%
Total	$ 6,660,012	$ 872,224	$ 3,600	$ 3,358,485	$ 3,558,686	$ 785,553	$ 15,238,560	
%	43.7%	5.7%	0.0%	22.0%	23.4%	5.2%	100.0%	
Variance							$ 47,151	0.3%
Total							$ 15,285,711	100.0%

Table 43 shows the island equity by program budget category. In total, energy-saving achievement was distributed as follows: 78.9% in Honolulu, 11.4% in Hawaii and 9.7% in Maui counties.

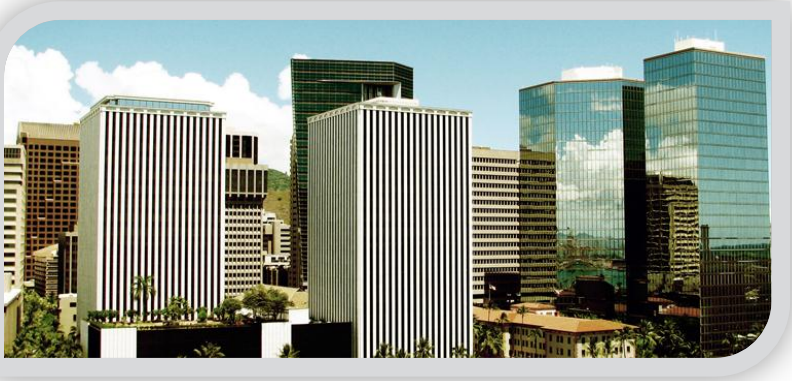
Table 43 - Island Equity by Program

PY11 Program Level First Year Energy (kWh-1st Year) Impacts by Program by Island

Program	Hawaii Island	Lanai	Maui	Molokai	Oahu	Total	%
Business Program	**4,691,208**	**6,133**	**4,894,643**	**46,577**	**51,512,656**	**61,151,217 kWh**	**47.5%**
BEEM	2,688,688	6,133	3,077,635	46,577	29,110,156	34,929,190 kWh	27.1%
CBEEM	1,233,638	-	1,166,185	-	20,119,787	22,519,610 kWh	17.5%
BESM	324,445	-	229,479	-	1,491,089	2,045,013 kWh	1.6%
BHTR	444,436	-	421,345	-	791,623	1,657,404 kWh	1.3%
Residential Program	**9,967,144**	**19,650**	**7,560,539**	**37,508**	**50,049,910**	**67,634,751 kWh**	**52.5%**
REEM	8,688,334	18,899	6,880,660	17,239	49,905,903	65,511,035 kWh	50.9%
RESM	22,785	-	21,565	797	46,335	91,481 kWh	0.1%
RHTR	1,256,025	751	658,314	19,472	97,672	2,032,234 kWh	1.6%
Total	**14,658,352**	**25,783**	**12,455,182**	**84,085**	**101,562,566**	**128,785,968 kWh**	**100.0%**
%	**11.4%**	**0.0%**	**9.7%**	**0.1%**	**78.9%**	**100.0%**	
Business	4,691,208	6,133	4,894,643	46,577	51,512,656	61,151,217 kWh	47.5%
Residential	9,967,144	19,650	7,560,539	37,508	50,049,910	67,634,751 kWh	52.5%
Total	**14,658,352**	**25,783**	**12,455,182**	**84,085**	**101,562,566**	**128,785,968 kWh**	**100.0%**
%	11.4%	0.0%	9.7%	0.1%	78.9%	100.0%	

Business Program Impacts

During PY11, the Program harvested a number of projects that were seeded during the prior two years. With valuable lessons learned and a more experienced team, these successes serve as a strong foundation to produce more significant energy-saving projects in the future.



For PY11, Hawaii Energy's Business Program achieved savings of 61,151,217 kWh (first year) and 8,225 kW savings with $8,553,375 in incentives. In relative terms, 56.0% of Hawaii Energy's incentives captured 47.5% kWh (first year) and 47.7% kW of the demand first year savings, respectively.

Table 44 provides a detailed breakdown by Program with a closer look at each Program to follow.

Table 44 - Business Program Impacts

PY11 Business Program Impacts

Category	Applications / Projects	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	2,643	5,262	64.0%	34,929,190	57.1%	307,394,522	46.2%	8.8	1.4	$38,207,626	51.0%	$26,591,243	55.9%	$4,532,253	53.0%
CBEEM	274	2,526	30.7%	22,519,610	36.8%	319,908,401	48.1%	14.2	1.8	$32,534,972	43.4%	$17,668,804	37.1%	$2,557,244	29.9%
BESM	588	236	2.9%	2,045,013	3.3%	27,601,468	4.2%	13.5	1.1	$ 2,944,953	3.9%	$ 2,740,765	5.8%	$1,217,580	14.2%
BHTR	337	200	2.4%	1,657,404	2.7%	10,011,977	1.5%	6.0	2.2	$ 1,263,598	1.7%	$ 583,978	1.2%	$ 246,298	2.9%
Total	**3,842**	**8,225**	**100.0%**	**61,151,217**	**100.0%**	**664,916,368**	**100.0%**	**10.9**	**1.6**	**$74,951,149**	**100.0%**	**$47,584,790**	**100.0%**	**$8,553,375**	**100.0%**

BUSINESS (COMMERCIAL & INDUSTRIAL) PROGRAM PERFORMANCE

Hawaii Energy

PY11 realized results from developing programs, services, measures and related incentives to address opportunities in the marketplace and accelerate the adoption of energy-efficient technologies.

A number of the Program's offers are highlighted below as examples of driving energy efficiency projects through productive collaboration of Hawaii Energy with customers, manufacturers, facility management firms, consultants and contractors that produced impressive results.

- *Condominium Sub Metering*
  Requiring a significant effort by Program Specialists to assist condominium boards, PY11 saw the successful implementation of the very first incentive application initiated two years ago. This facility has since achieved a 25% reduction in tenant energy usage. The Program currently has over 4,000 units in the process of being submetered.

- *Garage Active Ventilation Control*
  This measure was discovered, researched and implemented in PY11 and produced a significant portion of the Program's lifetime energy savings, with 91,123,032 kWh/Life across 17 projects (behind only CFLs 330,162,382 kWh/Life).

- *Small Business Direct Install Lighting (SBDIL)*
  This offer provided full cost lighting retrofits to 185 small businesses and restaurants to achieve 14,511,131 kWh/Life in savings. The $586,222 of PBFA funds invested into these projects are now producing over $464,910 in annual savings for these small businesses. This is a 99% annual Internal Rate of Return (IRR) and will achieve over $8.1 Million in lifetime cost savings; a 1,400% return on investment (ROI).

- *Central Plant Optimization Program*
  This offer is a complex, technical measure starting to bear fruit through the installation of metering technology to collect and analyze data to make operational decisions. Significant hurdles regarding information technology, customer contracting procedures, contractor business models, cost and quality control, and metering and sensor technology have been overcome to bring six central plants online with permanent kW/ton data, as well as detailed energy data to the component level. The first project to have completed the commissioning efforts, achieved an equivalent of 803,000 kWh in annual savings in its first month. These savings will be permanent and will likely improve with operational refinements and future capital investment. Although the savings are considerable, they will not be claimed until PY12 along with the other projects.

Business Program Expenditures

The Hawaii Energy commercial team broadened its focus beyond the BEEM Program in PY11, with particular attention to the hard-to-reach sector (BHTR) and energy service and maintenance (BESM). Notable this year was an incentive surplus of nearly $2.5M. Even with the incentive surplus, the program achieved 128% of its first year kWh goal, due to the highly successful BEEM program, which achieved the highest energy savings among the business programs.

See **Table 45** for the detailed expenditures and unspent funds.

Table 45 - Business Program Expenditures

	Allocations to Date	PY11 Budget R3	Percent Spent	Unspent	Percent Unspent
Business (C&I) Programs					
Business Programs Ops and Management					
BEEM	$ 880,009.18	$ 917,882.00	96%	$ 37,872.82	4%
CBEEM	$ 693,225.70	$ 856,259.00	81%	$ 163,033.30	19%
BESM	$ 400,969.06	$ 407,373.00	98%	$ 6,403.94	2%
BHTR	$ 352,160.53	$ 375,005.00	94%	$ 22,844.47	6%
Total Business Programs	$ 2,326,364.47	$ 2,556,519.00	91%	$ 230,154.53	9%
Business Market Evaluation	$ 150,341.65	$ 152,475.00	99%	$ 2,133.35	1%
Business Outreach	$ 1,225,685.42	$ 1,376,945.00	89%	$ 151,259.58	11%
Total Business Non-Incentive	$ 3,702,391.54	$ 4,085,939.00	91%	$ 383,547.46	9%
Business Incentives	$ -				
BEEM	$ 4,542,585.25	$ 4,557,100.00	100%	$ 14,514.75	0%
CBEEM	$ 2,986,107.59	$ 3,389,833.00	88%	$ 403,725.41	12%
BESM	$ 773,579.91	$ 2,237,000.00	35%	$ 1,463,420.09	65%
BHTR	$ 237,094.36	$ 802,000.00	30%	$ 564,905.64	70%
Subtotal Business Incentives	$ 8,539,367.11	$ 10,985,933.00	78%	$ 2,446,565.89	22%
Business Transformational	$ 884,731.46	$ 1,206,950.00	73%	$ 322,218.54	27%
Total Business Incentives	$ 9,424,098.57	$ 12,192,883.00	77%	$ 2,768,784.43	23%
Total Business Programs	**$ 13,126,490.11**	**$ 16,278,822.00**	**81%**	**$ 3,152,331.89**	**19%**

Business Trade Allies

Background

Trade allies include product manufacturers, wholesale and retail suppliers, equipment contractors, architects, engineers and electricians. These individuals and companies are those on the front lines that are directly responsible for energy efficiency measures being sold, designed, financed, installed, commissioned and maintained. By working with them, 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. See **Table 46** for details.

Table 46 - Business Trade Ally Referrals

PY11 - Business Programs Trade Ally Referrals

	Trade Allies	Projects	Customer Level Energy Savings (kWh-1st yr.)	Customer Level Energy Savings (kWh-Life)	Cumulative Customer Level Energy Savings (%)	Incentives
1	Participant Driven	529	27,956,744	203,599,590	25%	$ 1,925,229
2	Clear Blue Energy Corp	10	5,821,541	89,382,565	11%	$ 440,510
3	Energy Industries	578	6,848,426	88,092,821	11%	$ 1,205,544
4	Actus Lend Lease	37	4,118,653	64,590,766	8%	$ 418,055
5	Forest City	21	2,722,282	48,423,974	6%	$ 306,438
6	Bartley Energy	2	2,781,530	45,291,792	6%	$ 256,065
7	Johnson Controls	43	1,737,799	25,245,826	3%	$ 184,306
8	SOH DOT	1	1,001,640	20,032,800	2%	$ 204,000
9	21st Century Lighting	52	3,099,923	16,253,441	2%	$ 233,597
10	C&C Honolulu DPP	15	1,151,888	13,562,183	2%	$ 121,566
11	Revolusun	1	878,880	13,183,200	2%	$ 83,209
12	Dorvin D Leis	13	779,961	12,571,456	2%	$ 190,200
13	Army DPW	21	909,608	10,976,507	1%	$ 50,496
14	Island Pool & Spa Supply	5	758,454	10,577,919	1%	$ 62,057
15	UH Facilities Management	35	544,437	8,661,182	1%	$ 91,207
16	Energy Conservation & Supply, Inc.	13	1,665,702	8,328,510	1%	$ 171,800
17	Real Win Win	41	729,694	7,948,346	1%	$ 75,060
18	Pono Energy Solutions	296	566,821	7,826,061	1%	$ 244,865
19	Noresco	25	829,434	7,819,355	1%	$ 57,510
20	GonLED	20	1,255,203	6,914,007	1%	$ 112,485
21	SOH Convention Center Authority	1	443,227	6,648,405	1%	$ 79,781
22	Light Bulb Source	7	798,061	6,546,981	1%	$ 59,093
23	Tenant / Occupant Driven	1,281	444,461	5,668,084	1%	$ 92,275
24	T & T Tinting Specialists	14	485,195	4,851,948	1%	$ 99,019
25	EMCC	43	334,269	4,829,551	1%	$ 122,310
26	Honu Tech LLC	14	431,459	4,674,296	1%	$ 42,453
27	Lumensolar	1	308,007	4,620,105	1%	$ 24,637
28	Mattos Electric LLC	116	382,638	4,148,227	1%	$ 111,448
29	Lighting Services Inc.	46	289,314	3,986,471	0%	$ 63,799
30	State Department of Education	2	350,320	3,317,441	0%	$ 46,224
	Total Business Programs	3,667	75,534,390	821,039,825		$ 8,553,375

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.

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 process.

Measures incentivized through BEEM include:

- High Efficiency Lighting
- High Efficiency HVAC such as water-cooled chiller, variable refrigerant flows (VRF) and packaged & split systems
- CEE Premium Efficiency Motors
- High Efficiency Water Heating
- Variable Frequency Drives (VFDs) connecting to pool pumps, chilled water pumps, condenser water pumps and air handling units
- Window Tinting
- Cool Roof Technology
- Energy Star Refrigerator

BEEM Program Accomplishments

ENERGY STAR® LED

With a growing number of approved ENERGY STAR LED lamps available, Hawaii Energy was able to create a prescriptive incentive for ENERGY STAR LED lamps. This new LED offering achieved energy savings of 4,749,757 kWh this past year and increased the popularity of LEDs as energy efficiency options for the Program's customers. In addition to increasing the usage of LEDs, the offering encouraged customers to upgrade their controls to take full advantage of the LED lamp incentive. For example, a large hotel replaced 180 halogen lamps with dimmable LED lamps in their lobby areas and installed dimmable switches to achieve additional energy savings. These projected energy savings motivated them to evaluate their entire chain of hotels for additional LED lighting retrofits for Program Year 2012.

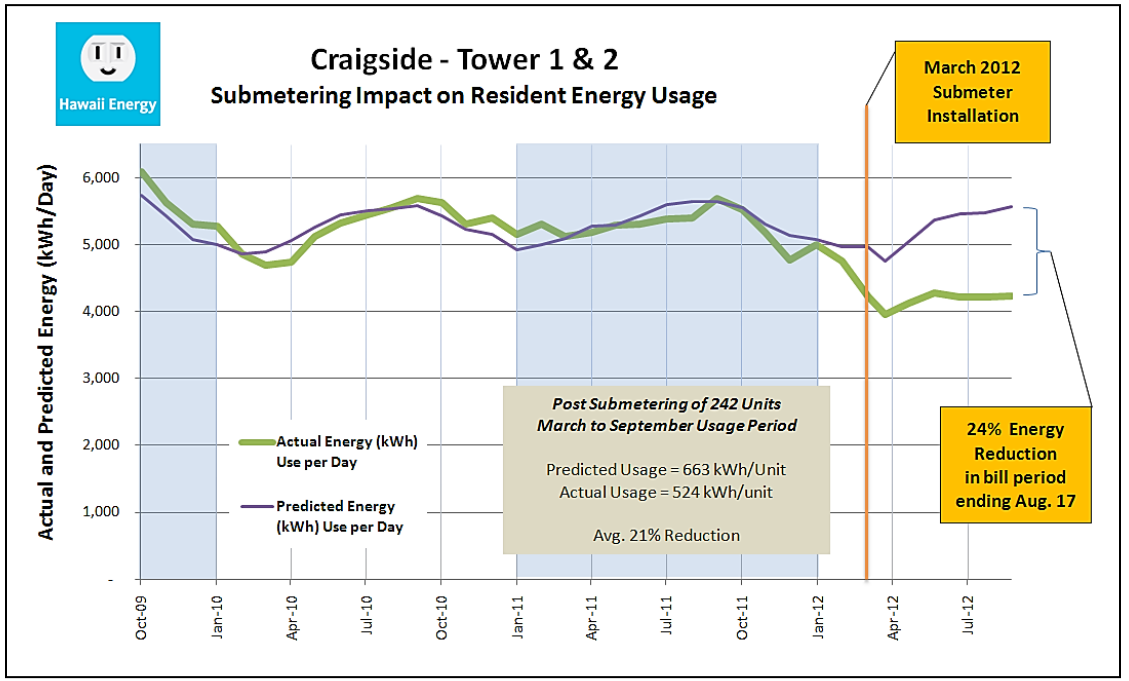
Cool Roof Technology

This offering introduced cool roof technology with an increased incentive of 25% of the incremental cost for switching from standard to ENERGY STAR roofing materials. The higher incentive was a limited time offer to introduce the technology. The offering invigorated several projects for a chain of supermarkets and warehouses. These businesses were stimulated to pursue additional energy conservation and efficiency measures, creating greater participation in the Business Program. In total, this offering achieved savings of 96,285 kWh and 44 kW savings in PY11.

Condominium Submetering

The offering was designed to ensure fairness when allocating energy costs among dwellings, as well as to encourage energy conservation through direct feedback and financial responsibility for personal energy use. For the AOAO, submetering presented a great opportunity to eliminate their largest variable cost: energy. A carryover from PY10, the first projects were completed in PY11 and achieved savings of 52,064 kWh and 11 kW savings.

The Craigside Condominium Board approved the installation of submeters in each tenant's unit. Third-party submetering provides master-metered condo buildings with individual tenant meters, so each resident pays only for the amount of electricity used. Submetering can reduce energy consumption by 10-25%. At Craigside, 426 units were submetered, which will save the condo 116,298 kWh/year.



BEEM Program Impacts

For PY11, the BEEM Program achieved savings of 34,929,190 kWh (first year) and 5,262 kW savings with $4,532,253 in incentives. In relative terms, 29.7% of Hawaii Energy's incentives captured 27.1% kWh (first year) and 30.5% kW of the demand first year savings for PY11. **Table 47** provides further details.

- **# 1 Contributor to BEEM – CFLs (37%)**
  CFL's were the largest contributor to the BEEM Program savings with energy (first year) and demand savings of 12,879,268 kWh and 1,660 kW, respectively.

- **# 2 Contributor to BEEM – T8/T8LW High Efficiency Lighting (15%)**
  T8 to T8 low wattage lighting was the second largest contributor to the BEEM Program savings with energy (first year) and demand savings of 6,618,558 kWh and 970 kW, respectively.

Table 47 - BEEM Program Impacts

PY11 BEEM - Business Energy Efficiency Measures Program Impacts

	Category	Applications / Projects	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	T8 /T8LW	286	970	18%	6,618,558	19%	86,811,781	28%	13.1	1.5	$10,146,927	27%	$ 6,883,020	26%	$ 910,886	20%
2	Chiller Plant Retrofits	17	416	8%	2,013,062	6%	40,261,231	13%	20.0	1.3	$ 4,695,447	12%	$ 3,696,130	14%	$ 452,445	10%
3	CFL	116	1,660	32%	12,879,268	37%	38,637,805	13%	3.0	6.6	$ 5,367,973	14%	$ 811,420	3%	$ 123,524	3%
4	HVAC - Packaged/Split	133	356	7%	2,157,062	6%	32,355,927	11%	15.0	0.7	$ 3,838,002	10%	$ 5,335,476	20%	$ 772,135	17%
5	LED	178	649	12%	4,749,757	14%	26,750,471	9%	5.6	1.8	$ 3,528,835	9%	$ 1,985,502	7%	$ 567,215	13%
6	VFD Applications	75	436	8%	1,919,991	5%	23,194,100	8%	12.1	2.7	$ 3,331,473	9%	$ 1,250,849	5%	$ 198,895	4%
7	Delamp/Reflector	68	120	2%	926,038	3%	12,962,856	4%	14.0	12.5	$ 1,451,080	4%	$ 115,780	0%	$ 103,357	2%
8	VRF AC Systems	138	88	2%	816,139	2%	12,236,036	4%	15.0	1.3	$ 1,270,998	3%	$ 971,585	4%	$ 355,310	8%
9	Window Tinting	52	251	5%	947,544	3%	9,475,437	3%	10.0	1.3	$ 1,523,710	4%	$ 1,178,600	4%	$ 237,143	5%
10	HID Pulse Start	17	41	1%	434,267	1%	6,079,743	2%	14.0	1.4	$ 623,179	2%	$ 444,716	2%	$ 56,199	1%
11	Commercial Kitchen Equipment	9	39	1%	226,264	1%	3,393,960	1%	15.0	1.5	$ 407,807	1%	$ 267,644	1%	$ 32,100	1%
12	Refrigerator with Recycling	310	9	0%	205,893	1%	2,878,554	1%	14.0	0.7	$ 255,869	1%	$ 372,000	1%	$ 38,675	1%
13	Delamping	18	17	0%	201,165	1%	2,770,789	1%	13.8	27.0	$ 279,266	1%	$ 10,328	0%	$ 12,366	0%
14	T5 / T8HO	9	28	1%	181,521	1%	2,454,386	1%	13.5	3.8	$ 292,318	1%	$ 76,510	0%	$ 10,327	0%
15	Cool Roof Technologies	18	44	1%	96,285	0%	1,444,273	0%	15.0	0.2	$ 278,278	1%	$ 1,689,128	6%	$ 389,348	9%
16	Window AC	209	39	1%	105,585	0%	1,267,021	0%	12.0	2.4	$ 232,864	1%	$ 95,170	0%	$ 13,760	0%
17	CEE Listed Premium Efficiency Motors	52	40	1%	67,116	0%	1,006,733	0%	15.0	0.7	$ 232,150	1%	$ 325,871	1%	$ 15,177	0%
18	Refrigerator	262	11	0%	70,104	0%	981,458	0%	14.0	0.8	$ 118,284	0%	$ 157,200	1%	$ 41,200	1%
19	Sensors	106	21	0%	93,121	0%	744,967	0%	8.0	0.3	$ 115,276	0%	$ 402,960	2%	$ 109,560	2%
20	Submetering	4	11	0%	52,064	0%	624,773	0%	12.0	0.6	$ 86,639	0%	$ 143,500	1%	$ 35,250	1%
21	Clothes Washer	292	7	0%	48,686	0%	552,880	0%	11.4	0.4	$ 66,766	0%	$ 160,600	1%	$ 19,300	0%
22	Induction	11	6	0%	73,598	0%	147,196	0%	2.0	0.1	$ 18,298	0%	$ 132,729	0%	$ 19,025	0%
23	HID Pulse Start	2	1	0%	8,408	0%	117,709	0%	14.0	0.9	$ 14,681	0%	$ 16,060	0%	$ 3,155	0%
24	Ceiling Fan	111	2	0%	20,594	0%	102,968	0%	5.0	1.9	$ 13,374	0%	$ 6,885	0%	$ 6,120	0%
25	Dishwasher	146	2	0%	7,920	0%	95,040	0%	12.0	0.2	$ 13,690	0%	$ 58,400	0%	$ 7,300	0%
26	Smart Strip - Event Promotion	3	-	0%	9,052	0%	45,260	0%	5.0	1.8	$ 4,265	0%	$ 2,431	0%	$ 2,431	0%
27	High Efficiency Water Heaters - Electric Resistance	1	0	0%	130	0%	1,169	0%	9.0	0.2	$ 177	0%	$ 750	0%	$ 50	0%
	Totals	**2,643**	**5,262**	**100%**	**34,929,190**	**100%**	**307,394,522**	**100%**	**8.8**	**1.4**	**$38,207,626**	**100%**	**$26,591,243**	**100%**	**$4,532,253**	**100%**

BEEM Program Expenditures

The Program nearly distributed all BEEM operation and incentive budgets due to the popularity and demand for the Program offerings. During the Program's year-end reconciliation process, a discrepancy of ($10,332.25) was discovered, bringing the total BEEM expenditure down to $4,532,253 from an invoiced amount of $4,542,585.25 in incentives.

See **Table 48** for details.

Table 48 - BEEM Program Expenditures

	Allocations to Date	PY11 Budget R3	Percent Spent	Unspent	Percent Unspent
BEEM Operations	$ 880,009.18	$ 917,882.00	96%	$ 37,872.82	4%
BEEM Incentives	$ 4,542,585.25	$ 4,557,100.00	100%	$ 14,514.75	0%
BEEM Total	$ 5,422,594.43	$ 5,474,982.00	99%	$ 52,387.57	1%

Hawaii Energy presented an incentive check of $215,657 to the Westin Kā'anapali Ocean Resort Villas for installing over 9,500 ENERGY STAR® LED lamps and a garage ventilation control system. The estimated energy savings is over 1.9 million kWh, which will help the Resort Villas save $608,956 per year at $0.318 per kWh.

Customized Business Energy Efficiency Measures (CBEEM) Program

CBEEM Program Objective

The objective of this program is to provide a custom application and approval process for participants to receive incentives for installing non-standard energy efficiency technologies. The commercial and industrial custom incentives enable customers to invest in energy efficiency opportunities related to manufacturing processes and other technology measures that may require calculations of energy savings on a case-by-case basis 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 cooled chillers, energy management systems, exhaust ventilation control systems, high performance lighting and heat pump water heaters.

In April 2012, Hawaii Prince Hotel in Honolulu participated in Hawaii Energy's Parking Garage Ventilation Control System incentive offer. This system measures the carbon monoxide levels and adjusts the air fans accordingly. It will save the hotel over 600,000 kWh/year which equates to approximately $180,000 savings in energy costs per year.

CBEEM Program Accomplishments

ARRA Customized Program for Government and Nonprofit

This offering was a carryover from PY10. The offering 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 a custom incentive of up to 25% of the cost to purchase and install customized energy efficiency measures. The offering was restricted to projects with costs exceeding $60,000. The energy and demand savings credited to the Program was based on the proportion of the customer incentive paid with funding from the PBF, relative to the entire incentive (PBF plus ARRA funding). This offering provided a total incentive of $1,047,570 of which ARRA contributed $872,550. Total customer-level energy savings is estimated to be 1,501,863 kWh annually.

Garage Active Ventilation Control

The offering targeted parking garages that are mechanically ventilated 24 hours a day, 7 days a week. Since ventilation systems are designed for maximum capacity conditions, there were opportunities to reduce the operating speeds and runtimes during times of lower traffic periods. The incentive for energy savings was 18 cents/kWh (not to exceed project cost), but no demand savings incentive was given. Energy savings of 91,106,431 kWh and demand savings of 470 kW were achieved in PY11.

CBEEM Program Impacts

For PY11, the CBEEM Program achieved savings of 22,519,610 kWh (first year) and 2,526 kW savings with $2,557,244 in incentives. In relative terms, 16.7% of Hawaii Energy's incentives captured 17.5% kWh (first year) and 14.6 % kW of the demand first year savings for PY11. **Table 49** provides a detailed breakout of the program.

- **#1 Contributor to CBEEM – Garage Active Ventilation Control (26.2%)**
  Garage Active Ventilation Control was the largest contributor to CBEEM Program savings with energy (first year) and demand savings of 5,902,799 kWh and 470 kW, respectively.

- **#2 Contributor to CBEEM – Custom LED (18.0%)**
  Custom LEDs were the second largest contributor to CBEEM Program savings with energy (first year) and demand savings of 4,042,531 kWh and 584 kW, respectively.

Table 49 - CBEEM Program Impacts

PY11 CBEEM - Customized Business Energy Efficiency Measures Program Impacts

	Category	Applications / Projects	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	CO Garage Exhaust Control	17	470	19%	5,902,799	26%	91,106,431	28%	15.4	8.2	$ 8,725,544	27%	$ 1,068,914	6%	$ 694,115	27%
2	Low E Glass w/ Wall Insulation	10	340	13%	2,643,692	12%	65,747,643	21%	24.9	2.6	$ 5,870,806	18%	$ 2,219,904	13%	$ 246,547	10%
3	HVAC Controls	5	246	10%	2,671,083	12%	41,677,789	13%	15.6	3.7	$ 4,057,297	12%	$ 1,091,743	6%	$ 301,185	12%
4	VFD Applications	11	194	8%	1,522,548	7%	23,125,292	7%	15.2	2.1	$ 2,509,690	8%	$ 1,211,900	7%	$ 169,787	7%
5	LED	121	584	23%	4,042,531	18%	22,272,342	7%	5.5	0.9	$ 3,045,135	9%	$ 3,486,529	20%	$ 393,080	15%
6	T8 /T8LW	12	110	4%	878,957	4%	12,036,199	4%	13.7	2.7	$ 1,340,036	4%	$ 503,852	3%	$ 83,261	3%
7	Air Cooled Chiller	8	102	4%	410,656	2%	7,370,354	2%	17.9	1.0	$ 982,693	3%	$ 957,071	5%	$ 54,442	2%
8	Hotel Guestroom HVAC Control	3	86	3%	586,723	3%	7,318,874	2%	12.5	4.3	$ 868,428	3%	$ 204,300	1%	$ 49,371	2%
9	Fresh Water Pumping Motors	1	-	0%	485,850	2%	7,287,752	2%	15.0	4.8	$ 556,242	2%	$ 115,000	1%	$ 47,897	2%
10	Refrigeration	5	52	2%	450,229	2%	6,992,952	2%	15.5	1.3	$ 732,693	2%	$ 569,090	3%	$ 53,251	2%
11	Chiller Plant Retrofits	6	36	1%	295,210	1%	4,716,232	1%	16.0	0.1	$ 497,990	2%	$ 3,862,501	22%	$ 173,561	7%
12	Customized Project Measures	1	37	1%	279,944	1%	4,199,166	1%	15.0	4.5	$ 464,090	1%	$ 102,300	1%	$ 23,250	1%
13	T5 / T8HO	9	60	2%	385,293	2%	4,164,438	1%	10.8	1.1	$ 521,274	2%	$ 466,625	3%	$ 33,425	1%
14	Solar Thermal Dehumidification	1	-	0%	249,960	1%	3,749,405	1%	15.0	6.0	$ 286,176	1%	$ 48,000	0%	$ 24,637	1%
15	EC Motors and Controllers	7	28	1%	241,744	1%	3,626,163	1%	15.0	9.6	$ 383,111	1%	$ 39,996	0%	$ 27,822	1%
16	Central Plant Optimization	1	23	1%	164,356	1%	2,465,336	1%	15.0	2.8	$ 274,956	1%	$ 98,199	1%	$ 19,676	1%
17	PC Power Management	10	-	0%	348,519	2%	2,391,494	1%	6.9	9.9	$ 213,721	1%	$ 21,546	0%	$ 21,474	1%
18	Commercial Lighting	11	60	2%	381,186	2%	2,372,042	1%	6.2	1.3	$ 315,267	1%	$ 251,961	1%	$ 35,707	1%
19	Solar Thermal Water Heating	7	42	2%	152,441	1%	2,197,207	1%	14.4	1.4	$ 331,337	1%	$ 242,902	1%	$ 17,376	1%
20	Bi-Level Stairwell And Parking Garage Lighting.	4	13	1%	151,272	1%	1,982,695	1%	13.1	0.9	$ 199,695	1%	$ 212,737	1%	$ 16,976	1%
21	Heat Pumps	2	3	0%	60,254	0%	1,152,210	0%	19.1	0.1	$ 94,536	0%	$ 656,795	4%	$ 15,196	1%
22	EMCS Linked Thermostats	17	25	1%	139,737	1%	936,590	0%	6.7	1.9	$ 132,126	0%	$ 70,043	0%	$ 13,633	1%
23	Submetering	2	11	0%	53,837	0%	807,552	0%	15.0	0.8	$ 105,031	0%	$ 133,500	1%	$ 39,985	2%
24	HID Pulse Start	1	2	0%	12,034	0%	168,469	0%	14.0	3.1	$ 20,286	0%	$ 6,506	0%	$ 1,046	0%
25	MR16	1	2	0%	4,765	0%	23,823	0%	5.0	0.2	$ 4,931	0%	$ 26,799	0%	$ 294	0%
26	Vending Miser	1	-	0%	3,989	0%	19,947	0%	5.0	20.9	$ 1,881	0%	$ 90	0%	$ 250	0%
	Totals	**274**	**2,526**	**100%**	**22,519,610**	**100%**	**319,908,401**	**100%**	**14.2**	**1.8**	**$ 32,534,972**	**100%**	**$ 17,668,804**	**100%**	**$ 2,557,244**	**100%**

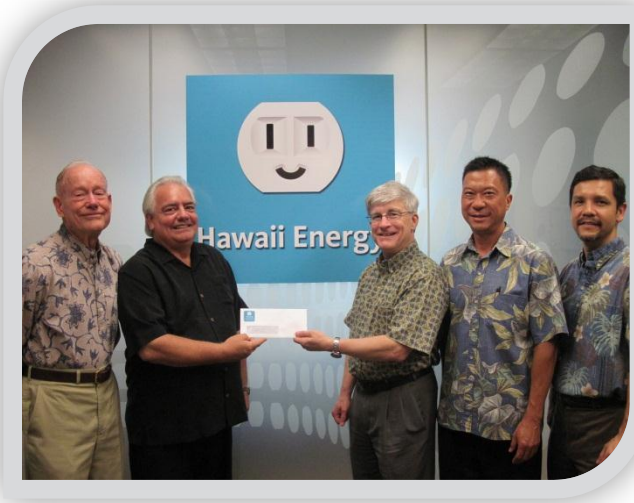
CBEEM Program Expenditures

The Program nearly distributed all CBEEM operation and incentive budgets due to the popularity and demand for the Program offerings. During the Program's year-end reconciliation process, a discrepancy of ($428,863.59) was discovered, bringing the total CBEEM expenditure down to $2,557,244 from an invoiced amount of $2,986,107.59 in incentives. This was primarily due to two projects being recategorized from CBEEM to BESM.

See **Table 50** for details.

Table 50 - CBEEM Program Expenditures

	Allocations to Date	PY11 Budget R3	Percent Spent	Unspent	Percent Unspent
CBEEM Operations	$ 693,225.70	$ 856,259.00	81%	$ 163,033.30	19%
CBEEM Incentives	$ 2,986,107.59	$ 3,389,833.00	88%	$ 403,725.41	12%
CBEEM Total	$ 3,679,333.29	$ 4,246,092.00	87%	$ 566,758.71	13%



In December 2011, Royal Iolani's AOAO participated in Hawaii Energy's customized ARRA co-funded offer. The condominium replaced both a chiller and aging cooling tower with energy-efficient equipment and technologies. The total project saved the condominium over 400,000 kWh/year which equates to approximately $120,000 savings in energy costs per year.

Business Energy Service and Maintenance (BESM) Programs

BESM Program Objective

The objective of this program was to help target sectors that are currently underserved such as retail and small businesses. Additionally, this program conducted a more aggressive outreach effort to lighting and electrical contractors by offering training, education, promotional materials and frequent communications on program updates.

BESM Program Accomplishments

Small Business Direct Install Lighting (SBDIL)

This offering targeted small businesses that have limited time and expertise to research lighting technology options, secure financing and hire contractors to replace their older, less efficient lighting technologies. This offering provided full energy-efficient lighting retrofits to small businesses on Oahu, Maui and Hawaii counties. Small business customers that were either (1) a Schedule "G" rate class or (2) under master-metered accounts were eligible for this offer. Trade Allies recruited small businesses to participate, performed audits and executed the retrofits. This direct installation grant approach achieved first year customer level energy and demand savings of 1,543,441 kWh and 189 kW.

Central Plant Optimization Program

For businesses with a central chiller plant, this program sought to install a central chiller plant metering and data logging system at no cost to the customer. Such systems provide actual tons of cooling and measured efficiency (i.e., kW per ton) in real-time and historical trends, while providing the capacity for businesses to take next steps in improving their energy efficiency. This offering provided an incentive of $266,315 for six projects in PY11. Due to the length of time to optimize the central plant operation, the energy savings will be realized in PY12.

Queen's Medical Center is one of 10 current active chiller plant benchmarking and central plant optimization projects. Retro commissioning of Queen's Medical Center's chiller plant is in its final phase and there is high optimism for the annual electrical savings to exceed 500,000 kWh simply through operational changes. This project gives the staff a better knowledge and understanding of how to operate its central chiller plant efficiently. The real time monitoring creates the opportunity for them to set meaningful energy efficiency goals and track their progress towards these goals.

Energy Project Catalyst

The objective of this offering was to spur stalled high-impact energy efficiency projects to completion. In PY11, the PBFA was instrumental in moving two such projects. The first was originally an ARRA-funded project that failed to meet the ARRA funding deadline due to delays with the State Building Department permitting. Since the ARRA deadline could not be extended, the customer was going to forgo the project entirely. However, with $346,026 of incentives from the PBFA, the project moved forward, delivering 921,632 kWh in energy savings. The second project involved a hotel, which had budgeted funds to improve the aesthetics of their hallways, but was not planning to upgrade its HVAC system even though it was over 20 years old. With the higher incentives of $75,000 offered under this program, the customer committed the funds to upgrade the HVAC system that was near end-of-life, achieving energy savings of 157,271 kWh.

HTDC MEP Green Manufacturing – Energy Study

These energy studies were undertaken in conjunction with the High Technology Development Corporation (HTDC) and funded through the Manufacturing Extension Partnership (MEP) program. The PBFA and HTDC were able to provide 100% funding for these energy studies, which were performed on the behalf of a limited number of small to medium-sized manufacturers. A requirement of the offering was that the manufacturer had to commit towards implementing future energy conservation measures within a year of completion of study in an amount equal to 25% of the study's cost. While funding supported six (6) energy studies in PY11, energy savings will likely be realized in PY12 and PY13.

In May 2012, we presented a $346,026 incentive check to the Honolulu Museum of Art for its extensive energy-efficient retrofit to HVAC and control systems. It is the largest check given to date to a nonprofit organization. The retrofit has reduced the museum's electricity by 28 percent, which saves an estimated $250,000 annually.

BESM Program Impacts

For PY11, the BESM Program achieved savings of 2,045,013 kWh (first year) and 236 kW savings with $1,217,580 in incentives. In relative terms, 8.0% of Hawaii Energy's incentives captured 1.6% kWh (first year) and 1.3% kW of the demand first year savings for PY10.

Table 51 provides a detailed breakout of the program.

- **#1 Contributor to BESM – Energy Project Catalyst (52.8%)**
  The Energy Project Catalyst offer was comprised of Chiller Plant Retrofits and Air Cooled Chiller incentives and was the largest contributor to the BESM Program with energy (first year) and demand savings of 1,078,903 kWh and 125 kW, respectively.

- **#2 Contributor to BESM – Small Business Direct Install Lighting (47.2%)**
  Small Business Direct Install Lighting offer was comprised of T8/T8LW, LED, FB40 to F17, CFL and Custom Lighting incentives and was the second largest contributor to the BESM Program with energy (first year) and demand savings of 966,109 kWh and 111 kW, respectively.

Table 51 - BESM Program Impacts

PY11 BESM - Business Energy Services and Maintenance Program Impacts

	Category	Applications / Projects	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	Chiller Plant Retrofits	1	105	45%	921,632	45%	13,824,483	50%	15.0	0.9	$1,459,752	50%	$1,566,500	57%	$ 346,026	28%
2	T8 /T8LW	414	65	28%	698,202	34%	9,774,823	35%	14.0	2.6	$1,001,185	34%	$ 380,135	14%	$ 380,135	31%
3	Air Cooled Chiller	1	20	8%	157,271	8%	2,359,064	9%	15.0	1.1	$ 255,918	9%	$ 225,000	8%	$ 75,000	6%
4	LED	110	42	18%	229,936	11%	1,149,682	4%	5.0	2.1	$ 173,824	6%	$ 82,233	3%	$ 82,233	7%
5	FB40 to F17	11	3	1%	18,954	1%	265,363	1%	14.0	4.9	$ 32,188	1%	$ 6,565	0%	$ 6,565	1%
6	CFL	24	1	0%	11,816	1%	165,425	1%	14.0	20.6	$ 16,853	1%	$ 820	0%	$ 1,066	0%
7	Custom Lighting	5	-	0%	7,201	0%	62,627	0%	8.7	2.4	$ 5,233	0%	$ 2,212	0%	$ 2,212	0%
8	Central Plant Optimization	16	-	0%	-	0%	-	0%		-	$ -	0%	$ 383,064	14%	$ 266,315	22%
9	Submetering	1		0%		0%		0%		-		0%	$ 7,017	0%	$ 7,017	1%
10	Energy Study	4		0%		0%		0%		-		0%	$ 57,219	2%	$ 36,011	3%
11	Design Assistance	1		0%		0%		0%		-		0%	$ 30,000	1%	$ 15,000	1%
	Totals	**588**	**236**	**100%**	**2,045,013**	**100%**	**27,601,468**	**100%**	**13.5**	**1.1**	**$2,944,953**	**100%**	**$2,740,765**	**100%**	**$1,217,580**	**100%**

BESM Program Expenditures

The Program had a material surplus in the CBEEM incentive budgets due to a significant backlog of committed projects including Central Plant Optimization and Small Business Direct Install Lighting projects on all islands, particularly Lanai. During the Program's year-end reconciliation process, a discrepancy of $444,000.09 was discovered, bringing the total CBEEM expenditure up to $1,217,580 from an invoiced amount of $773,579.91 in incentives. This was primarily due to two projects being recategorized from CBEEM to BESM.

See **Table 52** for details.

Table 52 - BESM Program Expenditures

	Allocations to Date	PY11 Budget R3	Percent Spent	Unspent	Percent Unspent
BESM Operations	$ 400,969.06	$ 407,373.00	98%	$ 6,403.94	2%
BESM Incentives	$ 773,579.91	$ 2,237,000.00	35%	$ 1,463,420.09	65%
BESM Total	$ 1,174,548.97	$ 2,644,373.00	44%	$ 1,469,824.03	56%

Ba-Le reduced its energy consumption by 239,061 kWh through participation in several of our retrofit incentive offers. Energy-saving measures included delamping T8 and T5 lamps in the warehouse and food processing areas, as well as applying cool roof technology to its 74,811 sq. ft. rooftop. In addition, Ba-Le also conducted an energy study – a free service co-funded by HTDC and Hawaii Energy to manufacturing sectors – to identify areas where it could reduce electrical and refrigeration load consumption.

Business Hard-to-Reach (BHTR) Program

BHTR Program Objective

The objective of this program was to help targeted geographies and demographics that have been traditionally underserved such as retail, restaurants and other small businesses. Additionally, this program conducted more aggressive outreach to lighting and electrical contractors with training, promotional materials and frequent communications on program updates.

BHTR Program Accomplishments

Direct Install Restaurant Lighting Retrofit (DIRLR)

This offering targeted restaurants that have limited time and expertise to research lighting technology options, secure financing and hire contractors to replace their older, less efficient lighting technologies. This offering provided full energy-efficient lighting retrofits to restaurants on Oahu, Maui and Hawaii County at no cost to the customer. Trade allies recruited small businesses to participate, performed audits and executed the retrofits. This direct installation approach achieved first year customer level energy and demand savings of 273,651 kWh and 78 kW.

Lighting the Future

This offering was a carryover from PY10. Hawaii Energy provided free LED lamps to qualifying small businesses and non-profits. This effort was well-received by a commercial demographic that had traditionally been underserved. The offering achieved energy savings of 1,383,753 kWh and 122 kW savings in PY11.

Interisland Terminal, an arts-focused non-profit, received free LED lamps for this office space through our Lighting the Future offer. New lamps helped to control energy costs.

Small Business Direct Install Kitchen Exhaust Hood Demand Ventilation Control

This pilot offering had eight (8) participating restaurants, but due to the lack of equipment on island the projects had to be deferred to PY12.

BHTR Program Impacts

For PY11, the BHTR Program achieved savings of 1,657,404 kWh (first year) and 200 kW savings with $246,298 in incentives. In relative terms, 1.6% of the PBFA's incentives captured 1.3% kWh (first year) and 1.2% kW of the demand first year savings for PY11. **Table 53** provides the detailed measures contributing to this program.

#1 Contributor to BHTR – Lighting the future (83.5%)

Lighting the Future offer was comprised of LED incentives and was the only BHTR Program with energy (first year) and demand savings of 1,383,753 kWh and 122 kW, respectively.

Table 53 - BHTR Program Impacts

PY11 BHTR - Business Hard to Reach Program Impacts

Category	Applications / Projects	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	230	175	88%	1,465,743	88%	7,328,714	73%	5.0	1.9	$ 963,362	76%	$497,109	85%	$159,396	65%
T8 /T8LW	91	24	12%	164,108	10%	2,297,512	23%	14.0	3.4	$ 266,200	21%	$ 78,565	13%	$ 78,565	32%
FB40 to F17	6	1	1%	18,512	1%	259,166	3%	14.0	4.4	$ 23,955	2%	$ 5,460	1%	$ 5,460	2%
Custom Lighting	6	-	0%	7,386	0%	103,410	1%	14.0	3.0	$ 8,070	1%	$ 2,734	0%	$ 2,734	1%
CFL	4	0	0%	1,655	0%	23,176	0%	14.0	18.3	$ 2,011	0%	$ 110	0%	$ 143	0%
Totals	**337**	**200**	**100%**	**1,657,404**	**100%**	**10,011,977**	**100%**	**6.0**	**2.2**	**$1,263,598**	**100%**	**$583,978**	**100%**	**$246,298**	**100%**

#2 Contributor to BHTR – Direct Install Restaurant Lighting Retrofit (16.5%)

Direct Install Restaurant Lighting Retrofit offer was comprised of LED, T8/T8LW, FB40 to F17, Custom Lighting and CFL incentives and was the only BHTR Program with energy (first year) and demand savings of 273,651 kWh and 78 kW, respectively.

BHTR Program Expenditures

The Program had a material surplus in the BHTR incentive budget due to the constrained availability of materials and participating contractors being fully booked with these projects through the remainder of the program year. During the Program's year-end reconciliation process, a discrepancy of $9,203.64 was discovered, bringing the total BHTR expenditure up to $237,094.36 from an invoiced amount of $237,094.36 in incentives. This was primarily due to a few transactions being recategorized from BEEM to BHTR. See **Table 54** for details.

Table 54 - BHTR Program Expenditures

	Allocations to Date	PY11 Budget R3	Percent Spent	Unspent	Percent Unspent
BHTR Operations	$ 352,160.53	$ 375,005.00	94%	$ 22,844.47	6%
BHTR Incentives	$ 237,094.36	$ 802,000.00	30%	$ 564,905.64	70%
BHTR Total	$ 589,254.89	$ 1,177,005.00	50%	$ 587,750.11	50%

RESIDENTIAL PROGRAM PERFORMANCE

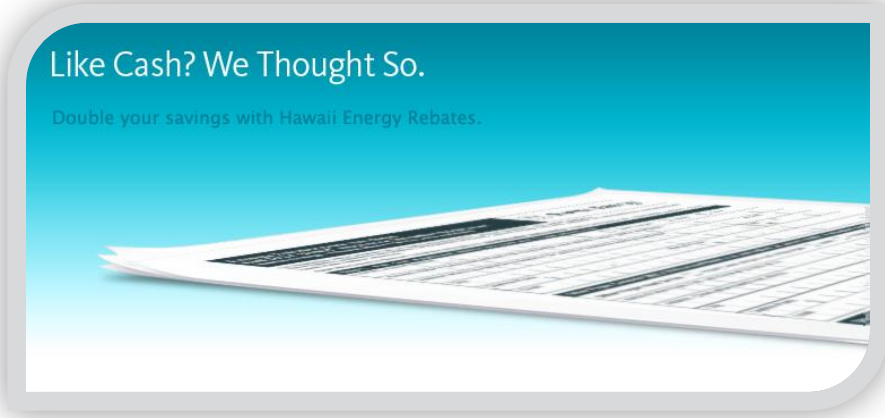
Hawaii Energy

For PY11, Hawaii Energy's Residential Program achieved savings of 67,634,348 kWh (first year) and 9,035 kW savings with $6,685,065 in incentives. In relative terms, 43.7% of Hawaii Energy's incentives captured 52.5% and 52.3% of kWh (first year) and kW savings, respectively. See **Table 55.**

Table 55 - Residential Program Summary Impacts

PY11 Residential Program Impacts

Category	Applications / Projects	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	43,295	8,747	96.8%	65,511,035	96.9%	406,824,762	95.2%	6.2	1.6	$52,443,235	98.9%	$33,338,224	97.8%	$ 6,000,630	89.8%
RESM	335	8	0.1%	91,481	0.1%	811,559	0.2%	8.9	0.6	$ 75,950	0.1%	$ 128,846	0.4%	$ 73,596	1.1%
RHTR	249	280	3.1%	2,032,234	3.0%	19,564,571	4.6%	9.6	0.8	$ 486,950	0.9%	$ 610,840	1.8%	$ 610,840	9.1%
Total	**43,879**	**9,035**	**100.0%**	**67,634,348**	**100.0%**	**427,200,893**	**100.0%**	**6.3**	1.6	**$53,006,135**	**100.0%**	**$34,077,910**	**100.0%**	**$ 6,685,065**	**100.0%**



Residential Program Expenditures

The Hawaii Energy residential team broadened its attention beyond the REEM Program in PY11 with a particular focus on the hard-to-reach sector, or RHTR. Notable this year was the incentive surplus, which totaled nearly $2.3M, despite achieving the Program's first year kWh goal. See **Table 56** for details. In addition to having a large project committed through the beginning of PY12 (see RHTR), the driver of this surplus was a shift of the public's attention to the renewable PV markets and lack of contractor interest in pursuing larger Solar Thermal Water Heating projects despite an enhanced rebate levels.

During the Program's year-end reconciliation process, a discrepancy of $(61,279.19) was discovered, bringing the total Residential expenditure down to $6,685,065 from an invoiced amount of $6,746,344.19 in incentives.

Table 56 - Residential Program Expenditures

	Allocations to Date	PY11 Budget R3	Percent Spent	Unspent	Percent Unspent
Residential Programs					
Residential Program Ops and Management					
REEM	$ 2,245,588.53	$ 2,263,983.00	99%	$ 18,394.47	1%
RESM	$ 39,873.84	$ 46,146.00	86%	$ 6,272.16	14%
RHTR	$ 159,140.67	$ 171,861.00	93%	$ 12,720.33	7%
Total Residential Programs	$ 2,444,603.04	$ 2,481,990.00	98%	$ 37,386.96	2%
Residential Market Evaluation	$ 24,994.24	$ 30,100.00	83%	$ 5,105.76	17%
Residential Outreach	$ 814,699.66	$ 830,950.00	98%	$ 16,250.34	2%
Total Residential Non-Incentive	$ 3,284,296.94	$ 3,343,040.00	98%	$ 58,743.06	2%
Residential Incentives	$ -				
REEM	$ 6,018,551.81	$ 7,681,438.00	78%	$ 1,662,886.19	22%
RESM	$ 73,238.69	$ 608,000.00	12%	$ 534,761.31	88%
RHTR	$ 654,553.69	$ 699,053.00	94%	$ 44,499.31	6%
Subtotal Residential Incentives	$ 6,746,344.19	$ 8,988,491.00	75%	$ 2,242,146.81	25%
Residential Transformational	$ 959,961.54	$ 987,505.00	97%	$ 27,543.46	3%
Total Residential Incentives	$ 7,706,305.73	$ 9,975,996.00	77%	$ 2,269,690.27	23%
Total Residential Programs	**$ 10,990,602.67**	**$ 13,319,036.00**	**83%**	**$ 2,328,433.33**	**17%**

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, involving CFLs, was administered through indirect upstream incentives to customers via lighting distributors and manufacturers. Second to the CFL offering, was the High Efficiency Appliances offering, followed by High Efficiency Water Heating.

REEM Program Impacts

For PY11, the REEM Program achieved savings of 65,511,035 kWh (first year) and 8,747 kW savings with $6,000,750 in incentives. In relative terms, 89.8% of Residential Program incentives captured 50.9% and 50.7% of kWh (first year) and kW savings, respectively. See **Table 57** for details.

The three largest contributors were:

#1 Contributor to REEM – CFLs (81.1%)
CFLs were the largest contributor to the REEM Program savings with energy (first year) and demand savings of 53,153,208 kWh and 7,321 kW, respectively.

#2 Contributor to REEM – Refrigerator with Trade-In (5.5%)
The Refrigerator with Trade-In program marketed as "Trade-Up for Cool Cash" was the second largest contributor to the REEM Program savings with energy (first year) and demand savings of 3,569,799 kWh and 148 kW, respectively.

#3 Contributor to REEM – Solar Thermal Water Heating (5.0%)
Solar thermal water heating was the third largest contributor to the REEM Program savings with energy (first year) and demand savings of 3,278,371 kWh and 730 kW, respectively.

Table 57 - REEM Program Impacts

PY11 REEM - Residential Energy Efficiency Measures Program Impacts

	Category	Applications / Projects	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	1,817,472	7,321	84%	53,153,208	81%	265,766,040	65%	5.0	10.0	$36,431,019	69%	$ 3,634,944	11%	$ 2,048,253	34%
2	Refrigerator Trade-In	5,372	148	2%	3,569,799	5%	49,977,189	12%	14.0	0.7	$ 4,441,765	8%	$ 6,446,400	19%	$ 671,500	11%
3	Solar Thermal Water Heating	2,133	730	8%	3,278,371	5%	49,175,571	12%	15.0	0.5	$ 6,562,368	13%	$14,077,800	42%	$ 1,531,650	26%
4	Clothes Washer	7,285	165	2%	1,212,557	2%	13,747,127	3%	11.3	0.4	$ 1,660,442	3%	$ 4,006,750	12%	$ 484,825	8%
5	Refrigerator/Freezer Recycling - Bounty	1,047	28	0%	712,373	1%	9,973,228	2%	14.0	26.0	$ 881,889	2%	$ 33,885	0%	$ 81,395	1%
6	Refrigerator (Legacy & < $600)	4,044	55	1%	342,630	1%	4,796,823	1%	14.0	0.2	$ 579,088	1%	$ 2,427,600	7%	$ 205,200	3%
7	Heat Pumps	243	51	1%	295,144	0%	2,751,024	1%	9.3	0.9	$ 373,708	1%	$ 437,400	1%	$ 47,700	1%
8	Split System AC	220	41	0%	205,435	0%	2,465,218	1%	12.0	0.8	$ 335,406	1%	$ 431,734	1%	$ 24,750	0%
9	Ceiling Fan	2,097	45	1%	398,218	1%	1,991,092	0%	5.0	1.9	$ 258,659	0%	$ 132,750	0%	$ 118,000	2%
10	Residential Peer Group Comparison	73,000	-	0%	1,704,648	3%	1,704,648	0%	1.0	0.3	$ 171,147	0%	$ 537,377	2%	$ 537,377	9%
11	VRF AC Systems	159	25	0%	88,842	0%	1,066,098	0%	12.0	0.4	$ 168,553	0%	$ 389,484	1%	$ 32,200	1%
12	LED	11,918	29	0%	159,490	0%	797,452	0%	5.0	0.5	$ 120,064	0%	$ 238,360	1%	$ 119,180	2%
13	Whole House Fan	169	74	1%	148,075	0%	740,373	0%	5.0	8.4	$ 184,463	0%	$ 21,840	0%	$ 13,650	0%
14	Dishwasher	901	11	0%	48,770	0%	585,242	0%	12.0	0.2	$ 84,291	0%	$ 360,400	1%	$ 45,050	1%
15	Window AC	132	20	0%	39,841	0%	478,087	0%	12.0	2.1	$ 105,679	0%	$ 50,328	0%	$ 6,650	0%
16	Smart Strip - Event Promotion	17	-	0%	78,619	0%	393,093	0%	5.0	1.7	$ 37,045	0%	$ 21,182	0%	$ 21,182	0%
17	Solar Attic Fans	117	2	0%	60,148	0%	300,740	0%	5.0	1.5	$ 31,024	0%	$ 21,000	0%	$ 6,125	0%
18	High Efficiency Water Heaters - Electric Resistance	84	2	0%	10,847	0%	97,626	0%	9.0	0.2	$ 14,776	0%	$ 63,000	0%	$ 3,830	0%
19	Whole House Energy Metering	23	0	0%	4,021	0%	20,103	0%	5.0	0.5	$ 2,110	0%	$ 4,600	0%	$ 2,233	0%
	Totals	**1,926,433**	**8,747**	**100%**	**65,511,035**	**100%**	**406,826,773**	**100%**	**6.2**	**1.6**	**$52,443,496**	**100%**	**$33,336,834**	**100%**	**$ 6,000,750**	**100%**

REEM Program Expenditures

In PY11, the Program realized a surplus of $1.6M primarily due to the soft solar thermal water heating market. During the Program's year-end reconciliation process, a discrepancy of ($17,801.81) was discovered, bringing the total REEM expenditure down to $6,000,750 from an invoiced amount of $6,018,551.81 in incentives.

See **Table 58** for details.

Table 58- REEM Program Expenditures

	Allocations to Date	PY11 Budget R3	Percent Spent	Unspent	Percent Unspent
REEM Operations	$ 2,245,588.53	$ 2,263,983.00	99%	$ 18,394.47	1%
REEM Incentives	$ 6,018,551.81	$ 7,681,438.00	78%	$ 1,662,886.19	22%
REEM Total	$ 8,264,140.34	$ 9,945,421.00	83%	$ 1,681,280.66	17%

REEM Program Overall Accomplishments (individual incentive accomplishments follow)

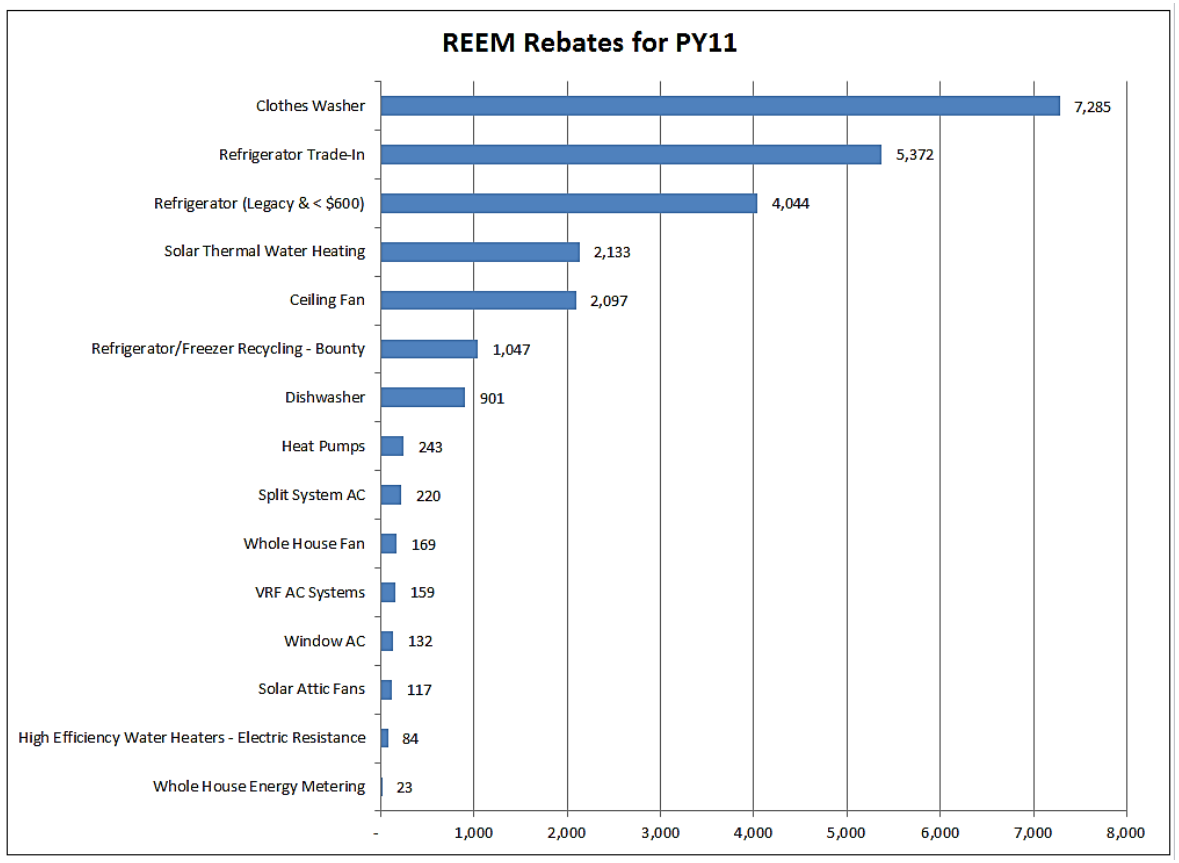
Popular Offerings – **Table 59** summarizes the participation of REEM incentives by measure. The table demonstrates the popularity of the ENERGY STAR® related incentives. In PY11, a number of mid-year refinements were made to minimize "free ridership", including:

- Elimination of a $50 rebate for any refrigerator. Only models less than $600 qualified with the intention of incentivizing customers looking for the cheapest model to opt for a low-end ENERGY STAR qualified model.
- Discontinuation of rebates for high efficiency water heaters, dishwashers and window air conditioners.

Quality Customer Support – During PY11, Hawaii Energy's residential call center handled over 17,461 customer calls ranging from, "What kind of refrigerator should I buy?" to, "How I should size my solar system?" and everything in between. With the expansion of the Peer Group Comparison (OPower Home Energy Report) to the neighbor islands, the Hawaii Energy call center was successfully trained to handle the 1,149 calls, which was critical to minimizing participant attrition.

Customer Experience Management – Armed with Medallia (see page 76 in the Hawaii Energy Annual Report PY10), the Program was able to identify and resolve complaints in a timely manner. In PY11, Hawaii Energy logged only 29 complaints, which for the most part revolved around customer perception issues. The scoring for Medallia was over 9 on a scale from 1 to 10 in all three customer categories, field service, rebate satisfaction and willingness to recommend Hawaii Energy offerings.

Table 59 –REEM Rebated Units



REEM Program Accomplishments by Incentive Offering

High Efficiency Water Heating (HEWH)

For PY11, the HEWH Program achieved savings of 3,584,363 kWh (first year) and 783 kW savings with $1,583,180 in incentives. In relative terms, 26.4% of REEM incentives captured 5.5% and 9.0% of kWh (first year) and kW savings, respectively.

HEWH - Solar Water Heating (SWH)

Instant Rebate Program – With 1,756 solar thermal systems (includes solar water heater contractor incentive, solar water heater interest buy down and solar water heater $1,250) installed in PY11 per Hawaii Energy specifications, the Program saw a slight decrease in installations due to depressed market conditions and the soaring popularity of photovoltaics (PV), despite the recommended loading order (i.e. Solar thermal first, PV second). These installations include the standard $750 rebate, as well as a temporary $1,250 instant rebate offered on the neighbor islands for a limited time towards the end of PY11.

Interest Buy-Down Program – Interest buy-down, known as "Hot Water, Cool Rates," continued to remain a selling tool for the Program's participating contractors, however, when given the option, customers typically opt for a no-financing solution. While only 166 systems were installed through this offer, the Program continues to attract lenders which now numbers 19.

Solar Water Heating Inspections – 100% of the solar thermal installations for PY11 were inspected. This led to uncovering some manufacturer defects on products such as pressure relief valves and finding leaks on initial installations.

See **Table 60** for details of the High Efficiency Water Heating offers.

Table 60 - REEM HEWH Program Impacts

PY11 High Efficiency Water Heating Program Impacts

Category	Applications / Projects	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 ($)	%
Solar Water Heater Contractor Incentive	1,728	638	82%	2,867,186	80%	43,007,784	83%	15.0	0.5	5,739,247	83%	11,404,800	78%	1,280,900	81%
Solar Water Heater Interest Buydown	166	61	8%	275,851	8%	4,137,771	8%	15.0	0.5	552,196	8%	1,095,600	8%	166,000	10%
Heat Pumps	243	51	6%	295,144	8%	2,751,024	5%	9.3	0.9	373,708	5%	437,400	3%	47,700	3%
Solar Water Heater (25% - ARRA)	211	20	3%	89,146	2%	1,337,183	3%	15.0	0.1	178,458	3%	1,392,600	10%	49,750	3%
Solar Hot Water Heater ($1,250)	28	10	1%	46,189	1%	692,834	1%	15.0	0.5	92,467	1%	184,800	1%	35,000	2%
High Efficiency Water Heaters - Electric Resistance	84	2	0%	10,847	0%	97,626	0%	9.0	0.2	14,776	0%	63,000	0%	3,830	0%
Totals	**2,460**	**783**	**100%**	**3,584,363**	**100%**	**52,024,221**	**100%**	**14.5**	**0.5**	**6,950,852**	**100%**	**14,578,200**	**100%**	**1,583,180**	**100%**

Participating Contractor Meetings

Hawaii Energy continued to meet with its network of Participating Contractors on Oahu, Maui and the Hawaii. 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, the agenda was broadened from solar to all of the Program's residential offerings with the intent of transforming this bi-annual meeting into an active residential Trade Ally forum conducted in "town hall" fashion.

See **Table 61** for details Solar Water Heating systems installed by Island.

Table 61 - REEM Solar System Installations by Island

PY11 Solar Water Heating Projects by Island

Island	Installations	Total Incentive Amount	Program Level Demand Savings (kW)	Program Level Energy Savings (kWh/ 1st Yr.)	Program Level Lifetime Energy Savings (kWh/ Life)
Hawaii Island	351	$ 258,850	115	515,564	7,733,461
Maui	303	$ 225,200	104	468,911	7,033,667
Molokai	1	$ 750	0	1,652	24,785
Oahu	1,478	$ 1,046,850	510	2,292,244	34,383,657
Total	**2,133**	**$ 1,531,650**	**730**	**3,278,371**	**49,175,571**
Cost per kWh				$ 0.47	$ 0.031
Avg. Incentive per System (PBF + ARRA)		$ 718			
Avg. Incentive per System (PBF only)		$ 771			

Table 62 presents a ranking of participating contractors in terms of their activity in the REEM Solar Water Heating program.

Table 62 - REEM Solar System Installations by Participating Contractor

Participating SWH Contractors	Percent of REEM SWH Installations	Participating SWH Contractors	Percent of REEM SWH Installations
PONCHOS SOLAR SERVICE- OAHU	20.8%	RT'S PLUMBING, INC	0.4%
HAWAIIAN ISL SOLAR, INC.	8.7%	ADVANTAGE MECHANICAL PLUMBING, INC.	0.3%
SOLAR HELP HAWAII	8.6%	ALLEN'S PLUMBING - MAUI	0.3%
HALEAKALA SOLAR, INC. - MAUI	8.0%	CALVIN'S PLUMBING	0.3%
DRAINPIPE PLUMBING & SOLAR	4.7%	PHOTONWORKS, LLP	0.3%
C&J SOLAR SOLUTIONS	4.5%	ROYAL FLUSH PLUMBING	0.3%
SOLAR SERVICES HAWAII	3.9%	SUN KING - OAHU	0.3%
ENERGY UNLIMITED, INC.	3.3%	ADON CONSTRUCTION, INC. - OAHU	0.2%
ALTERNATE ENERGY - OAHU	2.9%	ALTERNATE ENERGY - MAUI	0.2%
TRUE GREEN SOLA, LLC	2.7%	PACIFIC ISLANDS CONSTRUCTION	0.2%
HAWAIIAN SOLAR & PLUMBING	2.6%	AHI, INC.	0.2%
MAUI PACIFIC SOLAR, INC.	2.4%	BUILT TO LAST PLUMBING	0.2%
ISLAND SOLAR SERVICE, INC. - OAHU	2.3%	LARRY'S PLUMBING & SOLAR, INC.	0.2%
HI-POWER SOLAR, LLC	2.1%	PROFESSIONAL ELECT' HAWAIIAN CONTRACTORS	0.2%
GIANT SOLAR, LLC	1.8%	SOLAR ENG & CONTRACTING-OAHU	0.2%
AFFORDABLE SOLAR CONTRACTING	1.7%	ALLEN'S PLUMBING - OAHU	0.1%
HALEAKALA SOLAR - OAHU	1.6%	KNIGHT'S PLUMBING, INC.	0.1%
SONSHINE SOLAR CORP.	1.5%	QUALIFIED PLUMBING	0.1%
GRAND SOLAR	1.5%	SUNNY SOLUTIONS, INC.	0.1%
PONCHO'S SOLAR SERVICE - BIG ISL	1.5%	ACCURATE PLUMBING	0.1%
BONTERRA SOLAR SERVICES	1.2%	ALAKA'I MECHANICAL CORP	0.1%
SOLAR AIDE COMPANY	1.0%	KIHEI PLUMBING	0.1%
KEITH SHIGEHARA PLUMBING, INC.	1.0%	PERRIN PLUMBING, LLC	0.1%
APOLLO SOLAR	0.8%	PONCHO'S SOLAR SERVICE - MAUI	0.1%
KONA SOLAR SERVICE, LLC	0.8%	RED OPAE PLUMBING	0.1%
PACIFIC ENERGY STRATEGIES, LLC.	0.8%	ROMEO VALLESTEROS	0.1%
W CONTRACTING INC. DBA ENERGYPRO HAWAII	0.7%	SOUTH PACIFIC PLUMBING, LLC	0.1%
COMMERCIAL PLUMBING, INC.	0.6%	TAMURA PLUMBING	0.1%
SUN KING - MAUI	0.6%	WILLIAMS PLUMBING	0.1%
HI-TECH PLUMBING CORPORATION	0.5%	**Grand Total**	**100.0%**

High Efficiency Lighting

For PY11, the High Efficiency Lighting Program achieved savings of 53,312,698 kWh (first year) and 7,350 kW savings with $2,167,433 in incentives. In relative terms, 36.1% of REEM incentives captured 36.1% and 81.4% of kWh (first year) and 84.0% kW savings, respectively.

CFLs and LEDs – With an aggressive goal, Hawaii Energy drove the CFL offering to new levels on a number of fronts. The program brought in 1,817,472 CFLS bulbs and 11,918 LEDs.

See **Table 63** for details.

Much effort was spent increasing program participation (via a signed Memorandum of Understanding) with both manufacturers and retailers. Significant retail contributions were achieved with the addition of Lowe's and their major supplier, FEIT, while Sam's Club came on board with GE-Direct. Together, these two relationships brought about 5% lift in participation. A smaller manufacturer, Greenlite signed on to supply smaller hard- to-reach niches. Although the volume was small (less than 1%), it did enhance the availability of CFLs, where before there were only incandescent options. Finally, Verbatim, a manufacturer of LEDs came on board to supply Oahu's Honolulu Design Center. In summary, new retailers included multiple locations for Lowe's, Ace Hardware, Hardware Hawaii, Price Busters, Time Supermarkets and Inspirations.

Well into the second quarter of PY11, the lighting program was seriously underperforming. Forecasts were trending to achieve only half to two-thirds of the Program's annual goal. It was at this time that the Program moved forward to employ a comprehensive marketing campaign combined with enhanced in-store merchandising and enhanced rebate levels for a limited time (see Marketing & Outreach).

The "3-CFL Challenge" launched the third quarter of PY11 with enhanced rebate levels of $1.40 during the fourth quarter of PY11. The enhanced rebate incentive did come with a requirement to carry much larger inventory levels in Hawaii by the big box participants as well, in order to meet our goal. Without these actions, it is estimated that the Program would have ended PY11 at 75% to 80% of its annual goal.

Table 63 - REEM High Efficiency Program Lighting Impacts

PY11 High Efficiency Lighting Program Impacts

Category	Applications / Projects	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	1,817,472	7,321	100%	53,153,208	100%	265,766,040	100%	5.0	10.0	36,431,019	100%	3,634,944	94%	2,048,253	95%
LED	11,918	29	0%	159,490	0%	797,452	0%	5.0	0.5	120,064	0%	238,360	6%	119,180	5%

High Efficiency Air Conditioning

For PY11, the High Efficiency Air Conditioning Program achieved savings of 940,558 kWh (first year) and 207 kW savings with $201,375 in incentives. In relative terms, 3.4% of REEM incentives captured 2.4% and 1.4% of kWh (first year) and kW savings, respectively.

Throughout PY11, Hawaii Energy offered rebates for both Split-AC Ductless Systems and Variable Refrigerant Flow (VRF) Systems. The Program noticed a shift away from standard split-AC systems to the higher efficient VRF technology.

Solar Attic Fans and Whole House Fans, introduced in PY10, continued to show steady demand. Hawaii Energy discontinued rebates for Window Air Conditioners, but honored the 132 applications submitted within the Program rules. In total, these measures accounted for 39,841 kWh and 20 kW.

See **Table 64** for details.

Table 64 - REEM High Efficiency Air Conditioning Program Impacts

PY11 High Efficiency Air Conditioning Program Impacts

Category	Applications / Projects	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 ($)	%
Split System AC	225	41	20%	205,435	22%	2,465,218	35%	12.0	0.8	335,406	31%	431,734	41%	24,750	12%
Ceiling Fan	2,950	45	22%	398,218	42%	1,991,092	28%	5.0	1.9	258,659	24%	132,750	13%	118,000	59%
VRF Split Systems	161	25	12%	88,842	9%	1,066,098	15%	12.0	0.4	168,553	16%	389,484	37%	32,200	16%
Whole House Fan	182	74	36%	148,075	16%	740,373	11%	5.0	8.4	184,463	17%	21,840	2%	13,650	7%
Window AC	132	20	10%	39,841	4%	478,087	7%	12.0	2.1	105,679	10%	50,328	5%	6,650	3%
Solar Attic Fans	140	2	1%	60,148	6%	300,740	4%	5.0	1.5	31,024	3%	21,000	2%	6,125	3%
Totals	**3,790**	**207**	**100%**	**940,558**	**100%**	**7,041,608**	**100%**	**7.5**	**1.0**	**1,083,784**	**100%**	**1,047,136**	**100%**	**201,375**	**100%**

High Efficiency Appliances

For PY11, the High Efficiency Appliances Program achieved savings of 5,886,129 kWh (first year) and 407 kW savings with $1,487,970 in incentives. In relative terms, 24.8% of REEM incentives captured 9.0% and 4.7% of kWh (first year) and kW savings, respectively.

Since PY09, Hawaii Energy has continued to expand its retail community to Hawaii and Maui counties, with a current total of 83 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 visited 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) collateral. Throughout the program year, retailers were regularly updated via email and phone calls.

As ENERGY STAR® products become more common (and non-ENERGY STAR models become less available), the Program has curtailed rebate offerings for some common ENERGY STAR products such as electric-resistant water heaters and window air conditioners. As a result, the Program realized a decrease of approximately 15% in the volume of rebates processed. In PY11, just over 25,000 ENERGY STAR appliance rebate applications were received.

Refrigerator with Recycling – Launched in March 2009 following the successful ARRA Refrigerator Trade-In program, this offer has become a solid contributor to the Program. In order to moderate demand and manage the available PBF funds, the Program offered this rebate in two (2) tranches throughout PY11.

In all, 3,569,799 kWh savings came from this offer, reflecting 61% of the High Efficiency Appliance Program.

In May 2012, we worked with and provided funding to support Blue Planet Foundation's "Hui Up!" program on Lanai, which brought a shipment of energy-efficient refrigerators to 30 Lanai households. Residents had the opportunity to trade in their old refrigerator for a high-efficiency model for $250, a considerable discount off retail prices for an item that they would have otherwise had to purchase and ship in from off-island. "Hui Up!" participants can save as much as $530 a year on their individual electric bills; collectively over the next ten years, these 30 families may save about $160,000 in electricity costs. A critical part of the program is the educational component - students from Lanai High and Elementary School visited the participating households to conduct energy assessments pre and post-installation.

Garage Refrigerator/Freezer Bounty Program – With recycling best practices now implemented on Maui and Hawaii Island, the Program was able to launch a Bounty Program on Oahu, Maui and Hawaii Island in the final weeks of PY11. This program offered a rebate to customers who unplugged and recycled a working refrigerator and/or freezer. The Oahu-based program included a mandatory pick-up service, while the neighbor island required the unit to be dropped off at a participating facility. After poor levels of participation on the neighbor islands, the Program secured a competitive arrangement to have pick-up service on the neighbor islands. With an enhanced rebate level of $65, a modest marketing campaign was launched in October, which resulted in an immediate upswing in participation. By the close of PY11, this program recycled over a thousand 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 Programs. In all, 712,373 kWh savings came from this offer, reflecting 12% of the High Efficiency Appliance Program.

See **Table 65** for details.

Table 65 - REEM High Efficiency Appliances Program Impacts

PY11 High Efficiency Appliances Program Impacts

Category	Applications / Projects	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 ($)	%
Refrigerator Trade-In	5372	148	36%	3,569,799	61%	49,977,189	63%	14.0	0.7	4,441,765	58%	6,446,400	49%	671,500	45%
Clothes Washer	7285	165	40%	1,212,557	21%	13,747,127	17%	11.3	0.4	1,660,442	22%	4,006,750	30%	484,825	33%
Refrigerator/Freezer Recycling - Bounty	1047	28	7%	712,373	12%	9,973,228	13%	14.0	26.0	881,889	12%	33,885	0%	81,395	5%
Refrigerator (Legacy & < $600)	4044	55	14%	342,630	6%	4,796,823	6%	14.0	0.2	579,088	8%	2,427,600	18%	205,200	14%
Dishwasher	901	11	3%	48,770	1%	585,242	1%	12.0	0.2	84,291	1%	360,400	3%	45,050	3%
Totals	**18,649**	**407**	**100%**	**5,886,129**	**100%**	**79,079,609**	**100%**	**13.4**	**0.6**	**7,647,475**	**100%**	**13,275,035**	**100%**	**1,487,970**	**100%**

Energy Awareness, Measurement and Control Systems

For PY11, the Energy Awareness, Measurement and Control Systems Program achieved savings of 1,787,287 kWh (first year) and 0.1 kW savings with $560,792 in incentives. In relative terms, 9.3% of REEM incentives captured 2.7% and 0.0% of kWh (first year) and kW savings, respectively.

Peer Group Comparison – In PY10, Hawaii Energy launched the ARRA-funded Peer Group Comparison program pilot in the Ewa Beach/Kapolei community. With strong savings being realized, the Program continued the Ewa Beach/Kapolei program in PY11, and expanded the same Home Energy Report program to the neighbor islands, including Maui, Molokai, Lanai and Hawaii Island with the number of households participating totaling approximately 65,000. The Home Energy Report consists of an outbound mailer measuring a home to 99 homes in their peer group (i.e., similar sized home and demographics). Initial calls from the customer responding to mailings ranged from inquiry about the program to anger (e.g., 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 log in 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. Hawaii Energy continues to maintain the lowest attrition rate nationwide with the Peer Group Comparison report. In all, 1,704,648 kWh savings came from this offer, reflecting 95% of the Energy Awareness and Control System program.

Smart Strip – Event Promotion – These devices were primarily distributed at trade shows and other Program outreach events. Customer information was collected to verify that they were qualified to receive the device.

Whole House Energy Metering – Hawaii Energy successfully soft-launched this offer with a variable rebate. Although there was low participation, the Program is starting to hear from customers who after installing PV are still not "net-zero" and are interested in understand their usage better. A strategy to increase participation is being devised for PY12.

See **Table 66** for details.

Table 66 - REEM Energy Awareness, Measurement and Control Systems Program Impacts

PY11 Energy Awareness, Measurement and Control Systems Program Impacts

Category	Applications / Projects	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 ($)	%
Peer Group Comparison	73,000	-		1,704,648	95%	1,704,648	80%	1.0	0.3	171,147	81%	537,377	95%	537,377	96%
Smart Strip - Event Promotion	1,246	-	0%	78,619	4%	393,093	19%	5.0	1.7	37,045	18%	21,182	4%	21,182	4%
Whole House Energy Metering	23	0.1	100%	4,021	0%	20,103	1%	5.0	0.5	2,110	1%	4,600	1%	2,233	0%
Totals	**74,269**	**0.1**	**100%**	**1,787,287**	**100%**	**2,117,844**	**100%**	**1.2**	**0.4**	**210,302**	**100%**	**563,159**	**100%**	**560,792**	**100%**

Residential Energy Services & Maintenance (RESM) Programs

For PY11, the RESM Program achieved savings of 91,481 kWh (first year) and 8 kW savings with $73,596 in incentives.

For details, see **Table 67**.

Table 67 - RESM Program Impacts

PY11 RESM - Residential Energy Services and Maintainance Program Impacts

	Category	Applications / Projects	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	Efficiency Inside Home Design	1	-	0%	24,517	27%	490,333	60%	20.0	1.0	$ 33,731	44%	$ 33,750	26%	$ 34,200	46%
2	Solar Water Heater Tune Up	320	7	90%	63,565	69%	317,827	39%	5.0	0.5	$ 41,634	55%	$ 79,500	62%	$ 27,050	37%
3	AC Annual Tune Up	13	1	10%	3,399	4%	3,399	0%	1.0	0.2	$ 585	1%	$ 3,900	3%	$ 650	1%
4	Submetering	1	-	0%		0%		0%		-		0%	$ 11,696	9%	$ 11,696	16%
	Totals	**335**	**8**	**100%**	**91,481**	**100%**	**811,559**	**100%**	**8.9**	**0.6**	**$ 75,950**	**100%**	**$ 128,846**	**100%**	**$ 73,596**	**100%**

RESM Program Expenditures

In PY11, the Program had a material surplus primarily due to the deferral in launching another solar thermal tune-up offer following its successful pilot. During the Program's year-end reconciliation process, a discrepancy of $357.31 was discovered, bringing the total RESM expenditure up to $73,596 from an invoiced amount of $73,238.69 in incentives.

See **Table 68** for details.

Table 68 - RESM Program Expenditures

	Allocations to Date	PY11 Budget R3	Percent Spent	Unspent	Percent Unspent
RESM Operations	$ 39,873.84	$ 46,146.00	86%	$ 6,272.16	14%
RESM Incentives	$ 73,238.69	$ 608,000.00	12%	$ 534,761.31	88%
RESM Total	$ 113,112.53	$ 654,146.00	17%	$ 541,033.47	83%

Residential Design and Audit Programs

Efficiency Inside Home Design – Introduced in PY10, this program requires energy modeling to make comparisons between energy code-compliant designs and enhanced designs. This approach had many advantages including:

- 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 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 now has a good relationship with a number of developers, modeling and testing consulting firms and received one application in PY11 due to the slow housing market. PY12 has a strong pipeline of projects.

Hawaii Energy has found that all participating developers are building homes 30% better than International Energy Conservation Code (IECC) 2006 requirements: however, the Program is looking to broaden participation. In early discussions, developers provided valued feedback that raised Hawaii Energy's cognizance of issues facing developers, including:

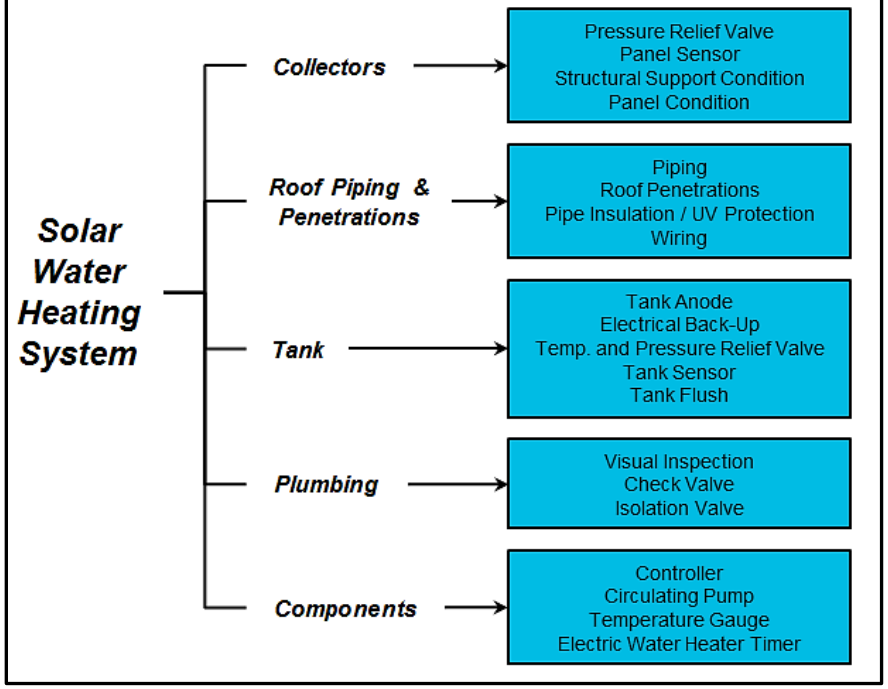
- The need to design and equip homes to respond to home buyer market forces;
- Homes are not competitive for sale in Hawaii if they are not designed with A/C;
- There are limitations in Hawaii's building code and density requirements that do not allow "classic" Hawaiian architecture such as rooms open to outside hallways encouraging homes to be built with no 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.

Residential System Tune-Ups

Solar Water Heater (SWH) Tune-Up Pilot – With over 60,000 program systems installed over a 15 year period, the PBFA 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 (see **Table 69**) 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 promoted 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, with Hawaii Island having the highest participation rate of nearly 20% of all system owners receiving a letter from the Program. In all, 63,565 kWh savings came from this offer, reflecting 69% of the RESM program.

Table 69 – Solar Water Heater 20-Point Tune Up Service



Residential Hard to Reach (RHTR) Programs

The Program significantly increased resources to this traditionally underserved demographic, most notably through major CFL exchange projects and a Solar Water Heating grant.

For PY11, Hawaii Energy's Residential Hard to Reach Program achieved savings of 2,032,234 kWh (first year) and 280 kW savings with $610,840 in incentives. In relative terms, 4.0% of Hawaii Energy's incentives captured 1.6% and 1.6% of kWh (first year) and kW savings, respectively. See **Table 70** for details.

Table 70 - RHTR Program Impacts

PY11 RHTR - Residential Hard to Reach Program Impacts

Category	Applications / Projects	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	64,690	258	92%	1,683,615	83%	16,836,145	86%	10.0	2.1	$ 171,830	35%	$ 81,003	13%	$ 81,003	13%
Solar Water Heater - Direct Install	53	19	7%	87,128	4%	1,306,913	7%	15.0	0.4	$ 174,423	36%	$ 456,700	75%	$ 456,700	75%
Smart Strip - Event Promotion	3,994	-	0%	250,087	12%	1,250,433	6%	5.0	1.7	$ 117,841	24%	$ 67,898	11%	$ 67,898	11%
Solar Water Heating Inspections - WAP	77	3	1%	11,405	1%	171,079	1%	15.0	4.5	$ 22,856	5%	$ 5,101	1%	$ 5,101	1%
Inspections	2	-	0%	-	0%	-	0%		-	$ -	0%	$ 138	0%	$ 138	0%
Totals	**68,816**	**280**	**100%**	**2,032,234**	**100%**	**19,564,571**	**100%**	**9.6**	**0.8**	**$ 486,950**	**100%**	**$ 610,840**	**100%**	**$ 610,840**	**100%**

RHTR Program Expenditures

The Program expended nearly all of the RHTR budget, although the Program has a significant backlog of projects it hopes to fund with a pending carryover request. During the Program's year-end reconciliation process, a discrepancy of ($43,713.69) was discovered, bringing the total RHTR expenditure down to $610,840 from an invoiced amount of $654,553.69 in incentives. See **Table 71** for detailed expenditures and unspent funds.

Table 71 - RHTR Program Expenditures

	Allocations to Date	PY11 Budget R3	Percent Spent	Unspent	Percent Unspent
RHTR Operations	$ 159,140.67	$ 171,861.00	93%	$ 12,720.33	7%
RHTR Incentives	$ 654,553.69	$ 699,053.00	94%	$ 44,499.31	6%
RHTR Total	$ 813,694.36	$ 870,914.00	93%	$ 57,219.64	7%

Solar Water Heater – Direct Install

In late PY11, the Program was keen on achieving island equity targets and mindful of a difficult solar thermal market. Therefore, the Program sought out funding opportunities on Maui and Hawaii Island and learned of an HCEOC project about to get underway that was going to help a number of "in need" families, which the Program would consider hard-to-reach. It was determined that by collaborating on the project with the Program providing funding for solar thermal systems, HCEOC could extend its grant to help more families in other ways. By the close of PY11, 53 systems were installed contributing 87,128 kWh (first year) or 7% of the RHTR energy savings. For this project, deemed program-level savings of ~1,650 kWh (1st Year) was assumed in order to provide a conservative estimate of savings. However, many of these participating households were larger ohana homes, requiring larger and/or multiple systems. During PY12, the Program will assess the actual savings of the entire project of 172 households and highlight these savings in next year's annual report.

Smart Strip – Event Promotion

In PY11, the Program distributed energy-saving smart strips, many of which were in support of the program-funded Helen N. Wai's workshops on Financial Literacy and Energy Efficiency (see Market Transformation). These devices were not only practical, but successfully attracted an enhanced level of participation in the hard-to-reach offerings and outreach where they were distributed.

Solar Water Heater Inspections (WAP)

The federal government's ARRA / WAP funding provided Hawaii with resources 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 successful in how the agencies adopted Hawaii Energy's Solar Water Heating standards and specifications. The PBFA finished the RLI Solar Inspection work in PY11 with the final 189 solar inspections for the program year.For PY11, WAP inspections achieved savings of 11,405 kWh (first year) and 3 kW savings with $5,101 in incentives, which were expended to cover inspections only. See **Table 72** for details.

Table 72 - Weatherization Assistance Program (WAP) Supported through RHTR Program

PY11 RHTR - Residential Hard to Reach Program (WAP) Impacts

Category	Applications / Projects	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 ($)	%
Solar Water Heating Inspections - WAP	77	3	100%	11,405	100%	171,079	100%	15.0	4.5	$ 22,856	100%	$ 5,101	100%	$ 5,101	100%
Totals	**77**	**3**	**100%**	**11,405**	**100%**	**171,079**	**100%**	**15.0**	**4.5**	**$ 22,856**	**100%**	**$ 5,101**	**100%**	**$ 5,101**	**100%**

CFL Exchanges – The Maui & Hawaii Island CFL Bulb Blitz

The Maui Bulb Blitz and Big Island Bulb Blitz, were community-based CFL exchange programs launched in March 2012 and conducted by the Blue Planet Foundation on behalf of the PBFA. Each group that signed up to participate was audience to a comprehensive presentation on the value of energy efficiency focusing on how participants could help Hawaii reduce its dependence on oil. Overall, more than 50 groups from Maui County and Hawaii counties participated, successfully achieving the goal to replace 65,000 incandescent light bulbs with energy-efficient CFLs. See **Table 73 and 74** for a summary of the Maui & Big Island CFL Bulb Blitz details, respectively.

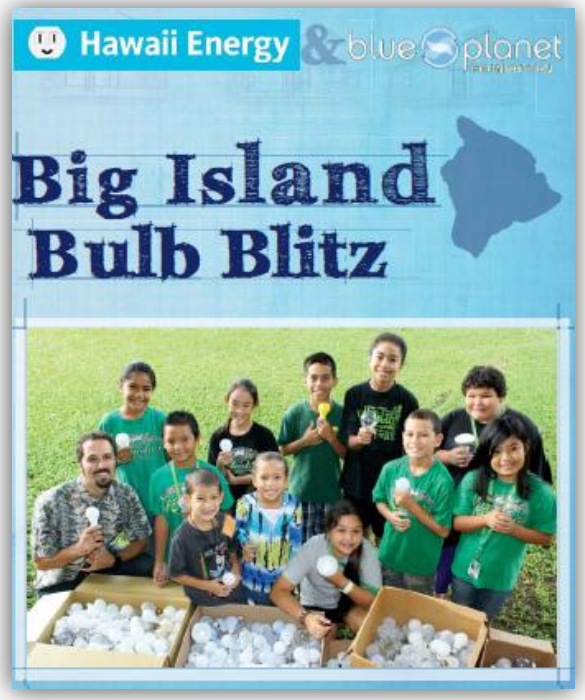


Table 73 - Big Island CFL Bulb Blitz	
Big Island Bulb Blitz Summary	
Total CFL Bulbs Delivered:	44,008 bulbs
Total CFL Bulbs Exchanged:	42,860 bulbs
Total CFL Bulbs Lost:	199 bulbs
"Most bulbs Exchanged" Group:	7,004 bulbs (Waiakea Pirates)
Total Reward $$$ Mailed:	$20,529.50
Total Participating Groups:	30 Groups (19 schools, 11 community groups)
Total Residents Reached:	9,270 residents
Total Individuals Involved:	581 students, teachers & family members
Total Volunteer Hours:	2,235 hours

Table 74 - Maui Bulb Blitz	
Maui Bulb Blitz Summary	
Total CFL Bulbs Delivered:	24,340 bulbs
Total CFL Bulbs Exchanged:	21,719 bulbs
Total CFL Bulbs Lost:	0 bulbs
"Most bulbs Exchanged" Group:	4,250 bulbs (Civil Air Patrol, Kihei Squadron)
Total Reward $$$ Mailed:	$10,209.50
Total Participating Groups:	22 Groups (12 schools, 10 community groups)
Total Residents Reached:	5,616 residents
Total Individuals Involved:	661 students, teachers & family members
Total Volunteer Hours:	2,255 hours

Introduction

Through the expertise of Program staff and a number of well-received offerings provided by partners and sub-contractors, PY11 marked a successful inaugural year of Market Transformation. As per its mandate, the Program pursued two broadly defined areas: supporting various levels of Government forums and initiatives, and creating a diverse offering of educational programs and initiatives. These educational programs fell into three categories, specifically: (1) Energy Efficiency through Financial Literacy, (2) Workforce Pipeline Development within Primary Schools and (3) Workforce Development for Business. At the close of PY11, the Program successfully built a number of foundational offerings upon which to continue its transformation.

Kukui Cup at Hawaii Pacific University

Sharing the Aloha: Energy Efficiency & Financial Literacy workshop participants at E.B. deSilva Elementary School in Hilo.

Students and job seekers enjoying the Leeward Community College Career Fair

Government Clean Energy Strategy & Support

Hawaii Energy maintained a strong presence in the clean energy policy arena this program year. Through our participation in the Hawaii Clean Energy Initiative (HCEI) working groups and the Hawaii Energy Policy Forum (HEPF), we engaged in robust discussions of great import to Hawaii's energy security and future direction. Hawaii Energy staff participated in regular meetings, events and forums, often in leadership roles. We continued to build and foster relationships with stakeholders and leaders in the energy sector and strongly advocated for energy efficiency as a vital component to stated policy and also to the broader sustainability efforts in Hawaii.

As part of our efforts to transform the way we use and manage energy in our homes and businesses, Hawaii Energy served as a subject-matter expert to public officials during the 2011-2012 Legislative Session. We responded to inquiries from legislators and their staff regarding energy-efficient technology and related matters to help inform their decision-making. One of the more notable results of our engagement with the legislature was the passage of a measure that will allow the boards of condominium associations the discretion to install submeters on individual units. Hawaii Energy provided case studies from other states and municipalities illustrating the energy use reductions that have occurred in the wake of submetering. Illustrating the potential benefit to residents proved valuable to lawmakers.

In addition to providing state and local agencies with accurate data and information about energy conservation and efficiency technology, best practices, industry standards and projects, Hawaii Energy also supported the Hawaii State Energy Office with planning and hosting the Rebuild Hawaii Consortium quarterly meetings. The Rebuild Hawaii Consortium is a state-wide networking and informational assembly that was established in 1998 to promote efficient energy resource utilization by identifying and leveraging statewide and national assets in order to create awareness, build partnerships and find solutions to energy and resource efficiency issues. Hawaii Energy staff attended and participated in planning meetings, secured panelists and speakers for the meetings, and provided for the first time ever, live-streaming web access for remote viewers, which greatly increased attendance and exposure.

Hawaii Energy maintained regular contact with county energy offices throughout this program year. Transformational Program staff met with Maui and Hawaii County Energy Coordinators on consistent basis to explore potential collaboration opportunities. On several occasions the Counties asked for our support, which was then provided by our Commercial incentive program. Upholding these relationships is a priority for the Transformational program as it serves to leverage resources to move projects to completion for the public benefit.

Finally, the Program funded five additional RISE Interns to support the Hawaii Green Business Program (HGBP), which paid interns to provide over 650 hours of support for the energy efficiency projects related to the HGBP. The HGBP assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The HGBP is a partnership between the State of Hawaii's Department of Health; the State of Hawaii's Department of Business, Economic Development, and Tourism; and the Chamber of Commerce of Hawaii. The HGBP went through a revitalization supported by the RISE interns as a result of funding from both the Environmental Protection Agency and Hawaii Energy. The main outcome of the revitalization was a revamped "HGBP Checklist" that businesses must comply with in order to achieve the HGBP recognition (available online at http://energy.hawaii.gov/programs/achievingefficiency/green-business-program), as well as nearly doubling the participation rate from 38 to 59 businesses and public agencies achieving the HGBP recognition.

Energy Efficiency through Financial Literacy – Helen N. Wai, LLC

Energy costs account for approximately 10% of a typical resident's net income in Hawaii, which is more than twice the national average. For those living at or below the poverty line, the fraction of their income paid towards energy is much higher. Thus, a clear nexus existed between financial literacy and energy efficiency.

To help those looking to reduce their monthly electricity bills, we created the Sharing the Aloha: Energy Efficiency & Financial Literacy Workshops to serve the residents of Hawaii, Honolulu and Maui counties. They are presented by Helen Wai, an outreach specialist and instructor for over 15 years within the community. Since the fall of 2011, she has reached over 5,000 participants through 70 workshops and community events.

The Program contracted Helen N. Wai due to her experience in providing face-to-face financial literacy instruction and guidance to Hawaii's rural, low-income and native Hawaiian families and communities over the past 15 years. The Program worked with Ms. Wai to augment her classes to include energy efficiency content and energy-saving giveaways (i.e., advanced power strips). These giveaways were provided to enhance participation, and to help attendees save energy by reducing plug loads.

Throughout PY11, the need for free community education to assist struggling residents with escalating energy costs became increasingly apparent. Ms. Wai conducted 70 workshops and 7 community events during PY11 with a total of 5,033 participants. A total of 2,517 advanced power strips and 300 smart plugs where distributed to qualified ratepayers. The greatest level of participation was in Hawaii County, while the engagement of residents and organizations in Maui County was a challenge. However, late in the program year, Ms. Wai was able to connect with a leader of a community organization that she had worked with in the past. This proved to be the opening she needed. She has since conducted several workshops in Maui County surpassing participation targets.

Throughout the program year, the Program received remarkably positive emails and phone calls from workshop participants. They were greatly appreciative of the information and especially by Ms. Wai's delivery of the course materials. The workshops were so popular that Ms. Wai's scope of work was tripled to accommodate the demand. As a result, the Program was able to serve eight times the number of participants forecasted at the start of the program year. Hawaii Energy continues to welcome numerous requests from residents and organizations interested in bringing this valuable and dynamic offering to their community.

Workforce Pipeline Development within Primary Schools

National Energy Education Development Project (NEED)

The Transformational Program sought to address the lack of energy efficiency education in primary and secondary schools. The intent was to utilize the "Train the Trainer" methodology, whereby the Program would provide teachers with training, curriculum and support and they in turn would transfer the newly acquired knowledge in their classrooms. With this leveraged approach, the Program could maximize its reach among the student population.

The Program subcontracted NEED, which brought over 30 years of energy education experience, much of it with utilities and related programs to provide energy curriculum materials (correlated to Hawaii education standards), teacher training and student leadership development that would motivate students to learn about energy.

To provide our state's teachers with opportunities to learn how to integrate energy conservation and efficiency into their curriculum, we brought the National Energy Education Development (NEED) Project, a nationally recognized provider of energy education programs and materials to our community. In order to encourage attendance and participation at these workshops, we provided substitute teacher reimbursements so teachers could attend the all-day training. Local teachers were provided with grade-level specific curriculum kits.

Each workshop included a basic energy information refresher, ensuring that educators in attendance understood the basics of energy, as well as energy efficiency and conservation lessons relevant to both school and home application. Additionally, learning kits were provided to each participant to use with the curriculum. This offering also provided for distance learning so that teachers in rural and hard-to-reach areas could attend remotely and receive access to online support and curriculum that they could download and use at their respective campuses. All training programs included extensive evaluation and certification of professional development hours for teachers to use toward their professional development requirements.

In all, 261 teachers across the Hawaii Energy service area participated in NEED training during the PY11 from 89 public and private schools, representing 40 communities. More than half of the participants were from elementary schools (K-5) with the balance split between intermediate and high school education teachers. This far surpassed the Program's initial goal for this offering and is representative of a large percentage of schools within the service area. Participant evaluations were extremely positive. Nearly 70% of participants stated that the content was relevant to their teaching assignments and 93% of participants said the workshop was "very good" or "one of the best workshops ever attended".

Energy Management Tools & Learning Devices - KUPU

The Program supported two (2) internships and an energy efficiency pilot project at two schools, which not only aimed to reduce the energy consumed in the schools, but also the surrounding communities. Interns worked at two schools on the east side of Hawaii Island: Pahoa Intermediate & High School and Kea'au High School. These two schools were the largest energy consumers in the Department of Education Kau-Kea'au-Pahoa complex, and both schools had science coordinators with active student green clubs. The RISE Interns assisted with the deployment of energy labs for students and families, lighting and temperature audits for the entire campus resulting in two lighting assessment reports, CFL exchanges in partnership with the Blue Planet Foundation and other community outreach activities to promote transformation.

The Program also provided support for the creation of a "Green Clubs Database" which will provide contact information for educators, science coordinators and school staff interested in "green", environmental and energy education. The list has been and will be used for further development of energy efficiency projects in both public and private schools throughout the State.

KUPU's RISE interns at Pahoa Intermediate & High School and Kea'au High School

Workforce Development for Business

Association of Energy Engineers (AEE)

The Association of Energy Engineers is represented in 89 countries with over 16,000 members worldwide and has a recently established a Hawaii Chapter. AEE is widely recognized as the industry leader for energy education certifications.

AEE CEM Certification Course on Oahu

The Certified Energy Manager (CEM) in particular is an internationally recognized certification which originated in 1981, and is applicable to any industry and any business. In addition to the rigorous exam, the CEM certification requires education and work experience. Those without the required credentials may receive an Energy Manager in Training (EMIT) certification upon successful completion of the exam until they are able to acquire the required education and experience.

Individuals with an CEM or EMIT certification have a proven solid fundamental understanding of how energy is generated, regulated, distributed, financed and all the many ways energy is used, as well as end user behaviors, which helps them make savvy decisions about energy-related spending and savings. The course is based on the principles of energy conservation and efficiency, which assists any business manager, engineer or other professional with making better financial decisions while reducing Hawaii's overall dependence on imported oil to generate electricity.

During the second half of the program, Hawaii Energy identified the CEM course as an ideal workforce development opportunity and decided to pilot a sponsorship for eligible Hawaii residents to attend their 5-day Certified Energy Manager (CEM) course at a discount of 75% (regular non-AEE member price is $2200 per student). Each attendee paid for the cost of the exam $300.

The pilot was a sponsorship to attend the AEE-hosted event in February on Oahu in Honolulu. This course was arranged by AEE prior to the Program's involvement, the Program was able to sponsor 40 eligible Hawaii residents to attend the training. Although AEE confirmed that this course, which was overwhelmingly attended by students from the mainland when previously offered in Hawaii, was truly an incentive for Hawaii residents to take part in this effective training. The pass rate for the sponsored students was 63% (AEEs average pass rate was 65-68% at that point) and 22 new Hawaii CEM certifications were awarded.

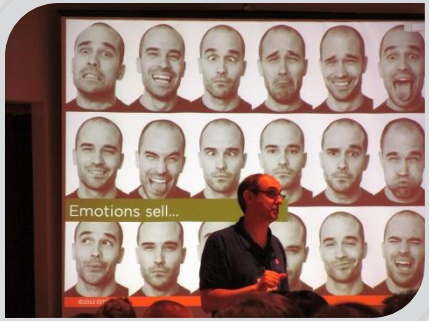
Due to the success of the pilot, the Program decided to partner with AEE again to host a course in June on Hawaii Island in Kona. Hosting the course allowed the Program to provide local support and set up evening study sessions that had not previously been organized for students. The Program partnered with the AEE Hawaii Chapter to provide the training sessions and over half the class stayed to participate the two nights the sessions were

offered. There were 20 attendees and the pass rate was 60% (the format and content of the test was enhanced to meet ISO certification requirements, therefore a lower pass rate was anticipated). Nine (9) CEM and three (3) EMIT certifications were awarded.

Feedback was very positive and clearly indicated that without Hawaii Energy's sponsorship, the students would not have attended due to the prohibitive regular price of $2,200 and time commitment this course required (an entire week off work). Small businesses and independent contractors in particular have expressed their gratitude for this education opportunity, as they would not have been able to afford time off and tuition at the regular price. Even those who did not pass the course expressed that the training itself was invaluable and they'd expect to apply the skills learned about energy efficiency and conservation in their careers in Hawaii.

EEFG, Inc.

Transforming the energy culture in Hawaii is an enormous challenge. The practices and decision-making methodologies that exist in our communities and marketplace were established during a time cheap oil, and therefore, cheap energy. These models are outdated and are often detrimental to business. Clearly, energy conservation and efficiency had to move from an afterthought to a priority for business decision-makers.



Mark Jewell of EFFG, Inc.

Recognizing that educating a new generation of energy conservation and efficiency sales and advocacy professionals could lead to a true energy efficiency industry, the Program sought out and found Mr. Mark Jewell of Energy Efficiency Funding Group (EEFG), a training and education services firm based in California. Mr. Jewell worked in commercial real estate investment for over 15 years before becoming a nationally recognized expert on energy efficiency. He was highly recommended by major utilities, municipalities and companies. Mr. Jewell does approximately 150 speaking engagements a year, and is a highly sought-after trainer. It was concluded that this was just the type of training we would need to "Energize Efficiency" in Hawaii.

EEFG's education and training services focus on teaching people how to drive efficiency by "connecting the dots" for decision-makers. They take an innovative approach to teaching challenging topics. Participants leave informed, engaged, entertained, fired up and ready to apply what they learned. Participants learn to identify projects, increase participation in incentive programs, achieve greater energy savings, and make their (or their customers') operations more competitive, profitable and valuable.

Hawaii Energy hired EEFG to conduct two Hawaii Energy Workshop Series during Program Year 2011. Series I consisted of three course offerings: (1) Learning to Sell Efficiency Effectively (SEE), which was offered in each of the three counties; (2) The Role of Energy Efficiency in Your Sustainability Agenda, which was offered on Maui and Hawaii Island, and; (3) Benchmarking Your Commercial Building + What's Next, which was offered on Oahu.

Series II consisted of three of the same courses that were offered in Series I with an additional course offered on Oahu—Financial Analysis of Energy Efficiency Projects. Courses were again made available in each of the three counties served by Hawaii Energy.

Both workshop series were overwhelming successes. The Program's outreach efforts drew a large number of people representing a diverse audience. EEFG and Hawaii Energy reached about 4,700 contacts resulting in 162 unique registrants representing 96 unique companies for Series I and about 8,000 contacts, resulting in 237 unique registrants collectively representing a diverse audience of 133 companies for Series II. Participants were primarily established professionals who have the ability to influence a broad sphere of energy end-users.

Top rankings on post-training surveys and an abundance of positive comments revealed that both Mr. Jewell and the courses were extremely well-received. Many attendees commented on the abundance of valuable course material and requests for additional courses filled the survey comments sections alongside expressions of gratitude to have the opportunity to attend these high-level trainings at such an affordable cost. Survey results confirmed that attendees learned a wide array of practical skills and techniques that they found both inspiring and highly relevant to their current work. Additionally, nearly all attendees reported that they would begin applying what they learned within the year and that they expected this knowledge would make a significant impact on their work. Many comments requested more courses, more material and even multi–day–long training sessions.

The Hawaii Energy Workshop Series were highly valued by its diverse and influential audience. The Transformational Program continues to receive positive emails and comments regarding the Series and requests for more workshops on a regular basis. Survey results provide ample evidence that this offering fulfilled its mission of supporting market transformation in the three targeted counties.

Energy Resource Center

Hawaii Energy partnered with Molokai Kuha'o Business Center, Maui County and the Office of Economic Development to establish an energy efficiency equipment lending library on the island of Molokai in June of 2012.

The Program provided plug load monitors and advanced powerstrips that can be used by residential and business customers for the purpose of evaluating and achieving energy savings.

This partnership fits well into the Kuha'o Business Center mission, which is to serve as an advocate and vehicle of empowerment for Molokai's families to achieve both individual and collective financial independence and abundance in the formation of healthy and sustainable businesses. This center offers a business library, small business-related workshops and seminars; confidential business counseling, business plan development, online access to business resources and other customized services.

Molokai Kuha'o Business Center

Vocational Training via the Residential Energy Assessments & Audits for the Hawaii Energy Study - KUPU

Kupu's E2U program (formerly YEAH) is a vocational training program focusing on basic residential energy assessment/auditing best practices, and green jobs training in related fields. Members of E2U are trained to work alongside top energy conservation and energy efficiency industry professionals. The inaugural crew was trained and deployed to complete 150 Home Energy Assessments/Audits for the Hawaii Energy Study. In PY11, Hawaii Energy funding augmented the E2U program's Environmental Protection Agency Climate Showcase Communities Grant to support the completion of 100 of the 150 basic residential energy efficiency audits.

The Hawaii Energy Study was available to all O'ahu residents. Recruitment efforts originally focused on marginalized communities however, the selection of participants was greatly influenced by zip code as it relates to average kWh usage and schedule availability. Homes in the following communities received basic residential energy assessments: Aiea, Ewa Beach, Haleiwa, Honolulu (which included Manoa, Makiki, Punahou, Kapahulu, Kaimuki, Nuuanu, and others discreet neighborhoods), Kailua, Kaneohe, Kapolei, Mililani, Pearl City, Waianae and Waipahu. Of these communities, Honolulu, Kailua and Waianae had the greatest participation.

KUPU's E2U Program

The assessments took an average of two (2) hours to complete and provided on-site identification of energy consumption and high energy cost areas within the home E2U crews provided recommendations and resources to improve energy and water conservation in homes. Crews also explain applicable incentives and services available to implement the recommendations provided. Energy conservation kits were also provided and included a number of the following items: advanced power strips, wall timers, indoor wireless remotes, safety night lights, LED lights, CFLs, real-time energy devices (Kill-a-Watts EZ or Belkin Conserve Insight), clothesline & clothes pins, shower timer, toilet flappers, faucet aerators, grounding adapters and print materials.

In total, the E2U crew (youth assessors and field supervisor) spent over 2,200 hours training and deploying to complete the residential energy efficiency assessments and audits. The E2U crew consisted of ten youth assessors and one (1) field supervisor, plus an additional four (4) summer members who were trained and deployed through the support of Hawaii Energy funds.

The Hawaii Energy Study was projected to reach 10,000 individuals through project promotion. To date nearly 20,000 individuals have been engaged, which is over 180+% of the targeted promotion. The 180+ homes visited by E2U crews reflect a small percentage of interested Hawaii residents seeking guidance, assistance and support in reducing the costs associated with lowering their energy consumption.

Hawaii Department of Education – Student Energy Ambassador Development (SEAD)

Smart Sustainability Consulting (SSC) is a local firm specializing in transforming end-use behaviors in schools and public institutions. Hawaii Energy hired SSC late in the program year to incorporate Student Energy Ambassador Development (SEAD) into the Transformational Program offerings. The SEAD project began as a grassroots movement at the University of Hawaii at Manoa campus with the mission of transforming Saunders Hall into a model of sustainability. It was a notable success that created momentum among students and recent graduates to take what they learned and replicate this successful model statewide.

SEAD trainers and mentors worked with high schools to create teams. The teams participated in a series of energy conservation and efficiency training modules, which teach them to conduct basic plug load, lighting and thermal comfort audits. The student teams then identify a building or multiple buildings that they would like to audit and, with the support and guidance of their SEAD Trainer, conducted the audits. Often, the results of the audits revealed energy savings potentials, which the school administration can use as a basis for improvements and retrofits.

While this offering is still developing, data and results are not available as of the date of this report. The Program looks forward to conveying the success of this offering in the coming program year.

Energy Efficiency Service Sector Career Fair – Leeward Community College

The primary objective in supporting this career fair was to expand the message of energy efficiency to college students, graduates, veterans and members of the public. An additional and equally important objective of this project was to educate businesses on the value of hiring individuals who have some level of knowledge of and who practice energy efficiency, and for those businesses to undertake energy efficiency improvements as well.

In order to gain a better understanding of the energy conservation and efficiency “space”, the Program met with the State of Hawaii Department of Labor and Industrial Relations (DLIR), which suggested collaborating with Sandy Hoshino of the Job Prep & Career Services office at Leeward Community College (LCC). Ultimately, both parties agreed to jointly sponsor, plan and convene the 10th Annual College Career & Job Fair (Fair).

Through Hawaii Energy's sponsorship, the Fair focused on "Clean Energy Connections" – that is, clean energy career and training opportunities for attendees and participants to learn about the importance of energy efficiency in their homes and businesses. Approximately 45% of recruiters reported that it was their first time participating in the annual event. A record number of 350 high school students attended the fair with their schools (i.e., Waipahu, Kapolei, Nanakuli, Pearl City, Mililani, Moanalua, Radford, Campbell, Leilehua and Castle).

This year's attendees included over 1,500 prospective students, current students, upcoming graduates, high school students, and members of the general public who were searching for full-time, part-time, internship and temporary positions. Of the recruiters who provided feedback, 95% felt that "overall, thought this was a worthwhile event to attend." Recruiters commented, "We liked the idea of having the high school students exposed to meeting prospective employers" and "It was a great opportunity to connect with potential applicants."

From a PR and media relations perspective, sponsorship of the Fair was a huge success. Several media placements featuring Hawaii Energy were secured prior to the event, and day-of-event coverage included Hawaii Public Radio, KITV-4, Star-Advertiser and KPHW-FM.

In addition to our work promoting students' job search skills, our efforts to build relationships with businesses and employers, as well as the development of partnerships with valued sponsors, will contribute to the future success of the Fair.

Hawaii Pacific University – Kukui Cup

Hawaii Energy supported the Kukui Cup project created and administered by Professor Phillip Johnson at the University of Hawaii Manoa. This funding provided one intern with 75 hours of paid support for the marketing and outreach of the Kukui Cup. Hawaii Energy's assistance has resulted in increased participation among university students in the 2011 Kukui Cup as well as overall energy conservation and efficiency habit adoption throughout the residential halls. This intern focused on media support and developing videos, brochures and other marketing material for the Kukui Cup.

The Kukui Cup (www.kukuicup.org) explores novel ways of using computer science and community-based social marketing to promote education of and behavioral change towards energy in Hawaii. The Kukui Cup uses gamification techniques to engage student participation in an energy challenge combining virtual and real world activities. October through November 2011 marked the inaugural year for the Kukui Cup with a participation rate of over 1,000 students residing in the Hale Aloha dormitories on the University of Hawaii, Manoa campus. Over 20 lounges installed energy meters and a total reduction of 16% of energy consumption was realized. More information about the Kukui Cup 2011 can be found online (https://sites.google.com/site/kukuicup/2011-results). This year, the Kukui Cup expanded to include the East West Center and Hawaii Pacific University.

MARKETING & OUTREACH

The Program's marketing and outreach efforts provide the voice of Hawaii Energy to raise public awareness of our mission to educate, encourage and incentivize the electric utility customers of Hawaii, Honolulu and Maui counties to invest in efficiency measures and to adopt energy-saving behaviors. In PY11, the Program engaged in various activities including advertising, marketing, market research, public relations and outreach.

While the first two program years focused on establishing core operations, marketing and outreach built up capacity in PY11. The Program hired a Communications Specialist and an Event and Meeting Coordinator. These key resources enhanced the Program's capacity to plan, facilitate, and execute direct communications to general and targeted audiences. The Program also hired MNVP (Milici Valenti Ng Pack, Inc) to advise and augment the Program's expertise in marketing, outreach and public relations. The Program continued its relationship with the advertising firm, Wall to Wall to round out a well-complemented team.

This team supported Hawaii Energy through the strategic use of advertising, marketing, public relations and outreach, with highlights presented below:

Hawai'i: The State of Clean Energy

The Program not only sponsored this program (produced by Hawai'i News Now and the Hawai'i Energy Policy Forum), but was featured in each episode with an interview segment to engage the public in the real issues and challenges the State has to achieve a clean energy future.

"The 3 CFL Challenge" Marketing Campaign

With the Residential High Efficiency Lighting program trending poorly during the first half of PY11, the Program decided to employ marketing resources to promote CFLs in the public eye. After deliberating a number of concepts, "The 3 CFL Challenge" was adopted as the most likely to gain sustained traction. The campaign's primary message was for individuals to take on "The 3 CFL challenge":

- Replace at least three old-fashioned incandescent light bulbs with energy-efficient CFLs and challenge your friends and neighbors to do the same.

In support of this primary message, two major themes were crafted, specifically:

1. There are no excuses for you to not purchase and install energy-efficient lighting. You are living an irresponsible lifestyle if you are not.
2. Waiting for incandescent bulbs to burn out before replacing them is not acting responsibly environmentally or economically.

MARKETING & OUTREACH

Hawaii Energy

With a strategy to promote CFLs while building the Hawaii Energy brand, broadcast television was determined to be the most appropriate media channel to utilize. From a number of creative concepts developed by Wall to Wall to support the two major themes, two commercials were produced, specifically:

1. "Can't Handle the Wattage" – This 30-second spot addressed the first theme that using old-fashioned light bulbs reflect an irresponsible lifestyle, regardless of what you may see or hear from people around you. Conceived as a spoof on public service announcements from the 1980s, the message based on a timely issue (i.e., peer pressure) was expected to resonate with the X to Y demographic most likely to make household purchasing decisions.
2. "Don't Wait" – This 30-second spot directly addressed the second theme successfully using humor to drive the point home.

With a key message and two themes captured in two engaging commercials, the content was leveraged across all media channels from March through June, including:

- Television: Two commercials were aired on eight television stations, both broadcast and cable.
- Radio: Two 15-second radio spots, derived from the television commercials, were produced and aired on 26 radio stations.
- Print: Two advertisements, derived from the television commercials, were produced and distributed in 38 spots through six newspapers and magazines.

The portfolio of media purchased for this campaign effectively built Hawaii Energy's brand and conveyed the message, while maximizing the program's reach across the counties in a cost-effective manner.

"Can't Handle the Wattage" TV Spot

"Don't Wait" TV Spot

Earned Media

In addition to paid media described above, the campaign successfully garnered considerable media coverage across all channels. For a full list of television, radio and print media reporting on "The 3-CFL Challenge," please refer to Attachment H.

Website

The Program refined and added interactive content to help the public understand the value of CFLs and enable them to take action.

- "How to Pick CFLs" was an interactive page where the public could select a type of CFL to learn what kind of fixture it is best used for.
- "Savings Calculator" allowed the public to select their island; enter the wattage and number of old-fashioned incandescent light bulbs to be replaced; and finally the hours per day these lights would be lit, to calculate the annual and monthly savings in dollars and energy they could save.
- "Participating Retailers" web page was created so the public could find out which retailers offered rebated CFLs. This page continues to be aligned with available product and new participating retailers.
- "Frequently Asked Questions" addressed questions not only about the Program and took great care in addressing safety concerns with regard to mercury content and responsible disposal.

Other Refinements

Other refinements were implemented to maximize the effectiveness of "The 3-CFL Challenge." Program staff implemented a branded email signature, so that all Program-related correspondence emphasized the campaign. The Program also distributed branded magnets for participating retailers to post in-store. Routine visits to retailers on all islands ensured proper signage and incentive pricing for the duration of the campaign.

Save Money & Electricity for You & Your Friends by Taking Hawaii Energy's *3 CFL Challenge*

Derrick Sonoda
Outreach & Marketing Manager, Hawaii Energy

TELL 3 OTHERS TO DO THE SAME
THE 3 CFL CHALLENGE
Hawaii Energy

At Hawaii Energy, the conservation and efficiency program for Hawaii, Honolulu and Maui counties, we care about sustainability and the environment. Specifically, we are concerned by the fact that Hawaii residents pay the highest rates for electricity in the country. Our mission is to lessen the burden this causes on Hawaii's residents. We are here to help residents save money by conserving energy and living more efficiently. We do this in two ways: by providing rebates on energy-efficient products, and by empowering residents and businesses through outreach and education.

On the outreach and education front, we recently introduced our *3 CFL Challenge*, where we encourage residents to replace three more old-fashioned bulbs with energy-saving compact fluorescent lights (CFLs), and tell three others to do the same! As an added incentive for taking the *Challenge*, we have increased the instant cash-back rebate on ENERGY STAR® qualified CFLs at participating retailers for a limited time to help everyone cope with the high electricity prices.

Replacing just three more incandescent bulbs with CFLs is one of the easiest and most cost-effective things residents can do to save money. Now is definitely the time for everyone in Hawaii to switch to CFLs, and there are three great reasons I can think of for doing so; savings, style and safety!

By replacing three or more frequently used incandescent light bulbs with CFLs, savings can reach $100 a year for the average household in Hawaii, based on Oahu energy rates. CFLs use 75 percent less energy and last nearly ten times as long as traditional incandescent light bulbs. In most homes, the most frequently used fixtures are the ones located in the kitchen, living room, bathroom and outside.

For those who value style over savings, CFLs now offer everyone a greater variety of sizes, shapes and shades of white lighting. The incandescent bulb really hasn't changed all that much since Thomas Edison patented it back in 1879. More than 130 years later the familiar bulbs still use the same technology, and still waste a whole lot of energy.

CFLs are also the smart choice for those that are health conscious and environmentally friendly. Incandescent light bulbs are responsible for burning more oil and thus contribute a greater amount of pollution into our environment than CFLs.

By taking the *3 CFL Challenge*, residents can help ensure that this is a much more energy-efficient year for us all. The campaign's goal of half a million CFLs would collectively save an estimated $8 million from residential electric bills in the first year alone.

Please visit our web site or connect with us directly to learn about all of our programs and incentives. There are several ways we can work with residents and businesses to help them conserve energy.

Visit us at HawaiiEnergy.com, or call 537-5577 (Oahu) or 1-877-231-8222 (toll-free). We look forward to working on your behalf, and with you, to help reduce our dependence on foreign oil.

Sarah McCann
Maile Alsup

Oahu resident Derrick Sonoda is the Outreach & Marketing Manager at Hawaii Energy. 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. Hawaii Energy offers cash rebates and other incentives to residents and businesses to help offset the cost of installing energy-efficient equipment. In addition to rebates, the program conducts education and training for residents, businesses and trade allies to encourage the adoption of energy conservation behaviors and efficiency measures. The program plays an important role in helping to achieve Hawaii's goal of reducing total electric energy usage by 30 percent or 4.3 billion kWh by 2030.

Honolulu Star-Advertiser Advertorial - Earth Day special edition

Public Relations

Throughout PY11, the Program utilized public relations as part of an integrated marketing strategy to leverage other marketing tactics including social media, advertising and collateral development to:

1. Increase awareness of and participation in Hawaii Energy offerings; and
2. Build awareness of and credibility for Hawaii Energy as the conservation and efficiency program serving business and residential ratepayers in Hawaii, Honolulu and Maui counties.

Metrics

With the assistance of MVNP, our public relations subcontractor, we were able to generate substantial media coverage on local radio and television stations, as well as in newspapers, magazine and websites. For PY11, the following are key metrics for the media coverage generated based on manual tracking:

- In total, the estimated "reach" of the media coverage generated is 13,651,219. "Reach" is defined as the estimated number of readers or viewers reached in a given medium.
- The publicity value of the media coverage is estimated at $248,466. Publicity value is calculated by multiplying the advertising value equivalency by three, which is a factor generally accepted by the marketing industry. Advertising value equivalency is defined as the value of media coverage by comparing it to the cost of a similar placement as an advertisement.

Notably, Hawaii Energy strategically organized three press conferences to highlight successful energy efficiency projects achieving significant electricity savings, which were all enabled by Hawaii Energy incentives. Working with the entities, we were able to orchestrate conferences well-attended by key government and community leaders and garner much positive media coverage. These and other public relations initiatives are summarized below:

Refrigerator/Freezer Bounty Program

In October 2011, the Program kicked off a new and improved Bounty Program (offering free hauling and recycling of old refrigerators and freezers plus a rebate to Hawaii, Maui and Oahu island residents). Coverage included KGMB-9 live morning news segment, as well as key newspapers throughout the counties.

Home Energy Reports (Peer Comparison with OPower)

In January 2012, the Program announced and explained the expansion of Hawaii Energy's Home Energy Reports initiative to approximately 62,000 randomly selected households in Hawaii and Maui counties. Coverage included key newspapers throughout the counties.

Castle Medical Center

In February 2012, in collaboration with the State of Hawaii Department of Business, Economic Development & Tourism (DBEDT) Energy Office, the Program planned and coordinated a press event for the presentation of a $647,637 check from ARRA and PBF to Castle Medical Center. The presentation was held in recognition of extensive energy efficiency measures recently completed, which will save an estimated 635,100 kWh annually. The rebate is the largest issued by Hawaii Energy to date. The event was attended by Governor Neil Abercrombie and Hawaii Energy Program Manager Ray Starling, as well as public and private sector energy leaders. Coverage included KHON-2 and Hawaii News Now evening news, as well as key newspapers.

Castle Medical Center Check Presentation

3 CFL Challenge

In March 2012, the Program launched "The 3 CFL Challenge," which encouraged everyone to change out three more old-fashioned, incandescent light bulbs to energy-efficient, money-saving CFLs and to tell three others to do the same. Coverage included: (1) radio interviews on Hawaii Public Radio, KHVH 830 AM news radio, 98.5 FM Island Rhythm, 101.9 FM Star and 93.9 FM Jamz; (2) radio interviews and public service announcements on Cox radio stations (KRTR 96 FM, KCCN 100 FM, KINE 105 FM and KPHW 104.3 FM); (3) KHON-2 evening news segment; and (4) key local newspapers.

Leeward Community College and University of Hawaii at West Oahu's 10th Annual Career, College & Job Fair

In April 2012, to increase awareness and encourage attendance, the Program publicized its first-ever sponsorship of Leeward Community College and University of Hawaii at West Oahu's 10th Annual Career, College & Job Fair, which took place on April 4, 2012. This year's fair was focused on "Clean Energy Connections", which are clean energy career and training opportunities. Coverage included interviews and news segments on Hawaii News Now, KITV-4 and KHON-2.

Honolulu Museum of Art with Energy Industries

On May 27, 2012, we collaborated with the Honolulu Museum of Art and its contractor Energy Industries in a major press conference and check presentation. Community leaders including Governor Abercrombie, Hawaii Public Utilities Commission Chair Hermina Morita and Hawaii Energy Program Manager Ray Starling participated in the event in honor of the museum's completion of an extensive energy-efficient retrofit involving its HVAC and control systems. The retrofit has reduced the museum's electricity by 28 percent, which saves an estimated $250,000 annually. The $346,026 incentive check presented to the museum is the largest received to date by a charitable organization from the PBF. Coverage included news segments on KHON-2, KITV-4 and Hawaii News Now, as well as the Associated Press.

Forest City Military Communities' Energy Smart Initiative

On May 26, 2012, the Program orchestrated a major press conference to launch Hawaii's Energy Smart Initiative with Forest City Military Communities. The initiative is the state's first large-scale effort to transform two entire residential communities to achieve an energy-efficient lifestyle and is anticipated to achieve a minimum of 1.3 million kWh energy reduction annually. Participating in the event were community leaders including Lieutenant Governor Brian Schatz, Marine Colonel Brian P. Annichiarico, Navy Captain Jeffrey W. James and Hawaii Energy Program Manager Ray Starling. Coverage included new segments on KHON-2, KITV-4, Hawaii News Now and Hawaii Public Radio, as well as key newspapers.

Press Conference with Forest City Military Communities to Launch Hawaii Energy's Smart Initiative

Hawaii Energy Transformational Offerings

Throughout the program year, the Program publicized two key Transformational offerings sponsored by Hawaii Energy to increase awareness and participation: (1) EEFG Hawaii Energy Workshop Series in Hawaii, Honolulu and Maui counties and (2) Association of Energy Engineer's five-day Comprehensive Training Program for Energy Managers.

Highlights of print and online media coverage as compiled by Hawaii Energy are in Attachment H. Key coverage ranged from general population publications to localized media:

- Cover page of the business section in the state's widest circulated daily newspaper (i.e., Honolulu Star-Advertiser)
- Widely read weekly business newspaper Pacific Business News and its daily news website bizjournals.com/pacific
- Neighbor island newspapers (i.e., Lanai Today's front page stories, Publisher's Letter in Maui News, Molokai News, West Hawaii Today, Hawaii Tribune-Herald and North Hawaii News)
- Main local news websites and magazines (e.g., Civil Beat, Hawaii Business, Pacific Edge, HawaiiNewsNow.com, KHON2.com and KITV.com)
- Trade and specialized publications (e.g., Building Management Hawaii, Green magazine, Forest City Residential Management Community newsletter)

Outreach

For PY11, Hawaii Energy's outreach efforts included: (1) partnering with local businesses and nonprofit organizations to further our conservation messaging efforts and (2) increasing our presence and participation at local events and expos in order to broaden our audience reach. Through our partnerships, we were able to build and strengthen relationships, as well as increase brand awareness.

Hawaii Energy partnered with the Honolulu Board of Water Supply to support its 2012 Water Conservation Week Poster & Poetry Contest. On May 16th, many of our island's keiki were recognized at an awards ceremony for their winning posters and poetry.

Partnerships

Honolulu Board of Water Supply

Hawaii Energy was one of three Platinum sponsors for the Honolulu Board of Water Supply's (BWS) 2012 Water Conservation Week Poster and Poetry Contests. More than 2,000 posters and 270 poems were received in the 34th annual poster and 4th annual poetry contests. Winners were selected based on the accuracy of information, originality, creativity and artistic or poetic ability, based on the student's age, to convey this year's contest theme, "The Wonder of Water." The winning students were each recognized and presented with awards.

Parents and Children Together (PACT)

Parents and Children Together (PACT) is one of Hawaii's leading nonprofit family services agencies and each year they hold their largest, annual fundraiser on "Keiki Day." Each year through the Honolulu Star-Advertiser, special edition newspapers are sold to help fund the organization. We decided to expand our outreach efforts by collaborating with PACT, which was our first partnership with a nonprofit, unrelated to the energy industry. Through our sponsorship, we helped to develop and refine the theme of the writing and art contest "Energy Super Heroes" and provided energy-saving themed editorial. Several of our employees were also featured in a thank you ad for the special edition newspaper. Over 1,000 art and essay submissions were received this year from Oahu student's grades 1 through 12 in public, private, charter and home schools. Contest winners were featured in a special edition of the Honolulu Star-Advertiser and were then sold during a one-day event with proceeds to benefit the organization. This year, PACT raised over $78,000 to support its 15 family-strengthening programs throughout Hawaii.

Department of Water Supply, County of Hawaii

Hawaii Energy partnered with the Hawaii Department of Water Supply to help promote efficiency and conservation during "Detect-A-Leak Week" from March 12 through 17, 2012. The purpose of the week is to encourage all Hawaii Island residents to conserve by checking for water leaks at their homes, properties and workplaces. We provided water leak detection tablets to residents through the Department of Water Supply, Home Depot Hardware Stores and the County of Hawaii Mayor's Office in Hilo and Kona.

Blue Planet Foundation

The Program collaborated with Blue Planet Foundation during the neighbor island Bulb Blitzes throughout Hawaii and Maui counties. The program sub-contracted Blue Planet Foundation to run these light bulb exchange projects, which coincided with "The 3 CFL Challenge" campaign – a campaign that encouraged everyone to change three or more old-fashioned light bulbs to energy-saving CFLs and to tell others to do the same. Students from Hawaii and Maui county schools helped to run and promote these community outreach events. In exchange for their efforts, the Bulb Blitzes also served as fundraiser for their schools or programs. In addition to the Bulb Blitzes, the Program collaborated with Blue Planet Foundation to help build a brilliant, solar-powered holiday exhibit that was displayed during the 2011 Honolulu City Lights.

Rebuild Hawaii

In conjunction with the Rebuild Hawaii Consortium, the Program presented business and residential program offerings to approximately 120 attendees and 380 online viewers at Rebuild Hawaii Consortium's quarterly meeting. A hosted live webcast of the meeting was executed as part of the consortium's effort to encourage and facilitate partnerships that help leverage its members' assets to develop innovative solutions to energy and resource efficiency issues.

Event Participation

In PY11, the Program participated and/or hosted 107 events. Of these events 52% were on Oahu, 27% on Hawaii Island and 21% on Maui. Il, Hawaii Energy reached 23,211 people.

In April of this year, the Program participated in numerous key Earth Day-related community outreach events throughout the month, estimated to have collectively reached over 11,000 residents.

Number of Events	Hawaii	Honolulu	Maui	Grand Total
Community Event	8	26	8	42
Transformational Event	21	29	15	65
Grand Total	**29**	**55**	**23**	**107**

Number of People	Hawaii	Honolulu	Maui	Grand Total
Community Event	560	15,856	2,255	18,671
Transformational Event	509	3,567	464	4,540
Grand Total	**1,069**	**19,423**	**2,719**	**23,211**

KEY REPORTING ASSUMPTIONS

Hawaii Energy

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 PY11 TRM represents a total of 81 measures for both residential and commercial programs and is shown as Attachment G.

Overview of the TRM 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 Energy Efficiency Program Design Information (e.g. Efficiency Maine, Focus on Energy, etc.)
- CEUS – The California Commercial Building End-Use Survey
- Evergreen TRM Review/Report dated 2/23/12
- 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 generation, transmission and distribution of energy from the power plant 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 75**.

Table 75 - System Loss Factors

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

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.

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 or receive the savings measure.

Table 76 shows the NTG ratios used for the utilities' 2008 program year (HECO 2008 A&S report). Hawaii Energy utilizes the combined program total NTG ratio of 73%.

Table 76 - Net-to-Gross Values

Program		Net-to-Gross Ratio		Savings	
		Energy	Demand	Net Energy Savings 2008	Gross Energy Savings 2008
HECO (PY08)	CIEE	0.653	0.664	45,798,527	70,135,569
	CINC	0.596	0.610	17,469,147	29,310,648
	CICR	0.759	0.755	28,749,233	37,877,777
	ESH	0.850	0.850	32,203,749	37,886,763
	REWH	0.729	0.731	8,237,872	11,300,236
	RNC	0.841	0.885	8,267,217	9,830,222
	RLI	1.000	1.000	7,899,869	7,899,869
TOTAL				148,625,614	204,241,084
Program		**Net-to-Gross Ratio**		**Savings**	
		Energy	**Demand**	**Net Energy Savings 2011**	**Gross Energy Savings 2011**
Hawaii Energy Program (PY11)		0.730	0.730	128,785,968	176,419,134

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 77**. 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 77 - HECO IRP 4 Avoided Costs

HECO IRP 4 Avoided Costs					
Year	$ / MWh	$ / kW	Year	$ / MWh	$ / kW
2006	$109.62	$180.20	2016	($132.67)	$1,704.00
2007	$107.16	$181.14	2017	($118.95)	$1,537.80
2008	$102.19	$181.14	2018	($115.35)	$1,412.69
2009	$106.89	$181.14	2019	($109.01)	$1,304.38
2010	$98.90	$0.00	2020	($104.57)	$1,207.27
2011	$100.41	$0.00	2021	($100.02)	$1,149.38
2012	$401.04	$0.00	2022	($109.30)	$1,112.04
2013	$103.69	$0.00	2023	($111.41)	$1,076.56
2014	$108.86	$0.00	2024	$137.80	($411.76)
2015	($139.65)	$1,530.33	2025	$144.46	($744.16)

Proxy Avoided Cost Developed

The avoided cost that is used for PY11 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 78** 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 78 - Program Avoided Cost Table

		Discount Rate		
		6%	Utility Avoided Cost	
Year	Measure Life	NPV Multiplier	$/kW/yr.	$/kWh/yr.
2011	1	1.00	$ 306	$ 0.100
2012	2	0.94	$ 339	$ 0.104
2013	3	0.89	$ 353	$ 0.104
2014	4	0.84	$ 371	$ 0.109
2015	5	0.79	$ 383	$ 0.112
2016	6	0.75	$ 386	$ 0.113
2017	7	0.70	$ 388	$ 0.114
2018	8	0.67	$ 389	$ 0.114
2019	9	0.63	$ 392	$ 0.115
2020	10	0.59	$ 391	$ 0.115
2021	11	0.56	$ 395	$ 0.116
2022	12	0.53	$ 398	$ 0.117
2023	13	0.50	$ 397	$ 0.117
2024	14	0.47	$ 401	$ 0.118
2025	15	0.44	$ 406	$ 0.119
2026	16	0.42	$ 409	$ 0.120
2027	17	0.39	$ 416	$ 0.122
2028	18	0.37	$ 423	$ 0.124
2029	19	0.35	$ 429	$ 0.126
2030	20	0.33	$ 436	$ 0.128

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 recommendations based on current market research and in-field savings verification of measures.

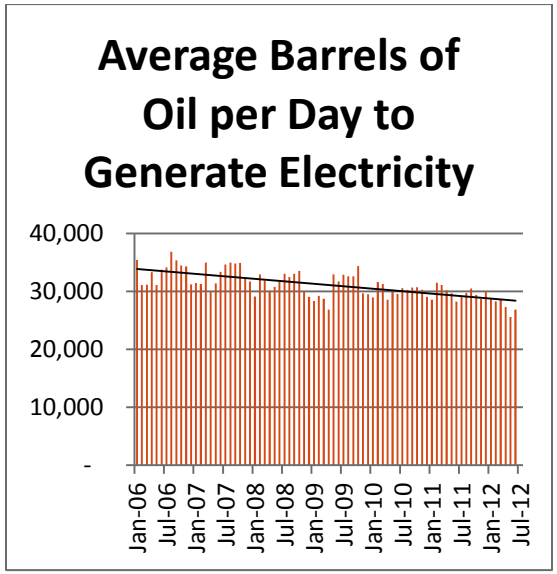
CONCLUSION

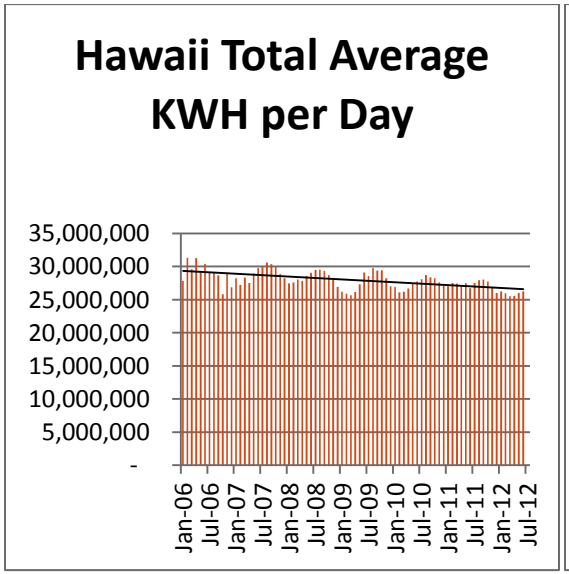
Hawaii Energy

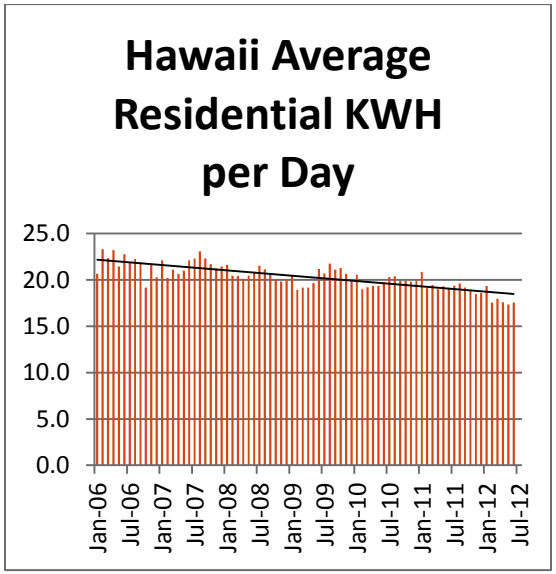
This PY2011 Annual Report clearly shows that after three years as the State's first Public Benefits Fee Administrator, the Hawaii Energy Team has successfully evolved the State's energy conservation and efficiency Program into a critical contributor for Hawaii's clean energy efforts.

With strong PUC support and guidance, Hawaii Energy has greatly expanded its reach and portfolio of services and incentives designed to reduce Hawaii's use of electric power, using innovative new ideas and creative partnerships. Through strategic collaboration with trade allies and community action groups, the Program now reaches people and places never touched before, ensuring that all have an opportunity to participate.

Finally, the charts below show the exciting results thus far of the collective efforts of many to reduce Hawaii's energy use and its dependence on imported fuels. While Hawaii still has a long way to go, we are definitely moving in the right direction. This should give all of us hope for a sustainable clean energy future. But this future will only happen if we all keep our focus and relentlessly pursue our clean energy goals together.







MAHALO TO OUR ALLIES, SUPPORTERS AND CUSTOMERS –

We pledge to keep your trust always and continue to raise the bar on ourselves and Hawaii in the years to come.

DESCRIPTION OF ATTACHMENTS

Hawaii Energy

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

Attachment B: PY2011 Program Participation List
A report of program impacts by program and measure, including gross and net, annualized and lifecycle savings.

Attachment C: PY2011 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: PY2011 Annual Plan
The program annual plan which provides SAIC's strategies and plans for administration and delivery of the Hawaii Energy portfolio for PY11 (July 1, 2011 to June 30, 2012). 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: PY2011 Media Coverage Report
The media coverage report contains highlights of print and online media coverage, which ranged from general population publications to localized media.