



# Annual Report

## Program Year 2012

July 1, 2012 - June 30, 2013

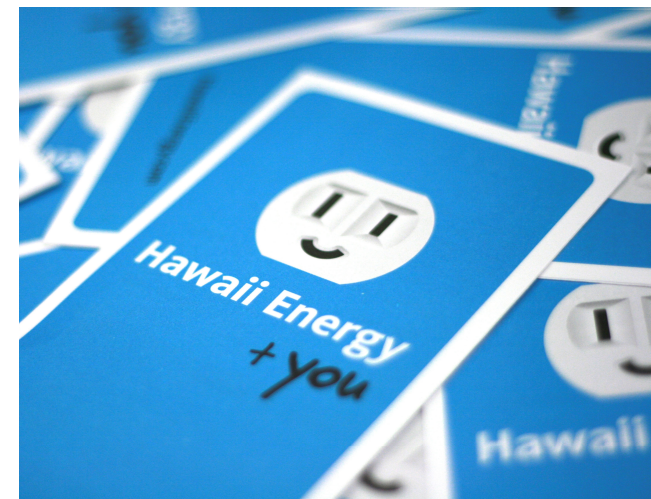
Submitted to the Hawaii Public Utilities Commission  
on November 7, 2013 by

**Leidos Engineering, LLC\***

Public Benefits Fee Administrator  
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*\*Formerly known as SAIC Energy, Environment & Infrastructure, LLC (prior to September 27, 2013).*



*Hawaii Energy is a ratepayer-funded conservation and efficiency program administered by Leidos Engineering, LLC (formerly known as SAIC) under contract with the Hawaii Public Utilities Commission serving the islands of Hawaii, Lanai, Maui, Molokai and Oahu.*

*Full report with attachments available at  
[www.hawaiienergy.com/information-reports](http://www.hawaiienergy.com/information-reports)*

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## A MESSAGE FROM THE PROGRAM DIRECTOR



On behalf of the entire Hawaii Energy Team, we are proud to submit our Program Year 2012 (PY12) Annual Report, covering July 1, 2012 through June 30, 2013 and highlighting our fourth year as Hawaii's Public Benefits Fee Administrator (PBFA).

This has been a very good year for energy efficiency in Hawaii. As detailed in this Report, Hawaii Energy's efficiency programs for PY12 will deliver 1.4 billion kWh in lifetime energy savings to the electric grid at a bargain total program cost of 2.3¢ per kWh. This, in turn, will save an estimated equivalent of 2.4 million barrels of oil and 1.2 million tons of greenhouse gas emissions. And, at an average electric utility price of 30.7¢ per kWh, customers will save approximately \$405 million on their electric bills over the life of the installed efficiency measures. These figures show the exceptional cost-effectiveness of investing in energy efficiency and why efficiency is Hawaii's premier electric grid resource, over oil, gas, coal, PV, biomass, hydro, geothermal and wind.

In addition to meeting our PY12 kWh savings goals at a very attractive price for our customers, Hawaii Energy reorganized its internal structure to better facilitate the development and implementation of forward-looking strategies and innovative new measures. We also continued to enhance our customer engagement and build on existing collaborative relationships with our industry allies, Contract Manager, M&V Contractor, Hawaii Public Utilities Commission (PUC) and Government leaders. Together, these efforts will help ensure that Hawaii Energy continues to provide best-in-class energy conservation and efficiency programs for Hawaii's future.

Operationally in PY12, Hawaii Energy extended its aggressive engagement with residential and hard-to-reach business customers on neighbor islands; achieved significant success in getting condominium boards to adopt sub-metering; helped underserved small businesses participate with our Direct Install Lighting Program; established benchmarking and metering programs for Hawaii's large buildings; and developed multi-island opportunities to assist water and wastewater operations with energy efficiency upgrades and practices.

Most significantly this Program Year, Hawaii Energy (as PBFA) actively supported the PUC's bold On-Bill Financing (OBF) initiative, which is expected to be a catalyst for giving all Hawaii electricity consumers an equal opportunity to participate directly in the benefits of Hawaii's clean energy future. And at the end of our Program Year, we were quite pleased to be informed of the extension of our PBFA contract for another two years, with the addition of formal duties as the OBF Program Administrator. This convergence of our team's continued service and proven capability as PBFA, along with the PUC's new game-changing financing initiatives, an encouraging market potential study soon to be released and the strong working relationships we have established thus far promise exciting advances in Hawaii's clean energy progress going forward.

Finally, this Report represents the culmination of four years of evolutionary transition from the original legacy rebate program to an innovative, responsive and effective energy efficiency program today that is ready to lead the way into an accelerated clean energy future that Hawaii can and must own.

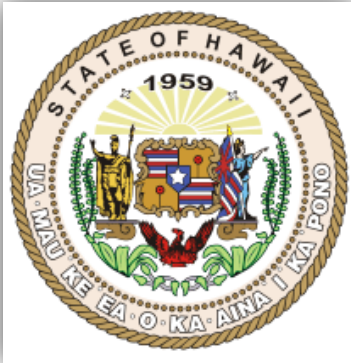
Respectfully submitted,

A handwritten signature in black ink that reads "H. Ray Starling". The signature is written in a cursive, flowing style.

H. Ray Starling  
Program Director

# BACKGROUND

## 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 Hawaiian Electric 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

## Historical Summary

### PYog - Smooth Transition

On July 1, 2009, responsibility for the “demand-side management” programs was transferred from the electric utilities to a third-party Public Benefits Fee Administrator (PBFA) reporting directly to the Hawaii Public Utilities Commission (PUC). The scope and goals of the contract were developed to provide a focus to the energy efficiency and conservation efforts supporting the PUC’s Legislative charge to meet the State of Hawaii’s Energy Efficiency Portfolio Standard. The goal of the program in its first year was to provide a smooth and seamless transition of the programs to ensure that the obligations and commitments to customers and the efforts of trade ally businesses were supported during the transition.

In the first year, the Program accomplished much, while acknowledging areas to improve, specifically:

#### Achievements

- Provided a smooth transition of responsibilities from the utilities.
- Developed an identity with a new name, logo and program website.
- Enlisted trade allies and community-based organizations to support the Program’s education, outreach and marketing efforts.
- Discontinued window air conditioner (A/C) program.
- Expanded ENERGY STAR® Appliance programs across all Islands.
- Standardized Commercial Program requirements and incentive levels across all Islands.
- Delivered \$11,900,000 in incentives driving customer bill savings of over \$29,200,000 annually and over \$255,000,000 over the life of the measures installed.
- Verified first year Program Level savings of 153.7 GWhs.



*The Hawaii Energy team*

# BACKGROUND

## Lessons Learned

- Need for increased efforts and methods to meet Island Equity goals.
- Need for program to enhance “Hard-to-Reach” participation.
- Provide for the ability to overcome economic impacts of the 2008 financial crisis.

## Significant Event

- State mandate for Residential Solar Water Heating in new construction single-family homes.



# BACKGROUND

## PY10 – Refinement and Additions

In its second year, Hawaii Energy sought to refine programs to increase cost effectiveness and impacts. One method was to best leverage existing contractor relationships and refine processes to expand participating manufacturers, distributors and retailers to provide more efficient products to more locations at prices that could drive purchases.

The Program moved quickly to help the State secure and implement Federal Stimulus Funding in 2011 while addressing the needs identified to help hard-to-reach and commercial projects.

### Implementation

- Initiated American Recovery and Reinvestment Act (ARRA) - funded projects.
  - Direct Implementation
    - Refrigerator Recycling Program to address “garage” or second refrigerator
    - Commercial Project Catalyst – 25% project cost
    - Residential Peer Group Comparisons
    - Solar Water Heating Loan Interest Buy-Down Program – Leveraging local financial institutions
    - Solar Water Heating Bonus – Increased to \$1,000 per system
  - Supported Activity
    - State of Hawaii Office of Community Services (OCS) Weatherization Program – Hawaii Energy provided solar water heating system inspections for low-income homes.
- Central plant optimization commissioning program to pursue operational and low-cost savings in air conditioning systems.
- Developed prescriptive commercial measure for Variable Refrigerant Flow installations to promote adoption of this technology.

### Achievements

- Supported the delivery of 1,798,633 CFLs into homes (66% increase over PY09).
- Successfully reached Island Equity Goals.
- Hired dedicated representatives for Maui and Hawaii counties.
- Delivered over \$13,700,000 in incentives driving customer bill savings of over \$48,100,000 annually and \$473,200,000 over the life of the measures installed.
- Verified first year Program Level savings of 106.5 GWhs.

## BACKGROUND

### Lesson Learned

- The need to provide long-term support for projects in the initial phases to allow for customers' engineering, design, procurement and budgeting cycles.

### Significant Event

- Federal ARRA grants



## BACKGROUND

### PY11 – Focus on Hard-to-Reach

In its third year, the Program addressed the need to provide outreach and energy education through portfolio offerings such as “Sharing the Aloha”, which presented workshops in hard-to-reach communities, training for grade school educators, who in turn would convey the knowledge to their students and training for professional energy certification.

The Program also initiated 100% granted incentives for small businesses and restaurants. This program overcame technical, financial and trust barriers to implement lighting projects for these underserved electric customers.

Hawaii Energy reached out to non-profit organizations in Hawaii and Maui counties for grant-based incentive opportunities in solar water heating. This effort resulted in over 50 “in-need” homes receiving solar water heating systems that for various reasons did not qualify for other funding opportunities (e.g., ARRA, Weatherization Assistance Program (WAP), etc.).

#### Implementation

- Introduced “Transformational” energy education and awareness programs
- Developed residential Solar Water Heater grant program
- Grassroots organization-supported CFL exchanges
- Small Business Direct Install Program

#### Achievements

- Greater program recognition through media efforts.
- First-implemented AOA submetering project after two years of customer and program efforts.
- Responded quickly to market opportunities to create and execute Garage Active Ventilation Controls within the program year.
- Conclusion of offerings created and/or enhanced through the additional funding from ARRA grants provided through the State Energy Office
- Delivered over \$17,083,253 in incentives driving customer bill savings of over \$51,671,208 annually and over \$407,587,061 over the life of the measures installed.
- Verified first year Program Level savings of 130.1 GWhs.

#### Lessons Learned

- Developed experience leveraging the great work and expertise of third-party organizations within their specific communities or professions.

The Annual Reports for PY09 to PY11 are available at [www.hawaiienergy.com/information-reports](http://www.hawaiienergy.com/information-reports).

# PROGRAM OVERVIEW, OBJECTIVES & ORGANIZATION

## Program Overview

### PY12 – Beyond Rebates: Expertise, Market Identification and Scale

In the fourth year, the Program issued a record \$21,814,052 in direct incentives and services to customers. Accomplishing this milestone was a result of the full implementation of prior efforts and execution of targeted pilot measures.

Completion of the Solar Water Heating Grant (100% incentive) offering with Hawaii Community Economic Opportunity Council (HCEOC) was fully realized this year with 169 systems installed for “in-need” homes. This effort was the result of a year-long collaboration between the Program and its trade allies.

The Direct Install programs hit full stride serving 583 small business and restaurants providing a lifetime energy cost reduction of \$26,738,793. This effort was the result of a two year collaboration of the Program and its trade allies.

The Program extended the expertise gained over the past three years through market intelligence and data analysis of executed projects. By gaining a better understanding of current operational, physical conditions of energy-consuming systems and revealing non-technical barriers, the Program was able to overcome various barriers (e.g., funding gaps, job responsibilities, team capability or expertise in energy management) with offerings of training, equipment, targeted technical support and the traditional financial incentives to help specialized sectors realize their opportunities for energy savings.

### Implementation

- The Transformational program reached 600 government employees, 262 educators, 473 professionals and 2,733 residents.
- At the request of the PUC, Hawaii Energy began a program to support energy efficiency within the water and wastewater treatment and distribution sector. Over 38 facilities in all counties were visited to identify opportunities for energy efficiency measures and to identify other technical support needs for management and operation personnel. The Program funded metering equipment and training to assist in the counties’ water and wastewater agencies’ efforts to optimize pump efficiency.
- Start of On-Bill Financing Program design.

# PROGRAM OVERVIEW, OBJECTIVES & ORGANIZATION

## Achievements

- The Program invested a total of \$30,903,826 to deliver 1,458,535,502 kWh (system-level) over the measure lives resulting in a cost per kWh of \$0.021.
- Delivered \$21,814,052 in incentives driving customer bill savings of \$45,054,796 annually and over \$ 404,952,708 over the life of the measures installed. See **Table 1** for details.
- A first year Program Level savings of 140.1 GWhs.
- Diversified portfolio away from reliance on CFLs by 7%, while increasing LEDs by 124%.

Table 1 PY12 Customer Energy Cost Savings										
Customer First Year Energy Cost Savings (July 2013 Effective Marginal kWh Rates)										
Island	R	G	J	P	DS	U	F	Total	kWh - 1st yr.	\$/kWh
Hawaii Island	\$ 5,789,210	\$ 532,688	\$ 852,754	\$ 725,928	\$ -	\$ -	\$ -	\$ 7,900,581	20,306,271	0.38907
Lanai	\$ 276,679	\$ 23,616	\$ 2,069	\$ -	\$ -	\$ -	\$ -	\$ 302,363	642,373	0.4707
Maui	\$ 3,942,737	\$ 254,588	\$ 574,354	\$ 1,221,290	\$ -	\$ -	\$ 118	\$ 5,993,087	16,961,421	0.35334
Molokai	\$ 261,269	\$ 2,831	\$ 9,300	\$ -	\$ -	\$ -	\$ -	\$ 273,401	594,362	0.45999
Oahu	\$ 20,224,548	\$ 1,229,281	\$ 3,550,448	\$ 4,685,249	\$ 895,239	\$ 608	\$ -	\$ 30,585,373	101,580,731	0.30109
<b>Total</b>	<b>\$ 30,493,258</b>	<b>\$ 2,044,181</b>	<b>\$ 4,988,925</b>	<b>\$ 6,632,467</b>	<b>\$ 895,239</b>	<b>\$ 608</b>	<b>\$ 118</b>	<b>\$ 45,054,796</b>	<b>140,085,158</b>	<b>0.32162</b>
Customer Lifetime Energy Cost Savings (July 2013 Effective Marginal kWh Rates)										
Island	R	G	J	P	DS	U	F	Total	kWh - lifetime	\$/kWh
Hawaii Island	\$ 36,949,097	\$ 7,416,975	\$ 11,485,941	\$ 10,579,920	\$ -	\$ -	\$ -	\$ 66,431,933	176,270,811	0.37687
Lanai	\$ 448,442	\$ 334,974	\$ 28,962	\$ -	\$ -	\$ -	\$ -	\$ 812,378	1,720,086	0.47229
Maui	\$ 25,608,053	\$ 3,545,840	\$ 7,901,727	\$ 17,557,526	\$ -	\$ -	\$ 590	\$ 54,613,735	159,538,749	0.34232
Molokai	\$ 305,357	\$ 42,462	\$ 115,943	\$ -	\$ -	\$ -	\$ -	\$ 463,762	1,018,042	0.45554
Oahu	\$ 146,524,919	\$ 15,458,095	\$ 42,629,676	\$ 62,262,714	\$ 15,749,420	\$ 6,076	\$ -	\$ 282,630,900	978,656,092	0.28879
<b>Total</b>	<b>\$ 209,835,868</b>	<b>\$ 26,798,346</b>	<b>\$ 62,162,248</b>	<b>\$ 90,400,160</b>	<b>\$ 15,749,420</b>	<b>\$ 6,076</b>	<b>\$ 590</b>	<b>\$ 404,952,708</b>	<b>1,317,203,780</b>	<b>0.30743</b>

## Lessons Learned

- Focus on industry segments is effective and should be continued.
- Better ways to gain valuable benchmarking and baseline energy consumption data and with this knowledge, transitioned from a more expensive and complex measure (Central Plant Optimization) to much more economical measure that will ultimately produce similar results.

## Significant Events

- The PUC issued Decision & Order #30974 (Docket No. 2011-0186) in response to Hawaii Revised Statutes §269-125 establishing the criteria for on-bill financing program development and implementation.

# PROGRAM OVERVIEW, OBJECTIVES & ORGANIZATION

## Program Objectives

In addition to the PBFA Contract requirements and performance incentive goals, the Program's broader objectives for PY12 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 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 downturn.

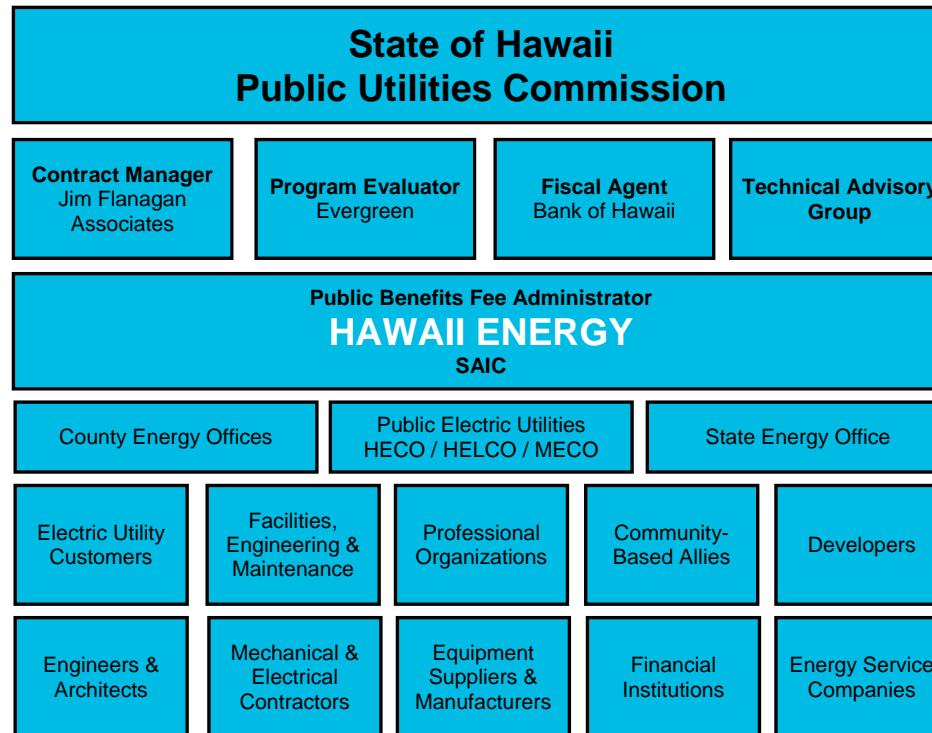


# PROGRAM OVERVIEW, OBJECTIVES & ORGANIZATION

## Program Organization – Oversight and Support

During PY12, 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 OVERVIEW, OBJECTIVES & ORGANIZATION

## 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)**  
Conducted Lanai Hui Up and prepared for upcoming Hui Up initiative on Molokai in PY13.
- **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.
- **Kanu Hawaii (1050 Bishop Street, #504, Honolulu, Hawaii 96813)**  
Local non-profit that organizes personal and community efforts in Hawaii to shape long-term sustainability and widespread compassion; supporting Transformational messaging and lending library.

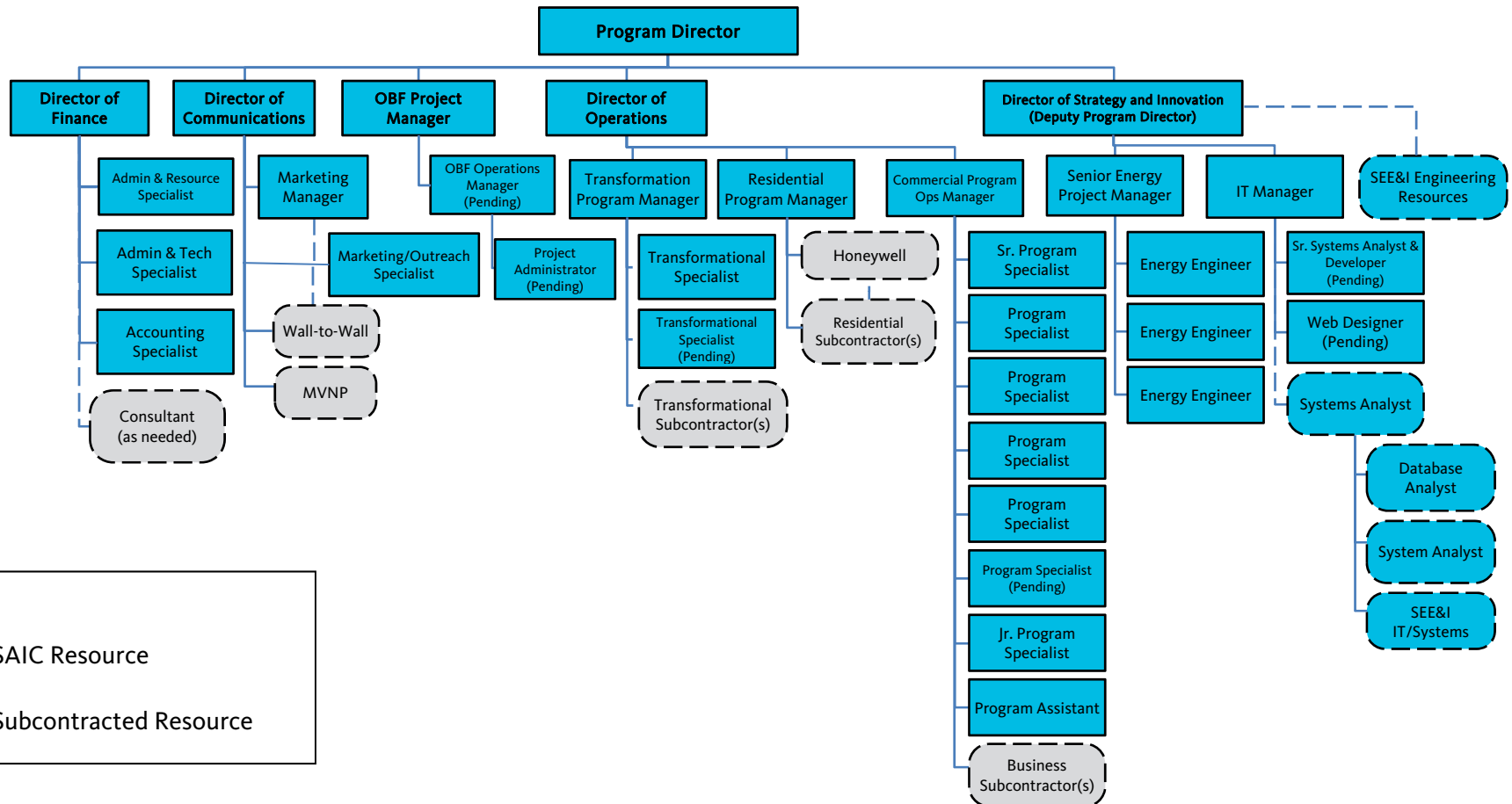
## PROGRAM OVERVIEW, OBJECTIVES & ORGANIZATION

- **Kupu (4211 Waialae Avenue, Honolulu, Hawaii 96816)**  
To empower youth to serve their communities through character-building, service-learning, and environmental stewardship opportunities that encourage integrity; supporting energy efficiency interns through Rewarding Internships for Sustainable Employment (RISE) program.
- **MVNP (999 Bishop Street, 21st Floor, Honolulu, Hawaii 96813)**  
Provided marketing and public relations strategy and support.
- **National Energy Education Development Project: NEED (8408 Kao Circle, Manassas, Virginia 20110)**  
Evolving to best meet the needs of teachers and students in the classroom to understand energy efficiency; supporting Transformational programs in K-12 schools.
- **Opower (1515 N Courthouse Road, 8<sup>th</sup> Floor, Arlington, Virginia 22201)**  
Supporting peer group comparison Home Energy Reports to residences in Maui County, Hawaii County and select parts of Honolulu County.
- **Smart Sustainability Consulting (2957 Kalakaua Ave, Honolulu, Hawaii 96815)**  
Educating and empowering businesses, organizations and institutions to achieve transformative systemic change; supported Transformational behavioral change programs.
- **Wall-to-Wall Studios (1128 Nuuanu Avenue, Suite 203, Honolulu, Hawaii 96817)**  
Provided online and advertising creative design services and media placement.

# PROGRAM OVERVIEW, OBJECTIVES & ORGANIZATION

The Program's organization at the end of PY12 (including pending hires) is shown in the chart below:

**PY12 Program Organizational Chart**



# PERFORMANCE INDICATOR RESULTS

## 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 PY12 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 PY12 Performance Indicators			
PY2012 Performance Indicators			
	Min	Target	Max
<b>First Year Energy Reduction (kWh)</b>	88,169,207	117,558,943 kWh/yr	129,314,837
<b>Peak Demand Reduction (kW)</b>	17,345	17,771 kW	25,439
<b>Utility Cost Avoidance (TRB)</b>	\$ 100,747,807	\$ 125,934,759	\$ 151,121,711
<b>Market Transformation</b>	Substantially accomplish at least two Annual Plan Transformational Tasks in each of the four categories, including: Government, Business & Industry, Education and Residential.		
<b>Island Equity</b>	Honolulu	74%	+/- 20% of Target
	Hawaii	13%	+/- 20% of Target
	Maui	13%	+/- 20% of Target

# PERFORMANCE INDICATOR RESULTS

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

**Target: 117,558,943 kWh**

Annual Electric Energy Savings directly benefit 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 117,558,943 kWh currently equates to 1,455,379 MMBTUs or avoided use of 239,478 bbls of liquid fossil fuels in Hawaii, see **Table 5**. This equates to enough energy to power 19,177 homes for a year.

**Table 5**  
**Estimation of Potential Fossil Fuel Avoidance**

<b>PY12 - Potential Barrels (BBLs) of Fossil Fuels Avoided</b>				
Annual Program Level Energy Savings Target	117,558,943	kWh/Yr.		
Average Program Attribution to System Level Impact	÷ 81%			
<b>System Level Gross Generation Energy Impact</b>	<b>145,134,498</b>	<b>kWh/Yr.</b>		
<b>Est. 2012 Electrical Generation Source Distribution</b>				
Renewable Energy Sold	969,490,000	kWh/Yr.		10.0%
Fossil-Fuel Energy Sold	+ 8,725,410,000	kWh/Yr.		90.0%
Total Energy Sold	9,694,900,000	kWh/Yr.		
System Level Gross Generation Energy Impact	145,134,498	kWh/Yr.		
% System Average Fossil-Fuel Generation	x 90%			
Reduction Target Impact in Fossil Fuel-Generation	130,621,048	kWh		
<b>Energy Avoided into Generators</b>				
Fossil-Fuel Energy Generated	130,621,048			
Avg. System Generating Heat Rate	x 11,142	BTU/kWh		
Energy Required for Fossil-Fueled Electricity Production	1,455,379,714,340	BTU/Yr.		
Average System BTU/BBL				
<b>Generation Liquid Fossil Fuel Mix</b>				
Energy in BBL of Low Sulfur Fuel Oil	6,200,000	BTU/BBL		67.0%
Energy in BBL of #2 Fuel Oil (Diesel)	5,860,000	BTU/BBL		31.0%
Energy in BBL of Naptha	5,335,500	BTU/BBL		2.0%
Average System BTU/BBL	6,077,310	BTU/BBL		100.0%
Energy Required for Fossil-Fueled Electricity Production	1,455,379,714,340	BTU/Yr.		
Average System BTU/BBL	÷ 6,077,310	BTU/BBL		
Number of Barrels of Fossil-Fuel Avoided	239,478	BBLs/Yr.		
Number of Barrels of Fossil-Fuel Avoided	239,478	BBLs/Yr.		
Potential Cost per BBL for Fossil Fuels	x \$ 125	per BBL		
Potential Fossil Fuel Cost Savings to State	\$ 29,934,702	per year		

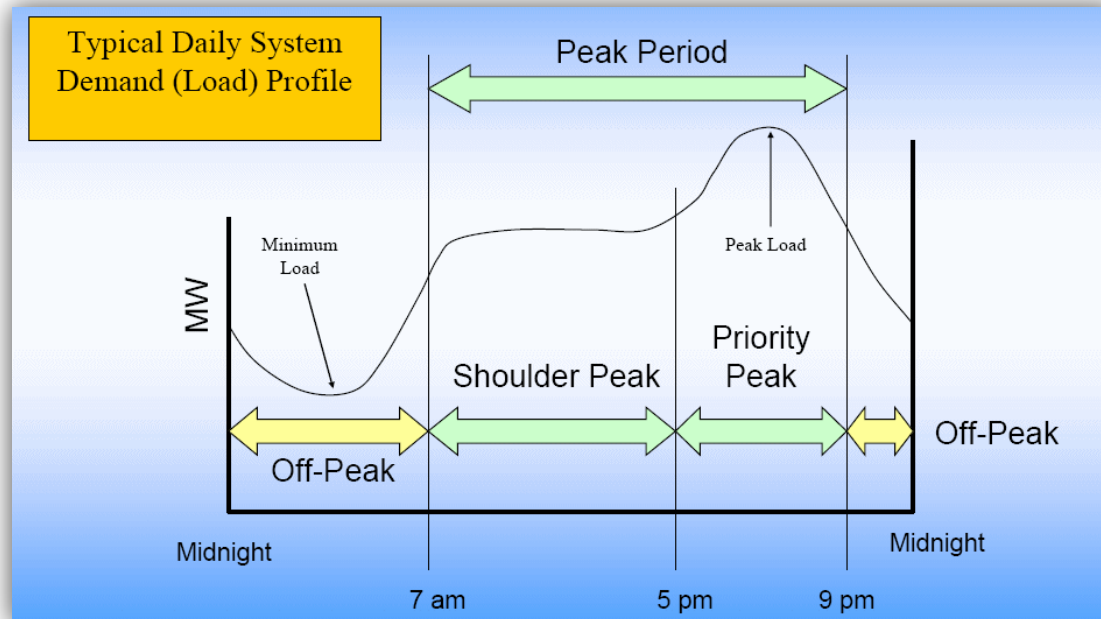
# PERFORMANCE INDICATOR RESULTS

## Performance Indicator #2: Peak Demand Savings

**Target:** 17,771 kW

Peak Demand Reduction is focused on reducing the electrical load during the traditional peak demand period between 5 and 9 p.m. on 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 17,771 kW is equivalent to the power required to operate 4,442 water heaters at 4 kW each.



# PERFORMANCE INDICATOR RESULTS

## Performance Indicator #3: Total Resource Benefit (TRB)

**Target: \$125,934,759**

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 IRP<sub>4</sub> and adjusted under the advice of the Contract Manager. Average annual avoided cost for capacity and energy for calendar year 2012 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 a hypothetical 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’s TRB result.

Table 6 Example of TRB Look Up Table													
Example of the TRB Calculation using Look Up Table													
	Life								kW Target	kWh Target		Project Cost	
	8	Discount Rate							25.0	25,000.0		\$ 45,000	
		6%	Utility Avoided Cost		NPV for each Year		Cumulative NPV		TRB				
Year	Measure Life	NPV Multiplier	\$/kW/yr.	\$/kWh/yr.	\$/kW/yr.	\$/kWh/yr.	\$/kW/yr.	\$/kWh/yr.	Capacity Benefit	Energy Benefit	Total Resource Benefit	TRB/TRC Ratio	
2012	1	1.00	\$ 339	\$ 0.104	\$ 339	\$ 0.1040	\$ 339	\$ 0.1040	\$ 8,466	\$ 2,601	\$ 11,067	0.25	
2013	2	0.94	\$ 353	\$ 0.104	\$ 333	\$ 0.0978	\$ 672	\$ 0.2019	\$ 16,796	\$ 5,047	\$ 21,843	0.49	
2014	3	0.89	\$ 371	\$ 0.109	\$ 330	\$ 0.0969	\$ 1,002	\$ 0.2987	\$ 25,042	\$ 7,469	\$ 32,510	0.72	
2015	4	0.84	\$ 383	\$ 0.112	\$ 321	\$ 0.0943	\$ 1,323	\$ 0.3931	\$ 33,071	\$ 9,827	\$ 42,898	0.95	
2016	5	0.79	\$ 386	\$ 0.113	\$ 306	\$ 0.0899	\$ 1,629	\$ 0.4830	\$ 40,719	\$ 12,074	\$ 52,793	1.17	
2017	6	0.75	\$ 388	\$ 0.114	\$ 290	\$ 0.0851	\$ 1,918	\$ 0.5681	\$ 47,962	\$ 14,202	\$ 62,164	1.38	
2018	7	0.70	\$ 389	\$ 0.114	\$ 274	\$ 0.0806	\$ 2,193	\$ 0.6486	\$ 54,820	\$ 16,216	\$ 71,036	1.58	
2019	8	0.67	\$ 392	\$ 0.115	\$ 261	\$ 0.0766	\$ 2,453	\$ 0.7252	\$ 61,336	\$ 18,130	\$ 79,467	1.77	
2020	9	0.63	\$ 391	\$ 0.115	\$ 245	\$ 0.0720	\$ 2,699	\$ 0.7972	\$ 67,464	\$ 19,930	\$ 87,395	1.94	
2021	10	0.59	\$ 395	\$ 0.116	\$ 234	\$ 0.0686	\$ 2,932	\$ 0.8658	\$ 73,304	\$ 21,646	\$ 94,949	2.11	

# PERFORMANCE INDICATOR RESULTS

## Performance Indicator #4: Market Transformation

### Target: Two Tasks in each of the Four Categories

Transformational efforts are those that involve education, training and other legislative support activities that may not result in direct quantifiable energy savings. The focus of this year's target is to develop community partnerships to leverage their reach and expertise in delivering energy education to specific "hard-to-reach" communities and industries. These efforts contribute to development of an infrastructure and mindset that will result in societal changes and increased energy savings in the future. **Table 7** provides a summary of the Market Transformation task options for PY12.

Table 7 – Summary of Transformational Programs

Residential and Commercial Code Training Seminars	Government Support
Rebuild Hawaii Consortium	
Transforming End-Use Behavior: AEIM	
1 <sup>st</sup> Annual Hawaii Sustainability in Higher Education Summit	
Green Classroom Professional Certificate Workshop & Toolkits	
Residential and Commercial Code Training Seminars	Business & Industry Support
The Efficiency Sales Professional Boot Camp	
Learning to S.E.E. (Sell Efficiency Effectively)	
Financial Analysis of Energy Efficiency Projects	
Using Efficiency to Build Your Business	
Finding Your Focus	
Getting Efficiency Projects Approved	
Boosting Your Competitiveness	
Taking Control of Your Energy Use	
Making Efficiency Happen	
Fostering Sustainable Behavior through Community-Based Social Media Marketing	Education Support
Certified Energy Manager (CEM), Energy Manager in Training (EMIT)	
Business Lighting Workshops – "LED vs. Everything" workshop	
Energy Resource Center - Molokai	
Energy Education in the Schools - NEED	
Basic Energy Workshop	Residential Support
Building Science Workshop	
Teacher Advisory Board	
Transforming End-Use Behavior: SEAD	
Kupu – R.I.S.E. (Rewarding Internships for Sustainable Employment)	
Hui Up 3.0 – Green Workforce Development	
Hui Up 3.0 – Energy Literacy in Hard-to-Reach Communities	
Energy Literacy in Hard-to-Reach Communities: Sharing the Aloha	
Energy Efficiency Literacy at Scale – Energy-Saving Information	
Energy Efficiency Literacy at Scale – Lending Library Pilot	
Energy Efficiency Literacy at Scale – Video Training	

## PERFORMANCE INDICATOR RESULTS

### 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 PY12, "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, training and other Program initiatives.

Table 8 lists the results of the PY12 contributions to the PBF by county.

Table 8 PY12 PBF Contribution by County			
County		Contribution	%
Honolulu	\$	28,915,580	74%
Hawaii	\$	5,029,636	13%
Maui	\$	5,142,431	13%
<b>Total</b>	\$	39,087,647	100%

# PERFORMANCE INDICATOR RESULTS

## 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 PY12, 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 PY12 is \$833,001 as shown in **Table 9**.

Table 9 PY12 Potential Performance Incentive Awards						
PBFA Performance Incentive Award Structure						
	Minimum	Target	Maximum	Weight	Target	
<b>Total Target Value</b>				100%	\$	700,000
<b>First Year Energy Reduction</b>	75%	100%	110%			
	\$ 183,750	\$ 245,000	\$ 303,188	35%	\$	245,000
<b>Peak Demand Reduction</b>	75%	100%	110%			
	\$ 26,250	\$ 35,000	\$ 43,313	5%	\$	35,000
<b>TRB NPV of Utility Cost Avoidance</b>	80%	100%	120%			
	\$ 224,000	\$ 280,000	\$ 346,500	40%	\$	280,000
<b>Market Transformation</b>	100%	100%	100%			
	\$ 70,000	\$ 70,000	\$ 70,000	10%	\$	70,000
<b>Broad Participation "Island Equity"</b>	100%	100%	100%			
	\$ 70,000	\$ 70,000	\$ 70,000	10%	\$	70,000
If all indicator metrics meet this level:	<b>Minimum</b>	<b>Target</b>	<b>Maximum</b>			
Performance Incentive Potential is:	\$ 574,000	\$ 700,000	\$ 833,001			

# PERFORMANCE INDICATOR RESULTS

## Performance Award Claim Summary

During PY12, the Program Performance Award Claim is \$595,407.07 (including tax) or 85% 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 PY12 Performance Claim Summary				
PY2012 Performance Award Claim Summary				
	Target	Results	% of Target	Award Claim
First Year Energy Reduction	117,558,943 kWh	<b>113,198,801 kWh</b>	96%	\$ 235,913.20
Peak Demand Reduction	17,771 kW	<b>15,145 kW</b>	85%	\$ 29,827.12
TRB NPV of Utility Cost Reduction	\$ 125,934,759	<b>\$ 116,789,535</b>	93%	\$ 259,666.75
Market Transformation	8	<b>21</b>	263%	\$ 70,000.00
Island Equity				
C&C Honolulu	\$ 19,352,231	<b>\$ 14,053,368</b>	-13%	\$ -
County of Hawaii	\$ 3,366,167	<b>\$ 4,933,056</b>	76%	
County of Maui	\$ 3,441,657	<b>\$ 2,827,628</b>	-1%	
<b>Performance Award Claim</b>				<b>\$ 595,407.07</b>

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

## PERFORMANCE INDICATOR RESULTS

### Cumulative Annual Electric Energy Savings (Program Level) Award Claim: \$235,913.20

The Program Energy Reduction was 113,198 MWh, which was just shy (96.3%) of the target of 117,558 MWh in the award claim of \$235,913.20. This award is calculated from \$183,750 for meeting the minimum level and \$52,163.20 for the remaining savings of 25,029,594 kWh awarded at a rate of \$0.002084/kWh achieved beyond the minimum.

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

Table 11 Energy Reduction Award Claim Calculation							
ENERGY REDUCTION - PY2012 Administrators Performance vs. Performance Metrics Calculations							
<b>Cumulative Annual Electric Energy Savings</b>		<b>Min.</b>		<b>Target</b>		<b>Max.</b>	
Energy Award Potential	\$	183,750		\$ 245,000	\$	303,188	
		75%		100%		110%	
Energy Reduction Goals		88,169,207		117,558,943		129,314,837	kWh
<b>Incentive Calculations</b>		<b>Meet Min.</b>		<b>Min-Target</b>		<b>Target-Max</b>	<b>Total</b>
Pool Award Potential	\$	183,750		\$ 61,250	\$	58,188	\$ 303,188
Energy Goal Pools		88,169,207	÷	29,389,736		11,755,894	129,314,837 kWh
Award Amount / Rate	\$	183,750		\$ 0.002084	\$	0.004950	/kWh
Energy Achievement		88,169,207		25,029,594			113,198,801 kWh
Award Amount / Rate		183,750	x	\$ 0.002084	\$	0.004950	/MWh
Energy Achievement Award Claim	\$	183,750.00		\$ 52,163.20	\$	-	\$ 235,913.20 Calculated
							<b>\$ 235,913.20 Claim</b>

## PERFORMANCE INDICATOR RESULTS

### Peak Demand Savings Award Claim: \$29,827.12

The Combined Peak Demand Reduction was 15,145 kW, which was 85.2% of the target savings level resulting in an award claim of \$29,827.12. This award is calculated from \$26,250 for meeting the minimum level and \$3,577.12 for the remaining savings of 1,816 kW awarded at a rate of \$1.97/kW achieved beyond the minimum.

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

Table 12 Demand Reduction Award Claim Calculation									
DEMAND REDUCTION - PY2012 Administrators Performance vs. Performance Metrics Calculations									
<b>Combined Annual Electric Demand Savings</b>	<b>Min.</b>		<b>Target</b>		<b>Max.</b>				
Demand Reduction Award Potential	\$	26,250	\$	35,000	\$	43,313			
		75%		100%		110%			
Demand Reduction Goals		13,328		17,771		19,548	kW		
<b>Incentive Calculations</b>	<b>Meet Min.</b>		<b>Min-Target</b>		<b>Target-Max</b>		<b>Total</b>		
Pool Award Potential	\$	26,250	\$	8,750	\$	8,313	\$	43,313	Max
Demand Goal Pools		13,328	÷	4,443		1,777		19,548	kW
Award Amount / Rate	\$	26,250	\$	1.97	\$	4.68	/kW		
Demand Savings Achievement		13,328		1,816				15,145	kW
Award Amount / Rate		26,250	x	\$ 1.97	\$	4.68	/kW		
Demand Savings Achievement Calculation	\$	26,250	\$	3,577	\$	-	\$	29,827.12	Calculated
							\$	29,827.12	Claim

## PERFORMANCE INDICATOR RESULTS

### Total Resource Benefit (TRB) Award Claim: \$259,666.75

The TRB achievement of \$116,789,535 NPV is 93% of the target amount between the minimum and target level. This award claim of \$259,666.75 is calculated from \$224,000 for meeting the minimum level and \$35,667.75 for the remaining 13% awarded at a rate of \$2,800/percent achieved beyond the minimum level.

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

Table 13 TRB Award Claim Calculation						
TOTAL RESOURCE BENEFIT - PY2012 Administrators Performance vs. Performance Metrics Calculations						
<b>TRB Target Metrics</b>	<b>Min.</b>		<b>Target</b>		<b>Max.</b>	
TRB Award Potential	\$ 224,000		\$ 280,000		\$ 346,500	
TRB Goal Pools in Metrics %	80%		100%		120%	
TRB Goals in \$	100,747,807		\$ 125,934,759		151,121,711	NPV of Utility Benefits
<b>Incentive Calculations</b>	<b>Meet Min.</b>		<b>Min-Target</b>		<b>Target-Max</b>	<b>Total</b>
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 \$						\$ 116,789,535
TRB Goals in \$						÷ \$ 125,934,759
TRB Achievement in Metrics %	80%		13%			93%
Award Amount / Rate	224,000	x	\$ 2,800.00		\$ 3,325.00	/ %
TRB Energy Achievement						
Award Claim	\$ 224,000		\$ 35,667		\$ -	\$ 259,666.75 Calculated
						<b>\$ 259,666.75 Claim</b>

## PERFORMANCE INDICATOR RESULTS

### Market Transformation Award Claim: \$70,000

The Market Transformation claim of \$70,000 is based on exceeding the target of at least two Annual Plan Transformational Tasks in each of the four categories, including: Government, Business & Industry, Education and Residential. See **Table 14** for details.

Table 14 Market Transformation Award Calculation					
MARKET TRANSFORMATION - PY2012 Administrators Performance vs. Performance Metrics Calculations					
	Award Potential	Target	Achievement	Target Met	Claim
Tasks	\$ 70,000	8	21	Yes	\$ 70,000
					<b>\$ 70,000</b>

## PERFORMANCE INDICATOR RESULTS

### Island Equity (Broad Participation) Award Claim: \$0

The Program over-achieved the targeted percentages of island equity by spending in excess of the target maximum in the County of Hawaii. There were two projects that drove the additional spending, both of which were Direct Install 100% Project Cost Incentive grant programs, one for Residential Solar Water Heating and the other for Small Business/Restaurant lighting measures.

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

In short, the entire Island Equity Award was forfeited because of the Program's substantial over-achievement on its directive to do more for the neighbor islands. (Note: the rules have been changed for future years so that this unintended penalty will not occur again.)

Table 15 Island Equity Award Claim Calculation										
PY2012 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%	\$ 28,915,580	74.0%	\$ 19,352,231	\$ 14,053,368	64.4%	-13%	Yes		
Hawaii	+/- 20%	\$ 5,029,636	12.9%	\$ 3,366,167	\$ 4,933,056	22.6%	76%	Over		
Maui	+/- 20%	\$ 5,142,431	13.2%	\$ 3,441,657	\$ 2,827,628	13.0%	-1%	Yes		
Total		\$ 39,087,647	100%	\$ 26,160,056	\$ 21,814,052	100%			\$ 70,000	\$ -

# BUDGET PROGRESSION & EXPENDITURES

## PY12 Annual Plan Budget

Pursuant to the Program's approved PY12 Annual Plan dated July 12, 2012, the Program's initial budget for the program year was \$34.8M, comprised of \$21.6M in Incentives, \$10.8M in Non-Incentives, and \$2.4M in Transformational Incentives<sup>1</sup>. As detailed in **Table 16**, approximately 45% of the budget was allocated to Residential Programs and 55% to Business Programs, consistent with the prior program year.

## Carryover from PY11

In February 2013, the PY12 budget was modified to carry over \$2.8M of unspent PY11 funds, pursuant to contract terms. As set forth in **Table 17**, the amount was comprised of approximately \$2M in Residential Incentives, \$628,000 in Non-Incentive Operations and Management (O&M), and \$148,000 in Transformational Incentives. Intended uses of the funds were as follow:

- Residential Incentive and O&M funds were primarily used to boost Solar Water Heating (SWH) participation through increased incentive amounts, direct install programs and complementary marketing efforts.
- Business O&M funds supported water and wastewater projects, as well as accelerated data acquisition and analysis for benchmark metering and central plant optimization work.
- Transformational Incentives helped fund development of a "pay-it-forward" energy-saving device lending library and an additional energy sales professional workshop.

Table 16 PY12 Annual Plan Budget			
Activity	Non-Incentive	Incentive	Total
<b>Residential Programs</b>			
REEM	2,684,143	7,718,682	10,402,825
CESH	27,881	10,500	38,381
RESM	103,237	847,500	950,737
RHTR	103,238	1,159,991	1,263,229
<b>Total Residential Programs</b>	<b>2,918,499</b>	<b>9,736,673</b>	<b>12,655,172</b>
<b>Residential Market Evaluation</b>	<b>127,300</b>	<b>0</b>	<b>127,300</b>
<b>Residential Outreach</b>	<b>659,858</b>	<b>0</b>	<b>659,858</b>
<b>Total Residential Services and Initiatives</b>	<b>3,705,657</b>	<b>9,736,673</b>	<b>13,442,330</b>
<b>Business Programs</b>			
BEEM	1,311,945	6,222,730	7,534,675
CBEEM	760,957	974,000	1,734,957
BESM	551,575	3,513,647	4,065,222
BHTR	475,475	1,190,000	1,665,475
<b>Total Business Programs</b>	<b>3,099,952</b>	<b>11,900,377</b>	<b>15,000,329</b>
<b>Business Market Evaluation</b>	<b>255,550</b>	<b>0</b>	<b>255,550</b>
<b>Business Outreach</b>	<b>1,173,635</b>	<b>0</b>	<b>1,173,635</b>
<b>Total Business Services and Initiatives</b>	<b>4,529,137</b>	<b>11,900,377</b>	<b>16,429,514</b>
<b>Total Residential and Business Services and Initiatives</b>	<b>8,234,794</b>	<b>21,637,050</b>	<b>29,871,844</b>
<b>Transformational Programs</b>			
Residential Transformational Programs	0	1,069,797	1,069,797
Business Transformational Programs	0	1,307,529	1,307,529
<b>Total Transformation Services and Initiatives</b>	<b>0</b>	<b>2,377,326</b>	<b>2,377,326</b>
<b>Total Supporting Services</b>	<b>2,091,908</b>	<b>0</b>	<b>2,091,908</b>
<b>Total Tax on Non-Incentive</b>	<b>486,594</b>	<b>0</b>	<b>486,594</b>
<b>Estimated Contractor Costs</b>	<b>10,813,296</b>	<b>24,014,376</b>	<b>34,827,672</b>

<sup>1</sup> The Program did not spend any ARRA funds in PY12. The ARRA grant for energy efficiency measures administered on behalf of the State Energy Office ended on March 31, 2012.

# BUDGET PROGRESSION & EXPENDITURES

## Budget Reallocations

There were two (2) reallocations during PY12 to meet changing operational needs and to allow continuous operations without exceeding individual budget categories. Specifics of the reallocations are detailed in **Table 17** and described below.

### First Reallocation (R1)

The first reallocation in February 2013 was to shift funds within the Business Program incentive categories based on an updated operational forecast of PY12 spending at that point in the year. It reallocated \$2,725,000 of BEEM incentives among the CBEEM, BESM and BHTR incentive budget categories as follows:

- Transferred \$825,000 to the CBEEM incentive budget to address higher participation than anticipated at the beginning of PY12.
- Shifted \$1.35M and \$550,000, respectively, to the BESM and BHTR incentive budgets to continue funding the Small Business Direct Install (“SBDI”) Program as the updated forecast showed the Program fully subscribed for the year.
- Funding came from BEEM because a significant amount of BEEM incentive payments to military participants were forecasted to be made in early PY13 rather than PY12.

### Second Reallocation (R2)

The second reallocation in May 2013 was to reallocate funds within the Business Program incentive categories as well as Residential O&M. Changes included:

- \$175,000 of Residential O&M was moved from REEM to Residential Outreach to continue boosted marketing and outreach efforts promoting enhanced PY12 Residential offerings, including an increased SWH rebate.
- \$625,000 of Business incentives was returned to BEEM due to traditional energy efficiency projects such as commercial lighting and air conditioning remaining at a high subscription level throughout the year.
- \$250,000 of Business incentives was shifted to CBEEM to keep the Program fully subscribed through Program Year-end with higher than anticipated participation throughout PY12.

Table 17 PY12 Budget Progression							
	PY12 Annual Plan Budget	Carryover from PY11 (dated 2/15/13)	PY12 Budget with PY11 Carryover	R1 Reallocation (dated 2/20/13)	PY12 R1 Budget	R2 Reallocation (dated 5/10/13)	PY12 R2 Budget
<b>Residential Programs</b>							
<b>Residential Program Ops and Management</b>							
REEM	2,684,143		2,684,143		2,684,143	(175,000)	2,509,143
CESH	27,881		27,881		27,881		27,881
RESM	103,237		103,237		103,237		103,237
RHTR	103,238		103,238		103,238		103,238
Total Residential Programs	2,918,499	-	2,918,499	-	2,918,499	(175,000)	2,743,499
Residential Market Evaluation	127,300		127,300		127,300		127,300
Residential Outreach	659,858	233,743	893,601		893,601	175,000	1,068,601
<b>Total Residential Ops &amp; Management</b>	<b>3,705,657</b>	<b>233,743</b>	<b>3,939,400</b>	<b>-</b>	<b>3,939,400</b>	<b>-</b>	<b>3,939,400</b>
<b>Residential Incentives</b>							
REEM	7,718,682	500,000	8,218,682		8,218,682		8,218,682
CESH	10,500		10,500		10,500		10,500
RESM	847,500		847,500		847,500		847,500
RHTR	1,159,991	1,497,442	2,657,433		2,657,433		2,657,433
<b>Subtotal Residential Incentives</b>	<b>9,736,673</b>	<b>1,997,442</b>	<b>11,734,115</b>	<b>-</b>	<b>11,734,115</b>	<b>-</b>	<b>11,734,115</b>
Residential Transformational	1,069,797	27,543	1,097,340		1,097,340		1,097,340
<b>Total Residential Incentives</b>	<b>10,806,470</b>	<b>2,024,985</b>	<b>12,831,455</b>	<b>-</b>	<b>12,831,455</b>	<b>-</b>	<b>12,831,455</b>
<b>Total Residential Programs</b>	<b>14,512,127</b>	<b>2,258,728</b>	<b>16,770,855</b>	<b>-</b>	<b>16,770,855</b>	<b>-</b>	<b>16,770,855</b>
<b>Business (C&amp;I) Programs</b>							
<b>Business Programs Ops and Management</b>							
BEEM	1,311,945		1,311,945		1,311,945		1,311,945
CBEEM	760,957	104,721	865,678		865,678		865,678
BESM	551,575	104,721	656,296		656,296		656,296
BHTR	475,475	22,845	498,320		498,320		498,320
Total Business Programs	3,099,952	232,287	3,332,239	-	3,332,239	-	3,332,239
Business Market Evaluation	255,550		255,550		255,550		255,550
Business Outreach	1,173,635	151,260	1,324,895		1,324,895		1,324,895
<b>Total Business Ops &amp; Management</b>	<b>4,529,137</b>	<b>383,547</b>	<b>4,912,684</b>	<b>-</b>	<b>4,912,684</b>	<b>-</b>	<b>4,912,684</b>
<b>Business Incentives</b>							
BEEM	6,222,730		6,222,730	(2,725,000)	3,497,730	625,000	4,122,730
CBEEM	974,000		974,000	825,000	1,799,000	250,000	2,049,000
BESM	3,513,647		3,513,647	1,350,000	4,863,647	(275,000)	4,588,647
BHTR	1,190,000		1,190,000	550,000	1,740,000	(600,000)	1,140,000
<b>Subtotal Business Incentives</b>	<b>11,900,377</b>	<b>-</b>	<b>11,900,377</b>	<b>-</b>	<b>11,900,377</b>	<b>-</b>	<b>11,900,377</b>
Business Transformational	1,307,529	120,695	1,428,224		1,428,224		1,428,224
<b>Total Business Incentives</b>	<b>13,207,906</b>	<b>120,695</b>	<b>13,328,601</b>	<b>-</b>	<b>13,328,601</b>	<b>-</b>	<b>13,328,601</b>
<b>Total Business Programs</b>	<b>17,737,043</b>	<b>504,242</b>	<b>18,241,285</b>	<b>-</b>	<b>18,241,285</b>	<b>-</b>	<b>18,241,285</b>
<b>Supporting Services</b>							
Supporting Services	2,091,908	11,186	2,103,094		2,103,094		2,103,094
<b>Total Supporting Services</b>	<b>2,091,908</b>	<b>11,186</b>	<b>2,103,094</b>	<b>-</b>	<b>2,103,094</b>	<b>-</b>	<b>2,103,094</b>
Subtotal Non-Incentive (Prior to Tax)	10,326,702	628,476	10,955,178		10,955,178		10,955,178
Less Performance Incentives (Prior to Tax)	(700,000)		(700,000)		(700,000)		(700,000)
Subtotal Non-Incentive Less Performance Incentives (PI)	9,626,702	628,476	10,255,178		10,255,178		10,255,178
Total Tax on Non-Incentive Without PI	486,594	29,614	516,208		516,208		516,208
Performance Incentive Award (Inclusive of Tax)	700,000		700,000		700,000		700,000
<b>Subtotal Non-Incentives (excluding Performance Incentives)</b>	<b>10,813,296</b>	<b>658,090</b>	<b>11,471,386</b>		<b>11,471,386</b>		<b>11,471,386</b>
<b>Subtotal Residential and Business Customer Incentives</b>	<b>21,637,050</b>	<b>1,997,442</b>	<b>23,634,492</b>		<b>23,634,492</b>		<b>23,634,492</b>
<b>Subtotal Transformational Incentives</b>	<b>2,377,326</b>	<b>148,238</b>	<b>2,525,564</b>		<b>2,525,564</b>		<b>2,525,564</b>
<b>Sub-Total Estimated Contractor Costs</b>	<b>34,827,672</b>	<b>2,803,770</b>	<b>37,631,442</b>	<b>-</b>	<b>37,631,442</b>	<b>-</b>	<b>37,631,442</b>
Performance Awards in Excess of Target Levels	133,000		133,000		133,000		133,000
<b>Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels</b>	<b>34,960,672</b>		<b>37,764,442</b>		<b>37,764,442</b>		<b>37,764,442</b>

## On-Bill Financing Program Development

During PY12, the Program contract was amended granting the Program expanded responsibilities to develop, implement and administer the PUC’s On-Bill Financing (OBF) Program. The Program was requested to utilize existing PY12 budget for preliminary phases of the OBF effort occurring prior to July 1, 2013, until the formal OBF program budget was established for PY13. Related effort and expenditures will be reported in further detail in PY13.

## Portfolio Expenditures

The Program maintained a conservative approach in expending both Incentive and O&M resources throughout PY12. At year-end, the Program had utilized 82% of budgeted Incentives, 85% of budgeted O&M (including holdback amounts), and 95% of budgeted Transformational Incentives.

Details of final PY12 expenditures and unspent funds by program categories are shown in **Table 18**. Specific discussions related to each Residential and Business program are provided within those respective sections.

Table 18						
PY12 Program Expenditures and Unspent Funds						
		Total PY12 Expenditures	PY12 Budget R2	Percent Spent	PY12 Unspent	Percent Unspent
<b>Residential Programs</b>						
Residential Program Ops and Management						
	REEM	\$2,267,588.62	\$2,509,143	90%	\$241,554.38	10%
	CESH	\$4,935.00	\$27,881	18%	\$22,946.00	82%
	RESM	\$29,483.75	\$103,237	29%	\$73,753.25	71%
	RHTR	\$92,764.34	\$103,238	90%	\$10,473.66	10%
	Total Residential Programs	\$2,394,771.71	\$2,743,499	87%	\$348,727.29	13%
Residential Market Evaluation		\$26,106.85	\$127,300	21%	\$101,193.15	79%
Residential Outreach		\$878,530.86	\$1,068,601	82%	\$190,070.14	18%
<b>Total Residential Non-Incentive</b>		\$3,299,409.42	\$3,939,400	84%	\$639,990.58	16%
Residential Incentives						
	REEM	\$7,437,751.48	\$8,218,682	90%	\$780,930.52	10%
	CESH	\$0.00	\$10,500	0%	\$10,500.00	100%
	RESM	\$150,033.00	\$847,500	18%	\$697,467.00	82%
	RHTR	\$1,450,748.05	\$2,657,433	55%	\$1,206,684.95	45%
Subtotal Residential Incentives		\$9,038,532.53	\$11,734,115	77%	\$2,695,582.47	23%
Residential Transformational		\$1,059,432.97	\$1,097,340	97%	\$37,907.03	3%
<b>Total Residential Incentives</b>		\$10,097,965.50	\$12,831,455	79%	\$2,733,489.50	21%
<b>Total Residential Programs</b>		<b>\$13,397,374.92</b>	<b>\$16,770,855</b>	<b>80%</b>	<b>\$3,373,480.08</b>	<b>20%</b>
<b>Business (C&amp;I) Programs</b>						
Business Programs Ops and Management						
	BEEM	\$1,062,925.22	\$1,311,945	81%	\$249,019.78	19%
	CBEEM	\$851,357.70	\$865,678	98%	\$14,320.30	2%
	BESM	\$651,976.28	\$656,296	99%	\$4,319.72	1%
	BHTR	\$417,188.44	\$498,320	84%	\$81,131.56	16%
	Total Business Programs	\$2,983,447.64	\$3,332,239	90%	\$348,791.36	10%
Business Market Evaluation		\$116,463.75	\$255,550	46%	\$139,086.25	54%
Business Outreach		\$1,084,114.96	\$1,324,895	82%	\$240,780.04	18%
<b>Total Business Non-Incentive</b>		\$4,184,026.35	\$4,912,684	85%	\$728,657.65	15%
Business Incentives						
	BEEM	\$4,005,628.00	\$4,122,730	97%	\$117,102.00	3%
	CBEEM	\$2,012,703.59	\$2,049,000	98%	\$36,296.41	2%
	BESM	\$3,879,032.04	\$4,588,647	85%	\$709,614.96	15%
	BHTR	\$471,756.11	\$1,140,000	41%	\$668,243.89	59%
Subtotal Business Incentives		\$10,369,119.74	\$11,900,377	87%	\$1,531,257.26	13%
Business Transformational		\$1,346,967.20	\$1,428,224	94%	\$81,256.80	6%
<b>Total Business Incentives</b>		\$11,716,086.94	\$13,328,601	88%	\$1,612,514.06	12%
<b>Total Business Programs</b>		<b>\$15,900,113.29</b>	<b>\$18,241,285</b>	<b>87%</b>	<b>\$2,341,171.71</b>	<b>13%</b>
<b>Total Services and Initiatives</b>		<b>\$29,297,488.21</b>	<b>\$35,012,140</b>	<b>84%</b>	<b>\$5,714,651.79</b>	<b>16%</b>
<b>Supporting Services</b>						
	Supporting Services	\$1,865,802.63	\$2,103,094	89%	\$237,291.37	11%
<b>Total Supporting Services</b>		<b>\$1,865,802.63</b>	<b>\$2,103,094</b>	<b>89%</b>	<b>\$237,291.37</b>	<b>11%</b>
Subtotal Non-Incentive (Prior to Tax)		\$9,349,238.40	\$10,955,178	85%	\$1,605,939.60	15%
Less Performance Incentives (Prior to Tax)		(668,500.32)	(\$700,000)		(31,499.68)	
Subtotal Non-Incentive Less Performance Incentives (PI)		\$8,680,738.08	\$10,255,178		\$1,574,439.92	
Total Tax on Non-Incentive Without PI		\$409,036.38	\$516,208		\$107,171.62	
Performance Incentive Award (Inclusive of Tax)		\$0.00	\$700,000		\$700,000.00	
<b>Subtotal Non-Incentive Billed</b>		<b>\$9,089,774.46</b>	<b>\$11,471,386</b>	<b>79%</b>	<b>\$2,381,611.54</b>	<b>21%</b>
<b>Subtotal Residential and Business Customer Incentives</b>		<b>\$19,407,652.27</b>	<b>\$23,634,492</b>	<b>82%</b>	<b>\$4,226,839.73</b>	<b>18%</b>
<b>Subtotal Transformational Incentives</b>		<b>\$2,406,400.17</b>	<b>\$2,525,564</b>	<b>95%</b>	<b>\$119,163.83</b>	<b>5%</b>
<b>Sub-Total Estimated Contractor Costs</b>		<b>\$30,903,826.90</b>	<b>\$37,631,442</b>	<b>82%</b>	<b>\$6,727,615.10</b>	<b>18%</b>
Performance Awards in Excess of Target Levels			\$133,000			
<b>Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels</b>			<b>\$37,764,442</b>			

## PORTFOLIO FOURTH YEAR IMPACTS

### 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 ratepayers or participants who received an incentive and/or education from the Program, but the incentive and/or education did not play a role in their decision to purchase the savings measure. These ratepayers would have taken action or purchased the energy-efficient item regardless of the incentive and therefore, Program Level Savings removes their participation. The Net-to-Gross adjustment figure for PY12 operations across all programs and counties is 73%.

## PORTFOLIO FOURTH YEAR IMPACTS

### Portfolio Energy and Demand Savings

Program Energy Savings for PY12 were:

- **First Year** – 113,198,801 kWh  
(62.6% in Residential and 37.4% in Business programs)
- **Lifetime** – 1,064,730,916 kWh  
(46.3% in Residential and 53.7% for Business 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 relatively short measure lives (6 years and 1 year, respectively) as compared to longer lived measures in the business portfolio this year, bolstered by the LEDs having 15 year measure lives. Residential measures have an average measure life of 7 years, while business measures have an average measure life of 13.5 years.

Program Peak Demand reduction for PY12 was:

- **Peak Demand** – 15,145 kW (63.6% from Residential and 36.4% 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 FOURTH YEAR IMPACTS

Table 19

## Cumulative Annual Electric Savings (Program Level) by Budget Category

### PY12 Hawaii Energy - Program Level Impact Summary by Program

Program	Apps Processed	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
<b>Business Program</b>	<b>5,317</b>	<b>157,880</b>	<b>\$ 10,356,475</b>	<b>5,512</b>	<b>42,391,766</b>	<b>571,695,706</b>	<b>\$ 0.244</b>	<b>\$ 0.018</b>
BEEM	2,012	119,795	\$ 3,982,940	3,417	25,001,128	328,154,362	\$ 0.159	\$ 0.012
CBEEM	320	341	\$ 2,041,590	1,720	12,844,300	179,827,666	\$ 0.159	\$ 0.011
BESM	2,501	31,406	\$ 3,879,032	259	3,550,072	49,701,010	\$ 1.093	\$ 0.078
BHTR	484	6,338	\$ 452,913	116	996,266	14,012,669	\$ 0.455	\$ 0.032
<b>Residential Program</b>	<b>42,848</b>	<b>1,957,014</b>	<b>\$ 9,051,177</b>	<b>9,632</b>	<b>70,807,035</b>	<b>493,035,210</b>	<b>\$ 0.128</b>	<b>\$ 0.018</b>
REEM	42,549	1,954,603	\$ 7,444,044	9,550	69,826,376	483,817,730	\$ 0.107	\$ 0.015
RESM	33	175	\$ 151,183	9	594,523	4,331,660	\$ 0.254	\$ 0.035
CESH	1	-	\$ -	-	-	-	-	-
RHTR	265	2,236	\$ 1,455,950	73	386,136	4,885,820	\$ 3.771	\$ 0.298
<b>Total</b>	<b>48,165</b>	<b>2,114,894</b>	<b>\$ 19,407,652</b>	<b>15,145</b>	<b>113,198,801</b>	<b>1,064,730,916</b>	<b>\$ 0.171</b>	<b>\$ 0.018</b>

Program	Incentives (\$)	Total Resource Benefit (TRB)	Total Resource Cost (TRC)	Driven Benefit Ratio (TRB/ Incentive \$)	Driven Investment Ratio (TRC / Incentive \$)	Benefit Test (TRB/TRC)
<b>Business Program</b>	<b>\$ 10,356,475</b>	<b>\$ 59,726,846</b>	<b>\$ 29,831,600</b>	<b>5.8</b>	<b>2.9</b>	<b>2.0</b>
BEEM	\$ 3,982,940	\$ 33,839,141	\$ 12,103,633	8.5	3.0	2.8
CBEEM	\$ 2,041,590	\$ 19,442,140	\$ 13,109,157	9.5	6.4	1.5
BESM	\$ 3,879,032	\$ 4,902,114	\$ 4,168,577	1.3	1.1	1.2
BHTR	\$ 452,913	\$ 1,543,451	\$ 450,233	3.4	1.0	3.4
<b>Residential Program</b>	<b>\$ 9,051,177</b>	<b>\$ 57,062,689</b>	<b>\$ 26,382,006</b>	<b>6.3</b>	<b>2.9</b>	<b>2.2</b>
REEM	\$ 7,444,044	\$ 56,108,200	\$ 25,050,907	7.5	3.4	2.2
RESM	\$ 151,183	\$ 304,282	\$ 157,517	2.0	1.0	1.9
CESH	\$ -	\$ -	\$ -	-	-	-
RHTR	\$ 1,455,950	\$ 650,207	\$ 1,173,581	0.4	0.8	0.6
<b>Total</b>	<b>\$ 19,407,652</b>	<b>\$ 116,789,535</b>	<b>\$ 56,213,606</b>	<b>6.0</b>	<b>2.9</b>	<b>2.1</b>

# PORTFOLIO FOURTH YEAR IMPACTS

Table 20

## Cumulative Annual Electric Savings (System Level) by Budget Category

### PY12 Hawaii Energy - System Level Impact Summary by Program

Program	Apps Processed	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
<b>Business Program</b>	<b>5,317</b>	<b>157,880</b>	<b>\$ 10,356,475</b>	<b>7,551</b>	<b>58,070,913</b>	<b>783,144,803</b>	<b>\$ 0.178</b>	<b>\$ 0.013</b>
BEEM	2,012	119,795	\$ 3,982,940	4,681	34,248,120	449,526,523	\$ 0.116	\$ 0.009
CBEEM	320	341	\$ 2,041,590	2,357	17,594,932	246,339,268	\$ 0.116	\$ 0.008
BESM	2,501	31,406	\$ 3,879,032	354	4,863,112	68,083,575	\$ 0.798	\$ 0.057
BHTR	484	6,338	\$ 452,913	159	1,364,748	19,195,437	\$ 0.332	\$ 0.024
<b>Residential Program</b>	<b>42,848</b>	<b>1,957,014</b>	<b>\$ 9,051,177</b>	<b>13,195</b>	<b>96,995,938</b>	<b>675,390,698</b>	<b>\$ 0.093</b>	<b>\$ 0.013</b>
REEM	42,549	1,954,603	\$ 7,444,044	13,082	95,652,570	662,764,013	\$ 0.078	\$ 0.011
RESM	33	175	\$ 151,183	13	814,415	5,933,781	\$ 0.186	\$ 0.025
CESH	1	-	\$ -	-	-	-	-	-
RHTR	265	2,236	\$ 1,455,950	100	528,953	6,692,904	\$ 2.753	\$ 0.218
<b>Total</b>	<b>48,165</b>	<b>2,114,894</b>	<b>\$ 19,407,652</b>	<b>20,746</b>	<b>155,066,850</b>	<b>1,458,535,502</b>	<b>\$ 0.125</b>	<b>\$ 0.013</b>

Program	Incentives (\$)	Total Resource Benefit (TRB)	Total Resource Cost (TRC)	Driven Benefit Ratio (TRB/ Incentive \$)	Driven Investment Ratio (TRC / Incentive \$)	Benefit Test (TRB/TRC)
<b>Business Program</b>	<b>\$ 10,356,475</b>	<b>\$ 81,816,519</b>	<b>\$ 29,831,600</b>	<b>7.9</b>	<b>2.9</b>	<b>2.7</b>
BEEM	\$ 3,982,940	\$ 46,354,541	\$ 12,103,633	11.6	3.0	3.8
CBEEM	\$ 2,041,590	\$ 26,633,020	\$ 13,109,157	13.0	6.4	2.0
BESM	\$ 3,879,032	\$ 6,714,722	\$ 4,168,577	1.7	1.1	1.6
BHTR	\$ 452,913	\$ 2,114,236	\$ 450,233	4.7	1.0	4.7
<b>Residential Program</b>	<b>\$ 9,051,177</b>	<b>\$ 78,159,208</b>	<b>\$ 26,382,006</b>	<b>8.6</b>	<b>2.9</b>	<b>3.0</b>
REEM	\$ 7,444,044	\$ 76,851,707	\$ 25,050,907	10.3	3.4	3.1
RESM	\$ 151,183	\$ 416,822	\$ 157,517	2.8	1.0	2.6
CESH	\$ -	\$ -	\$ -	-	-	-
RHTR	\$ 1,455,950	\$ 890,679	\$ 1,173,581	0.6	0.8	0.8
<b>Total</b>	<b>\$ 19,407,652</b>	<b>\$ 159,975,727</b>	<b>\$ 56,213,606</b>	<b>8.2</b>	<b>2.9</b>	<b>2.8</b>

# PORTFOLIO FOURTH YEAR IMPACTS

Table 21

## Cumulative Annual Electric Savings (Customer Level) by Budget Category

### PY12 Hawaii Energy - Customer Level Impact Summary by Program

Program	Apps Processed	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
<b>Business Program</b>	<b>5,317</b>	<b>157,880</b>	<b>\$ 10,356,475</b>	<b>6,816</b>	<b>52,427,121</b>	<b>707,139,849</b>	<b>\$ 0.198</b>	<b>\$ 0.015</b>
BEEM	2,012	119,795	\$ 3,982,940	4,228	30,924,773	406,071,853	\$ 0.129	\$ 0.010
CBEEM	320	341	\$ 2,041,590	2,125	15,862,988	222,035,335	\$ 0.129	\$ 0.009
BESM	2,501	31,406	\$ 3,879,032	320	4,403,514	61,649,194	\$ 0.881	\$ 0.063
BHTR	484	6,338	\$ 452,913	144	1,235,846	17,383,467	\$ 0.366	\$ 0.026
<b>Residential Program</b>	<b>42,848</b>	<b>1,957,014</b>	<b>\$ 9,051,177</b>	<b>11,924</b>	<b>87,658,038</b>	<b>610,063,931</b>	<b>\$ 0.103</b>	<b>\$ 0.015</b>
REEM	42,549	1,954,603	\$ 7,444,044	11,821	86,441,466	598,596,322	\$ 0.086	\$ 0.012
RESM	33	175	\$ 151,183	12	732,947	5,337,694	\$ 0.206	\$ 0.028
CESH	1	-	\$ -	-	-	-	-	-
RHTR	265	2,236	\$ 1,455,950	91	483,625	6,129,915	\$ 3.010	\$ 0.238
<b>Total</b>	<b>48,165</b>	<b>2,114,894</b>	<b>\$ 19,407,652</b>	<b>18,740</b>	<b>140,085,158</b>	<b>1,317,203,780</b>	<b>\$ 0.139</b>	<b>\$ 0.015</b>

Program	Incentives (\$)	Total Resource Benefit (TRB)	Total Resource Cost (TRC)	Driven Benefit Ratio (TRB/ Incentive \$)	Driven Investment Ratio (TRC / Incentive \$)	Benefit Test (TRB/TRC)
<b>Business Program</b>	<b>\$ 10,356,475</b>	<b>\$ 73,865,916</b>	<b>\$ 29,831,600</b>	<b>7.1</b>	<b>2.9</b>	<b>2.5</b>
BEEM	\$ 3,982,940	\$ 41,866,825	\$ 12,103,633	10.5	3.0	3.5
CBEEM	\$ 2,041,590	\$ 24,008,097	\$ 13,109,157	11.8	6.4	1.8
BESM	\$ 3,879,032	\$ 6,077,131	\$ 4,168,577	1.6	1.1	1.5
BHTR	\$ 452,913	\$ 1,913,863	\$ 450,233	4.2	1.0	4.3
<b>Residential Program</b>	<b>\$ 9,051,177</b>	<b>\$ 70,562,872</b>	<b>\$ 26,382,006</b>	<b>7.8</b>	<b>2.9</b>	<b>2.7</b>
REEM	\$ 7,444,044	\$ 69,372,183	\$ 25,050,907	9.3	3.4	2.8
RESM	\$ 151,183	\$ 374,960	\$ 157,517	2.5	1.0	2.4
CESH	\$ -	\$ -	\$ -	-	-	-
RHTR	\$ 1,455,950	\$ 815,729	\$ 1,173,581	0.6	0.8	0.7
<b>Total</b>	<b>\$ 19,407,652</b>	<b>\$ 144,428,787</b>	<b>\$ 56,213,606</b>	<b>7.4</b>	<b>2.9</b>	<b>2.6</b>

## PORTFOLIO FOURTH YEAR IMPACTS

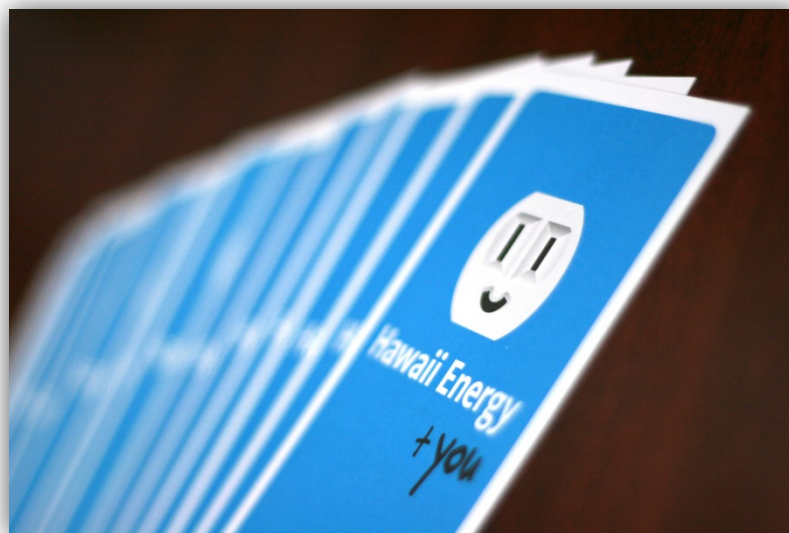
### Savings at Customer and Program Levels

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

First-year Customer Energy Savings was 140,085,158 kWh per year (1.5% of 2012 utility sales), while Customer Peak Demand Savings was 18,740 kW (1.2% of 2012 utility sales). This does not reflect Peak Demand Savings for the customer as it may not coincide 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 budget categories and island, specifically:

- **Table 22:** PY12 Energy (kWh) Reduction by Impact Level and by Island
- **Table 23:** PY12 Demand (kW) Reduction by Impact Level and by Island
- **Table 24:** PY12 Energy (kWh) Reduction by Impact Level and by Program
- **Table 25:** PY12 Demand (kW) Reduction by Impact Level and by Program



## PORTFOLIO FOURTH YEAR IMPACTS

Table 22

### Energy (kWh) Reduction by Impact Level and by Island

PY12 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	20,306,271	9.0%	22,133,835	73.0%	16,157,700
Lanai	642,373	9.6%	703,783	73.0%	513,762
Maui	16,961,421	10.0%	18,650,779	73.0%	13,615,068
Molokai	594,362	9.6%	651,183	73.0%	475,364
Oahu	101,580,731	11.2%	112,927,270	73.0%	82,436,907
<b>Total</b>	<b>140,085,158</b>	<b>10.7%</b>	<b>155,066,850</b>	<b>73.0%</b>	<b>113,198,801</b>
% of Customer Level Savings			111%		81%

Table 23

### PY12 Demand (kW) Reduction by Impact Level and by Island

PY12 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	2,585	9.0%	2,818	73.0%	2,057
Lanai	68	9.6%	75	73.0%	54
Maui	2,424	10.0%	2,665	73.0%	1,946
Molokai	68	9.6%	74	73.0%	54
Oahu	13,595	11.2%	15,114	73.0%	11,033
<b>Total</b>	<b>18,740</b>	<b>10.7%</b>	<b>20,746</b>	<b>73.0%</b>	<b>15,145</b>
% of Customer Level Savings			111%		81%

## PORTFOLIO FOURTH YEAR IMPACTS

Table 24

### Energy (kWh) Reduction by Impact Level and by Program

PY12 Energy (kWh) Reduction by Impact Level and by Program					
	Customer Level Savings	System Losses	System Level Savings	Net-to-Gross Ratio	Program Level Savings
<b>Business</b>	<b>52,441,774</b>	<b>10.8%</b>	<b>58,087,153</b>	<b>73.0%</b>	<b>42,403,621</b>
BEEM	30,939,426	10.7%	34,264,360	73.0%	25,012,983
CBEEM	15,862,988	10.9%	17,594,932	73.0%	12,844,300
BESM	4,403,514	10.4%	4,863,112	73.0%	3,550,072
BHTR	1,235,846	10.4%	1,364,748	73.0%	996,266
<b>Residential</b>	<b>87,643,385</b>	<b>10.7%</b>	<b>96,979,698</b>	<b>73.0%</b>	<b>70,795,179</b>
REEM	86,426,813	10.7%	95,636,330	73.0%	69,814,521
CESH	-	-	-	-	-
RESM	732,947	11.1%	814,415	73.0%	594,523
RHTR	483,625	9.4%	528,953	73.0%	386,136
<b>Total</b>	<b>140,085,158</b>	<b>10.7%</b>	<b>155,066,850</b>	<b>73.0%</b>	<b>113,198,801</b>
% of Customer Level Savings			111%		81%

Table 25

### PY12 Demand (kW) Reduction by Impact Level and by Program

PY12 Demand (kW) Reduction by Impact Level and by Program					
	Customer Level Savings	System Losses	System Level Savings	Net-to-Gross Ratio	Program Level Savings
<b>Business</b>	<b>6,818</b>	<b>10.8%</b>	<b>7,552</b>	<b>73.0%</b>	<b>5,513</b>
BEEM	4,229	10.7%	4,683	73.0%	3,418
CBEEM	2,125	10.9%	2,357	73.0%	1,720
BESM	320	10.6%	354	73.0%	259
BHTR	144	10.5%	159	73.0%	116
<b>Residential</b>	<b>11,923</b>	<b>10.7%</b>	<b>13,193</b>	<b>73.0%</b>	<b>9,631</b>
REEM	11,819	10.7%	13,081	73.0%	9,549
CESH	-	-	-	-	-
RESM	12	9.3%	13	73.0%	9
RHTR	91	9.2%	100	73.0%	73
<b>Total</b>	<b>18,740</b>	<b>10.7%</b>	<b>20,746</b>	<b>73.0%</b>	<b>15,145</b>
% of Customer Level Savings			111%		81%

# PORTFOLIO FOURTH YEAR IMPACTS

## CFLs & LEDs – Market Shift towards LEDs

The Program reduced its dependency on CFLs in PY12. There were 1,775,226 Residential and Business CFLs incentivized, lower than PY10 and PY11 levels. CFL and LED savings remain a significant contributing measure to the Program as shown in **Table 26**. The combined Residential and Business CFL and LED impact was 57% of the energy reduction achieved and 58% of the demand.

Table 26  
PY12 CFL & LED Statistics

CFL County Comparison					LED County Comparison				
Business	Residential	Total	%		Business	Residential	Total	%	
C&C of Honolulu	10,833	1,347,915	1,358,748 bulbs	76.5%	C&C of Honolulu	22,318	55,906	78,224 bulbs	63.7%
Hawaii County	947	233,110	234,057 bulbs	13.2%	Hawaii County	3,245	18,775	22,020 bulbs	17.9%
Maui County	118	182,303	182,421 bulbs	10.3%	Maui County	5,571	16,914	22,485 bulbs	18.3%
<b>Total</b>	<b>11,898</b>	<b>1,763,328</b>	<b>1,775,226 bulbs</b>	<b>100%</b>	<b>Total</b>	<b>31,134</b>	<b>91,595</b>	<b>122,729 bulbs</b>	<b>100%</b>

CFL Cost Effectiveness				LED Effectiveness			
Business	Residential	Total		Business	Residential	Total	
CFL Incentives	\$ 29,031	\$ 2,363,644	\$ 2,392,675	LED Incentives	\$ 1,145,895	\$ 648,318	\$ 1,794,213
CFL Program kWh - First Year	\$ 1,784,176	51,753,273	53,537,449	LED Program kWh - First Year	9,294,306	1,261,249	10,555,555
<b>First Year \$/kWh</b>	<b>\$ 0.016 /kWh</b>	<b>\$ 0.046 /kWh</b>	<b>\$ 0.045 /kWh</b>	<b>First Year \$/kWh</b>	<b>\$ 0.123 /kWh</b>	<b>\$ 0.514 /kWh</b>	<b>\$ 0.170 /kWh</b>
CFL Program kWh - Life	5,352,528	310,506,448	315,858,976	LED Program kWh - Life	121,271,395	18,314,224	139,585,619
<b>First Year \$/kWh</b>	<b>\$ 0.005 /kWh</b>	<b>\$ 0.008 /kWh</b>	<b>\$ 0.008 /kWh</b>	<b>First Year \$/kWh</b>	<b>\$ 0.009 /kWh</b>	<b>\$ 0.035 /kWh</b>	<b>\$ 0.013 /kWh</b>

Energy Comparison				Demand Comparison			
Business	Residential	Total		Business	Residential	Total	
CFL Program kWh	1,784,176	51,753,273	53,537,449 kWh	CFL Program kW	185	7,129	7,314 kW
LED Program kWh	9,294,306	1,261,249	10,555,555 kWh	LED Program kW	1,226	225	1,451 kW
Portfolio kWh	42,403,621	70,795,179	113,198,801 kWh	Portfolio kW	5,513	9,631	15,145 kW
<b>CFL % of Energy</b>	<b>4%</b>	<b>73%</b>	<b>47%</b>	<b>CFL % of Energy</b>	<b>3%</b>	<b>74%</b>	<b>48%</b>
<b>LED % of Energy</b>	<b>22%</b>	<b>2%</b>	<b>9%</b>	<b>LED % of Energy</b>	<b>22%</b>	<b>2%</b>	<b>10%</b>

Energy Comparison			
Business	Residential	Total	
CFL Incentives	\$ 29,031	\$ 2,363,644	\$ 2,392,675
LED Incentives	\$ 1,145,895	\$ 648,318	\$ 1,794,213
Portfolio Incentives	\$ 10,359,590	\$ 9,048,062	\$19,407,652
<b>CFL % of Incentives</b>	<b>0%</b>	<b>26%</b>	<b>12%</b>
<b>LED % of Incentives</b>	<b>11%</b>	<b>7%</b>	<b>9%</b>

## PORTFOLIO FOURTH YEAR IMPACTS

CFL counts dropped by 7%, compared to PY11 participation numbers whereas LEDs have increased 124%. LEDs will continue to increase their role in the Program-achieved savings. See **Table 27** for details.

Table 27 PY12 Impact of Change in CFL Savings Values					
CFL Program Impact - PY12 versus PY09/10/11					
Lamp Count	Business	Residential	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	
<b>PY12</b>	<b>11,898</b>	<b>1,763,328</b>	<b>1,775,226</b>	<b>Lamps</b>	
1st Year Energy	Business	Residential	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	
<b>PY12*</b>	<b>1,784,176</b>	<b>51,753,273</b>	<b>53,537,449</b>	<b>kWh</b>	
Savings per Lamp	Business	Residential	Average		
PY09	53	52	52	kWh/Lamp	
PY10	83	26	28	kWh/Lamp	
PY11*	159	29	35	kWh/Lamp	
<b>PY12*</b>	<b>150</b>	<b>29</b>	<b>30</b>	<b>kWh/Lamp</b>	
* Note: Includes all Commercial CFLs not just Residential under Commercial Meters					

## PORTFOLIO FOURTH YEAR IMPACTS

### Measure Contribution toward Savings Impacts

In PY12, the Program incentivized over 68 measures in 22 different measure categories. As in prior years, High Efficiency Lighting and Customized Project Measures accounted for the greatest savings impact and High Efficiency HVAC remained as the third most impactful measure category. **Table 28** provides a summary of all measure categories and their respective energy impact for PY12.

- **#1 Contributor - High Efficiency Lighting** - 61% first year (down from 64% in PY11) and 50% lifetime energy savings (up from 42.8% in PY11). CFLs and T8/T8LW lighting contributed the most toward the Program as they are the most cost-effective measures a customer can implement. LEDs have increased to the fourth largest measure.
- **#2 Contributor - Customized Project Measures** - 11% first year (down from 18% in PY11) and 17% lifetime energy savings (down from 30% in PY11). This measure was dominated this year by customized lighting projects, predominantly LED.
- **#3 Contributor - High Efficiency HVAC** - 4% first year and 7% lifetime energy savings. Chillers, Package/Split AC and VFDs in pumping applications contributed nearly 90% of this category.

See **Table 28** for details.

# PORTFOLIO FOURTH YEAR IMPACTS

Table 28  
PY12 Contribution by Measure Category in Order of Lifetime Energy Impact

PY12 Contribution by Category in Order of Lifetime Energy Impact													
Rank	Category	Apps	%	Measure Quantity	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Incentives (\$)	%	Lifetime Cost (\$/kWh)
1	High Efficiency Lighting	24,547	51%	1,975,044	9,139	60%	69,287,594	61%	534,923,112	50%	\$ 4,860,782	25%	\$ 0.009
2	Customized Project Measures	319	1%	340	1,716	11%	12,804,135	11%	179,626,838	17%	\$ 2,036,933	10%	\$ 0.011
3	High Efficiency HVAC	291	1%	1,258	997	7%	4,789,378	4%	76,534,199	7%	\$ 1,232,087	6%	\$ 0.016
4	High Efficiency Appliances	12,733	26%	12,726	303	2%	5,374,349	5%	72,860,309	7%	\$ 1,104,045	6%	\$ 0.015
5	High Efficiency Water Heating	2,820	6%	2,821	993	7%	4,837,137	4%	69,198,256	6%	\$ 2,239,721	12%	\$ 0.032
6	Business Direct Installation	2,441	5%	31,346	259	2%	3,523,159	3%	49,324,225	5%	\$ 2,359,042	12%	\$ 0.048
7	Energy Efficiency Equipment Grants	748	2%	8,604	240	2%	1,430,244	1%	19,616,122	2%	\$ 1,923,335	10%	\$ 0.098
8	Energy Awareness, Measurement and Control Systems	102	0%	76,993	811	5%	6,987,603	6%	15,430,407	1%	\$ 1,164,358	6%	\$ 0.075
9	Building Envelope Improvements	59	0%	58	297	2%	1,109,701	1%	11,100,805	1%	\$ 297,465	2%	\$ 0.027
10	High Efficiency Air Conditioning	3,101	6%	3,889	222	1%	876,389	1%	8,933,376	1%	\$ 227,377	1%	\$ 0.025
11	High Efficiency Water Pumping	30	0%	39	57	0%	578,821	1%	8,682,311	1%	\$ 96,350	0%	\$ 0.011
12	MM - High Efficiency Appliances	816	2%	1,172	28	0%	510,053	0%	6,773,774	1%	\$ 83,890	0%	\$ 0.012
13	Residential Design and Audits	6	0%	150	-	0%	574,462	1%	4,319,151	0%	\$ 147,000	1%	\$ 0.034
14	Commercial Industrial Processes	7	0%	8	40	0%	231,687	0%	3,475,311	0%	\$ 76,200	0%	\$ 0.022
15	High Efficiency Motors	47	0%	353	34	0%	230,791	0%	3,461,859	0%	\$ 32,520	0%	\$ 0.009
16	Business Design, Audits and Commissioning	60	0%	60	-	0%	26,913	0%	376,785	0%	\$ 1,519,990	8%	\$ 4.034
17	MM - High Efficiency Water Heating	2	0%	2	1	0%	3,286	0%	49,294	0%	\$ 1,900	0%	\$ 0.039
18	MM - High Efficiency Air Conditioning	5	0%	6	1	0%	3,038	0%	32,275	0%	\$ 475	0%	\$ 0.015
19	Target Cost Request for Proposals	3	0%	2	8	0%	14,057	0%	6,506	0%	\$ 3,033	0%	\$ 0.466
20	Residential System Tune-Ups	24	0%	23	1	0%	6,003	0%	6,003	0%	\$ 1,150	0%	\$ 0.192
21	Residential Direct Installation	-	0%	-	-	0%	-	0%	-	0%	\$ -	0%	-
22	Landlord, Tenant, AOA Measures	-	0%	-	-	0%	-	0%	-	0%	\$ -	0%	-
	<b>Grand Total</b>	<b>48,165</b>	<b>100%</b>	<b>2,114,894</b>	<b>15,145</b>	<b>100%</b>	<b>113,198,801</b>	<b>100%</b>	<b>1,064,730,916</b>	<b>100%</b>	<b>\$ 19,407,652</b>	<b>100%</b>	<b>\$ 0.018</b>

# PORTFOLIO FOURTH YEAR IMPACTS

## Energy Impacts by Rate Schedule

Program Level impacts (first year) were greatest in the Residential Rate Schedule “R” with 70,053,553 kWh or 61.9% of savings, of which 70% was realized on Oahu. The Oahu Residential rate class provided the greatest savings of 49,410,537 kWh per year of all the rate schedules (43% of PY12 total kWh). A summary of Program energy impacts by rate schedule is provided in **Table 29**.

Table 29 PY12 Program Energy Impact by Rate Schedule									
PY12 Portfolio Energy (kWh) Program Level Impacts by Rate Schedule									
Island	R	G	J	P	DS	U	F	Total	%
Hawaii Island	11,275,428	1,024,829	1,985,992	1,871,450	-	-	-	16,157,700 kWh	14.3%
Lanai	470,490	39,721	3,552	-	-	-	-	513,762 kWh	0.5%
Maui	8,443,614	551,909	1,382,467	3,236,810	-	-	268	13,615,068 kWh	12.0%
Molokai	453,483	4,514	17,367	-	-	-	-	475,364 kWh	0.4%
Oahu	49,410,537	3,220,181	10,886,681	15,752,545	3,164,990	1,972	-	82,436,907 kWh	72.8%
<b>Total</b>	70,053,553	4,841,154	14,276,058	20,860,805	3,164,990	1,972	268	113,198,801 kWh	100.0%
<b>%</b>	61.9%	4.3%	12.6%	18.4%	2.8%	0.0%	0.0%	100.0%	

Demand impact had similar results with the Residential Rate schedule customers providing 9,590 kW or 63.3% of the demand savings. Oahu Residential Rate Customers provided the greatest savings of 6,823 kW per year of all the rate schedules (45% of PY12 total kW). A summary of Program Level demand impacts by rate schedule is provided in **Table 30**.

Table 30 PY12 Program Demand Impact by Rate Schedule									
PY12 Portfolio Demand (kW) Program Level Impacts by Rate Schedule									
Island	R	G	J	P	DS	U	F	Total	%
Hawaii Island	1,524	55	214	264	-	-	-	2,057 kW	13.6%
Lanai	52	2	1	-	-	-	-	54 kW	0.4%
Maui	1,138	99	191	518	-	-	0	1,946 kW	12.8%
Molokai	52	1	1	-	-	-	-	54 kW	0.4%
Oahu	6,823	338	1,274	2,188	409	1	-	11,033 kW	72.9%
<b>Total</b>	9,590	494	1,681	2,970	409	1	0	15,145 kW	100.0%
<b>%</b>	63.3%	3.3%	11.1%	19.6%	2.7%	0.0%	0.0%	100.0%	

# PORTFOLIO FOURTH YEAR IMPACTS

## Program Level Energy Impacts by Program and Rate Class

Table 31 shows Business and Residential program energy contributions by rate class.

- # 1 Contributor - Residential Energy Efficiency Measures (REEM) within the Residential Rate Schedule “R”**

69,617,912 kWh (61.5% of total program)

The top three contributors toward this value were residential CFLs, Solar Water Heating and Refrigerator with Recycling.

- # 2 Contributor - Business Energy Efficiency Measures (BEEM) within the Business Large Customer Rate Schedule “P”**

13,424,226 kWh (11.9% 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 high performance lighting at 52% of savings in the category.

Table 31 PY12 Program Energy Impacts by Rate Class									
PY12 Portfolio Energy (kWh) Program Level Impacts by Program by Rate Schedule									
Program	R	G	J	P	DS	U	F	Total	%
<b>Business Program</b>	<b>34,374</b>	<b>4,280,922</b>	<b>14,050,431</b>	<b>20,858,808</b>	<b>3,164,990</b>	<b>1,972</b>	<b>268</b>	<b>42,391,766 kWh</b>	<b>37.4%</b>
BEEM	31,329	733,401	9,061,410	13,424,226	1,748,522	1,972	268	25,001,128 kWh	22.1%
CBEEM	-	859,733	3,483,429	7,084,670	1,416,469	-	-	12,844,300 kWh	11.3%
BESM	2,069	2,479,667	782,686	285,650	-	-	-	3,550,072 kWh	3.1%
BHTR	976	208,121	722,907	64,262	-	-	-	996,266 kWh	0.9%
<b>Residential Program</b>	<b>70,019,179</b>	<b>560,232</b>	<b>225,627</b>	<b>1,996</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>70,807,035 kWh</b>	<b>62.6%</b>
REEM	69,617,912	206,468	-	1,996	-	-	-	69,826,376 kWh	61.7%
RESM	20,060	348,835	225,627	-	-	-	-	594,523 kWh	0.5%
RHTR	381,207	4,929	-	-	-	-	-	386,136 kWh	0.3%
<b>Total</b>	<b>70,053,553</b>	<b>4,841,154</b>	<b>14,276,058</b>	<b>20,860,805</b>	<b>3,164,990</b>	<b>1,972</b>	<b>268</b>	<b>113,198,801 kWh</b>	<b>100.0%</b>
<b>%</b>	<b>61.9%</b>	<b>4.3%</b>	<b>12.6%</b>	<b>18.4%</b>	<b>2.8%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>100.0%</b>	

# PORTFOLIO FOURTH YEAR IMPACTS

## Program Level Demand Impacts by Program and Rate Class

Table 32 shows Business and Residential program demand contributions by rate class.

- # 1 Contributor - Residential Energy Efficiency Measures (REEM) within the Residential Rate Schedule “R”**

9,505 kW (62.8% of total program)

The top three contributors toward this value were Residential CFLs, Solar Water Heating and Peer Group Comparisons.

- # 2 Contributor - Business Energy Efficiency Measures (BEEM) within the Business Large Customer Rate Schedule “P”**

1,936 kWh (12.8% of total program)

Schedule “P” Customers are the biggest energy consumers and they undertake the largest energy-savings projects. LED, T8 and VFD Pumps were the top contributors to this category.

Table 32 PY12 Program Demand Impacts by Rate Class									
PY12 Portfolio Energy (kW) Program Level Impacts by Program by Rate Schedule									
Program	R	G	J	P	DS	U	F	Total	%
<b>Business Program</b>	<b>5</b>	<b>447</b>	<b>1,681</b>	<b>2,970</b>	<b>409</b>	<b>1</b>	<b>0</b>	<b>5,512 kW</b>	<b>36.4%</b>
BEEM	5	140	1,116	1,936	220	1	0	3,417 kW	22.6%
CBEEM	-	113	439	980	189	-	-	1,720 kW	11.4%
BESM	-	170	47	41	-	-	-	259 kW	1.7%
BHTR	-	23	79	13	-	-	-	116 kW	0.8%
<b>Residential Program</b>	<b>9,586</b>	<b>46</b>	<b>-</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>9,632 kW</b>	<b>63.6%</b>
REEM	9,505	45	-	0	-	-	-	9,550 kW	63.1%
RESM	9	-	-	-	-	-	-	9 kW	0.1%
RHTR	72	1	-	-	-	-	-	73 kW	0.5%
<b>Total</b>	<b>9,590</b>	<b>493</b>	<b>1,681</b>	<b>2,970</b>	<b>409</b>	<b>1</b>	<b>0</b>	<b>15,145 kW</b>	<b>100.0%</b>
<b>%</b>	<b>63.3%</b>	<b>3.3%</b>	<b>11.1%</b>	<b>19.6%</b>	<b>2.7%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>100.0%</b>	

# PORTFOLIO FOURTH YEAR IMPACTS

## Customer Level Energy Impacts by Program and Rate Class

Table 33 shows Business and Residential program energy contributions by rate class.

- # 1 Contributor - Residential Energy Efficiency Measures (REEM) within the Residential Rate Schedule “R”**

86,184,575 kWh (61.5% of total program)

The top three contributors toward this value were Residential CFLs, Solar Water Heating and Peer Group Comparisons.

- # 2 Contributor - Business Energy Efficiency Measures (BEEM) within the Business Large Customer Rate Schedule “P”**

16,604,226 kWh (11.9% of total program)

Schedule “P” Customers are the biggest energy consumers and they undertake the largest energy-savings projects. LED, T8 and CFLs were the top contributors to this category.

Table 33 PY12 Customer Energy Impacts by Rate Class									
PY12 Portfolio Energy (kWh) Customer Level Impacts by Program by Rate Schedule									
Program	R	G	J	P	DS	U	F	Total	%
<b>Business Program</b>	<b>42,402</b>	<b>5,308,341</b>	<b>17,381,117</b>	<b>25,792,521</b>	<b>3,899,976</b>	<b>2,430</b>	<b>334</b>	<b>52,427,121 kWh</b>	<b>37.4%</b>
BEEM	38,605	909,549	11,215,059	16,604,226	2,154,570	2,430	334	30,924,773 kWh	22.1%
CBEEM	-	1,061,696	4,300,168	8,755,718	1,745,406	-	-	15,862,988 kWh	11.3%
BESM	2,577	3,079,163	968,381	353,392	-	-	-	4,403,514 kWh	3.1%
BHTR	1,220	257,932	897,508	79,185	-	-	-	1,235,846 kWh	0.9%
<b>Residential Program</b>	<b>86,687,086</b>	<b>690,469</b>	<b>278,023</b>	<b>2,460</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>87,658,038 kWh</b>	<b>62.6%</b>
REEM	86,184,575	254,431	-	2,460	-	-	-	86,441,466 kWh	61.7%
RESM	25,081	429,843	278,023	-	-	-	-	732,947 kWh	0.5%
RHTR	477,430	6,195	-	-	-	-	-	483,625 kWh	0.3%
<b>Total</b>	<b>86,729,488</b>	<b>5,998,810</b>	<b>17,659,140</b>	<b>25,794,981</b>	<b>3,899,976</b>	<b>2,430</b>	<b>334</b>	<b>140,085,158 kWh</b>	<b>100.0%</b>
<b>%</b>	<b>61.9%</b>	<b>4.3%</b>	<b>12.6%</b>	<b>18.4%</b>	<b>2.8%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>100.0%</b>	

# PORTFOLIO FOURTH YEAR IMPACTS

## Customer Level Demand Impacts by Program and Rate Class

**Table 34** shows Business and Residential program demand contributions by rate class.

- # 1 Contributor – Residential Energy Efficiency Measures (REEM) within the Residential Rate Schedule “R”**

11,765 kW (62.7% of total program)

The top three contributors toward this value were Residential CFLs, Solar Water Heating and Peer Group Comparisons.

- # 2 Contributor – Business Energy Efficiency Measures (BEEM) within the Business Large Customer Rate Schedule “P”**

2,395 kWh (12.8% of total program)

Schedule “P” Customers are the biggest energy consumers and they undertake the largest energy-savings projects. LED, T8 and VFD Pumps were the top contributors to this category.

Table 34 PY12 Customer Demand Impacts by Rate Class									
PY12 Portfolio Energy (kW) Customer Level Impacts by Program by Rate Schedule									
Program	R	G	J	P	DS	U	F	Total	%
<b>Business Program</b>	<b>6</b>	<b>553</b>	<b>2,079</b>	<b>3,673</b>	<b>504</b>	<b>1</b>	<b>0</b>	<b>6,818 kW</b>	<b>36.4%</b>
BEEM	6	173	1,381	2,395	272	1	0	4,228 kW	22.6%
CBEEM	-	140	542	1,211	233	-	-	2,125 kW	11.3%
BESM	-	211	58	51	-	-	-	320 kW	1.7%
BHTR	-	29	98	16	-	-	-	144 kW	0.8%
<b>Residential Program</b>	<b>11,867</b>	<b>57</b>	<b>-</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>11,924 kW</b>	<b>63.6%</b>
REEM	11,765	56	-	0	-	-	-	11,821 kW	63.1%
RESM	12	-	-	-	-	-	-	12 kW	0.1%
RHTR	90	1	-	-	-	-	-	91 kW	0.5%
<b>Total</b>	<b>11,872</b>	<b>611</b>	<b>2,079</b>	<b>3,673</b>	<b>504</b>	<b>1</b>	<b>0</b>	<b>18,740 kW</b>	<b>100.0%</b>
<b>%</b>	<b>63.4%</b>	<b>3.3%</b>	<b>11.1%</b>	<b>19.6%</b>	<b>2.7%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>100.0%</b>	

# PORTFOLIO FOURTH YEAR IMPACTS

## Energy Efficiency Portfolio Standard (EEPS) Impacts

### Application of Fourth Year Energy Savings towards EEPS Goal

The targeted goal of the Energy Efficiency Portfolio Standard is a 4,300 GWh reduction from the expected usage in year 2030. This “slice of savings” in the year 2030 will be the result of many actions taken from 2009 to 2030. These actions include Building Codes, Appliance Standards, Manufacturer Product Improvements, and Behavior Change etc. Hawaii Energy will capture a majority of these actions through our programs and services.

As measures and actions are put into place, each will start to provide an annual energy savings. These savings will be provided each year until the device or action is replaced with a new one.

There are two ways to look at the savings “stream” that will be provided:

- 1) Assume first year savings last forever.  
This would be where at end of life or even before that, the measure will be replaced with a device or action that provides the same energy reduction.
- 2) First year savings only lasts as long as the measure life.  
This is where each measure’s savings ends at the end of its useful life.

**Table 35** shows what would happen in both scenarios listed above taking into account the yearly “demand-side management impacts” from 1996 through 2012 and then adding the current PY12 impacts as if they will be achieved each year into the future.

The results are:

- First Year Savings Last Forever – 3,506 GWh, or 82% of the 4,300 GWh 2030 energy efficiency goal, is potentially achieved (purple line on right).
- First Year Savings Only Lasts as Long as Measure Life – 1,400 GWh, or 32% of the 4,300 GWh 2030 energy efficiency goal, is potentially achieved (green line on right).

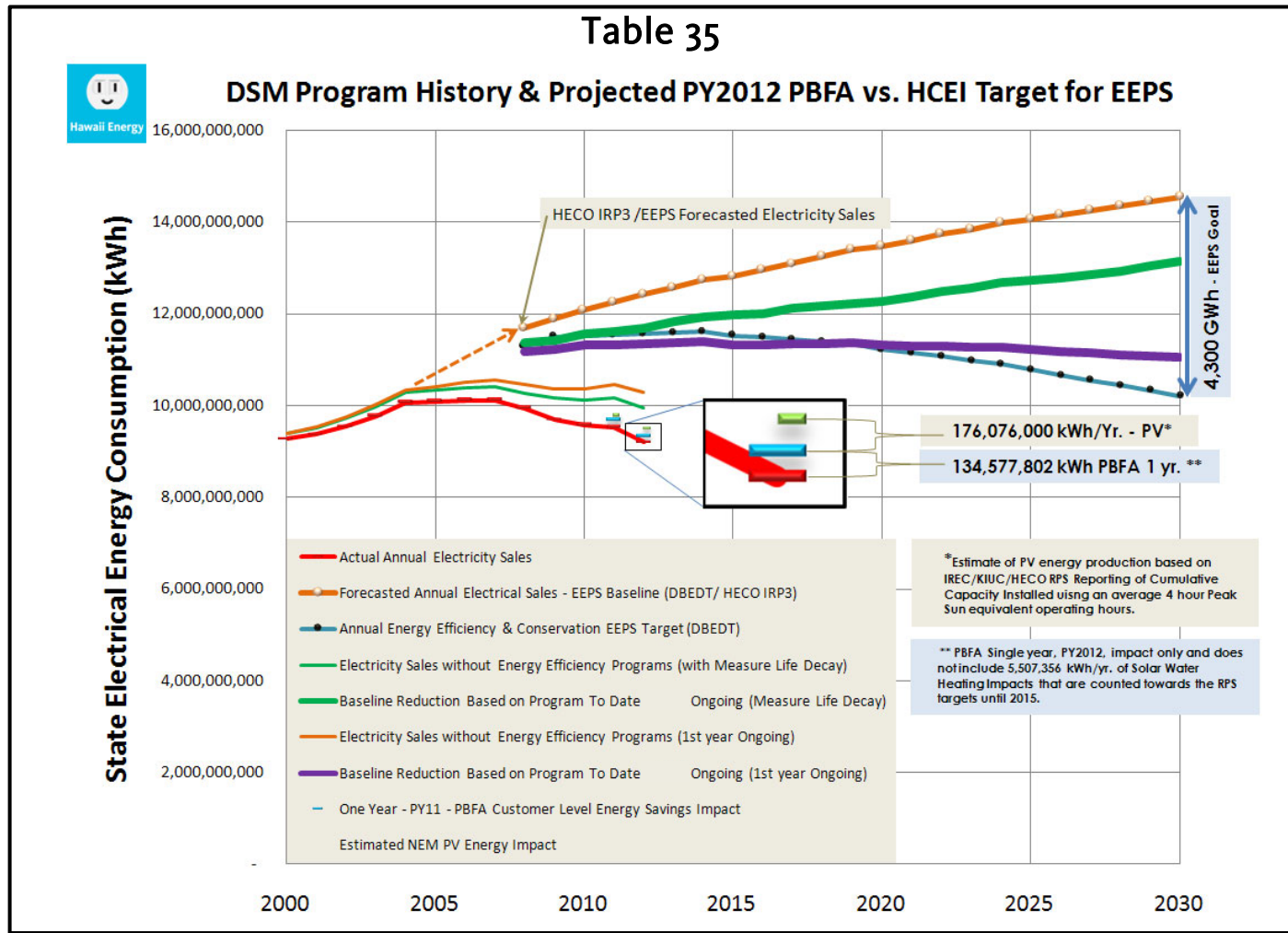
Hawaii Energy believes the first scenario, where the PBFA potentially participates in at least 82% of the HCEI goal, is more likely than the second scenario because future energy efficiency measures will be better than current measures and therefore maintain the current program’s trajectory.

These two methods are illustrated in **Table 35**.

# PORTFOLIO FOURTH YEAR IMPACTS

## Table Assumptions

**Table 35** projects the current program portfolio being achieved each year from 2010 to 2030. Solar water heaters are defined in the Renewable Portfolio Standard (RPS) rules as an “offset” technology and are removed from the savings until 2015.



## PORTFOLIO FOURTH YEAR IMPACTS

### Portfolio Impacts Relative to Load

The next few tables show the Program and Customer Level Impacts as compared to PY12 electricity sales.

Customer Level Savings were equivalent to 1.5% of the 2012 annual energy usage and 1.2% of the peak demand for the utility customers.

Oahu had both the largest energy and demand reductions and the largest percentage of load with energy at 1.4% and demand at 1.2%.

Since PV and EE both have a role in achieving the HCEI goals, Hawaii Energy took a rough cut to compare the impacts of both actions on HECO sales (see **Table 36a**). The cumulative impact of PV was also included on the graph in **Table 35**.

Taking the reported cumulative installed PV values at the end of 2012, there was a non-utility installed capacity of roughly 120MW-AC (143MW-DC) of PV. Using an average production estimate of a four hour per day peak sun equivalent day, the PV systems are offsetting/producing 176,076,000 kWh in 2012. If the lifetime of the PV systems are put at 25 years, the systems will generate 4,401,900,000 kWh or just under half a year of 2012 energy sales.

There are two costs for PV and EE actions. The first cost is the customer level cost and second is the cost of State programs to support the implementation of the actions. The table shows that both customer and program investments in EE and PV are more cost effective than the current costs to generate or purchase electricity.

Combined in 2012, the one year EE efforts and the cumulative PV installations decreased energy generation by 3.4% of sales for a combined lifetime cost to the customers of \$0.14/kWh and a total of \$0.05/kWh for the State incentive programs to support them.

Table 36 PY12 Energy Impacts vs. Sales					
PY12 - Customer and Program Level Energy (kWh) Impacts vs. Generation					
Island	2012 kWh Generated*	Customer Level Savings	% of Sales	Program Level Savings	% of Sales
Hawaii	1,170,400,000	20,306,271	1.7%	16,157,700	1.4%
Lanai	26,100,000	642,373	2.5%	513,762	2.0%
Maui	1,154,400,000	16,961,421	1.5%	13,615,068	1.2%
Molokai	33,000,000	594,362	1.8%	475,364	1.4%
Oahu	7,311,000,000	101,580,731	1.4%	82,436,907	1.1%
Total	9,694,900,000	140,085,158	1.4%	113,198,801	1.2%
kWh Sales**					
Total	9,206,000,000	140,085,158	1.5%	113,198,801	1.2%
* HEI 2012 10K Report - net generated and purchased power					
** Total Sales in 10K reported only for Total					

# PORTFOLIO FOURTH YEAR IMPACTS

Table 36a Energy Efficiency and PV Impact on Energy Sales and Cost of Achievement				
Item	2012 HECO Sales	EE (PBFA Only) One Year Impact	PV (State) Cumulative Impact	Total Reduction
Daytime Capacity (kW)		Not Available*	120,600	
On-Peak Capacity (kW)		18,750	Unknown	
Single Year Customer Level Energy (kWh-Annual)**	9,206,000,000	140,085,158	176,076,000	316,161,158
Impact on Annual Sales (% of Sales)		1.5%	1.9%	3.4%
Estimated Useful Lifetime		9.4	25.0	
Measure Life Customer Level Energy (kWh-Life)		1,317,203,780	4,401,900,000	5,719,103,780
Customer Cost to Implement (\$)***		\$ 56,213,606	\$ 723,600,000	
Per kW cost to Customer (for review only not comparable)		\$ 2,998	\$6,000	
Customer lifetime Unit Cost (\$/kWh)		\$ 0.04	\$ 0.16	
State Incentives Cost to Support Actions (\$)****		\$ 30,903,827	\$ 253,260,000	
Incentives per kW cost		\$ 1,648	\$ 2,100	
Incentives Lifetime Unit Cost (\$/kWh)		\$ 0.02	\$ 0.06	
* - Can be determined. Not available at time of report generation. ** - EE Includes Solar Water Heating that is not in Table 35. This figure is from Table 1. *** - TRC - Incremental Costs - Table 19, Estimated Average PV installed Cost \$6/Watt. **** - PBFA Total Contract Cost. Estimated 35% State Tax Incentive for all installations				

Table 37 PY12 Demand Impacts vs. Sales					
PY12 - Customer and Program Level Demand (kW) Impacts vs. Generation					
Island	2012 kW Peak*	Customer Level Reduction	% of Peak	Program Level Reduction	% of Peak
Hawaii	189,300	2,585	1.4%	2,057	1.1%
Lanai	4,600	68	1.5%	54	1.2%
Maui	194,800	2,424	1.2%	1,946	1.0%
Molokai	5,500	68	1.2%	54	1.0%
Oahu	1,141,000	13,595	1.2%	11,033	1.0%
Total	1,535,200	18,740	1.2%	15,145	1.0%
* Reported HEI 2012 10K Report (noncoincident and nonintegrated)					

## PORTFOLIO FOURTH YEAR IMPACTS

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

#### TRB

The utilities' total avoided cost of all saved energy and capacity avoided is called the Total Resource Benefit (TRB). The total Program portfolio had a net TRB of \$116,768,535. **Table 38** shows the measures and their relative contributions. The top three measures provided 73% 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 \$56,508,522 (48.4%) down from \$59,461,367 (46.5%) in PY11. Residential CFLs alone had a 47.5% first year energy impact contribution to the Program, despite a short six (6) year useful life and low unit savings number. CFLs were the greatest contributor to the TRB at \$38,071,739 (32.6%).
- *Customized Project Measures* – The second largest contributor with \$19,415,339 (17%) down from \$34,250,642 (26.8%) in PY11. Customized Project measures represent 11.0% of the first year energy contribution; however, the 14.0 year average useful life of these measures provided a significant TRB value.
- *High Efficiency HVAC* – The third measure to offer significant contribution at \$9,369,317 (8.0%) was High Efficiency HVAC. The measure has a 4,789,378 kWh first year energy savings and a 16.0 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. PY12 Program Savings were achieved with an estimated TRC of \$56,213,606, which is lower than the PY11 reported figure of \$81,662,835. This lower number is due to more accurate use of incremental costs supported by incentives versus the total project/measure costs. If the same methodology used in PY11 was used, then Total Project/Measure costs would be \$76,331,990 in PY12.

The largest customer investment was in Solar Water Heaters at \$17,610,159 (31.3%) of TRC, followed by Customized Measures – Over 5 year Life at \$12,379,401 (22.0%). See **Table 38** for details.

# PORTFOLIO FOURTH YEAR IMPACTS

Table 38  
Measure Portfolio Total Resource Benefit and Costs (TRB & TRC)

PY12 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	9,139	60%	69,287,594	61%	534,923,112	50%	7.7	4.8	\$ 56,508,522	48%	\$ 11,680,026	21%	\$ 4,860,782	25%
2	Customized Project Measures	1,716	11%	12,804,135	11%	179,626,838	17%	14.0	1.5	\$ 19,415,339	17%	\$ 13,054,647	23%	\$ 2,036,933	10%
3	High Efficiency HVAC	997	7%	4,789,378	4%	76,534,199	7%	16.0	3.8	\$ 9,369,317	8%	\$ 2,469,480	4%	\$ 1,232,087	6%
4	High Efficiency Appliances	304	2%	5,383,981	5%	72,958,124	7%	13.6	2.4	\$ 6,915,988	6%	\$ 2,907,468	5%	\$ 1,106,760	6%
5	High Efficiency Water Heating	993	7%	4,837,137	4%	69,198,256	6%	14.3	0.5	\$ 9,258,909	8%	\$ 17,089,312	30%	\$ 2,239,721	12%
6	Business Direct Installation	259	2%	3,523,159	3%	49,324,225	5%	14.0	2.1	\$ 4,872,317	4%	\$ 2,359,042	4%	\$ 2,359,042	12%
7	Energy Efficiency Equipment Grants	240	2%	1,430,244	1%	19,616,122	2%	13.7	1.5	\$ 2,451,018	2%	\$ 1,637,014	3%	\$ 1,923,335	10%
8	Energy Awareness, Measurement and Control Systems	811	5%	6,987,603	6%	15,430,407	1%	2.2	1.6	\$ 2,448,057	2%	\$ 1,537,702	3%	\$ 1,164,358	6%
9	Building Envelope Improvements	297	2%	1,109,701	1%	11,100,805	1%	10.0	4.9	\$ 1,846,714	2%	\$ 380,762	1%	\$ 297,465	2%
10	High Efficiency Air Conditioning	223	1%	878,612	1%	8,949,371	1%	10.2	2.8	\$ 1,086,012	1%	\$ 385,428	1%	\$ 227,777	1%
11	High Efficiency Water Pumping	57	0%	578,821	1%	8,682,311	1%	15.0	2.6	\$ 826,877	1%	\$ 312,600	1%	\$ 96,350	0%
12	MM - High Efficiency Appliances	27	0%	500,421	0%	6,675,958	1%	13.3	4.0	\$ 623,756	1%	\$ 157,622	0%	\$ 81,175	0%
13	Residential Design and Audits	-	0%	574,462	1%	4,319,151	0%	7.5	2.0	\$ 301,111	0%	\$ 147,000	0%	\$ 147,000	1%
14	Commercial Industrial Processes	40	0%	231,687	0%	3,475,311	0%	15.0	2.2	\$ 424,637	0%	\$ 195,750	0%	\$ 76,200	0%
15	High Efficiency Motors	34	0%	230,791	0%	3,461,859	0%	15.0	6.0	\$ 400,244	0%	\$ 66,381	0%	\$ 32,520	0%
16	Business Design, Audits and Commissioning	-	0%	26,913	0%	376,785	0%	14.0	0.0	\$ 29,797	0%	\$ 1,809,535	3%	\$ 1,519,990	8%
17	MM - High Efficiency Water Heating	1	0%	3,286	0%	49,294	0%	15.0	0.5	\$ 6,694	0%	\$ 13,200	0%	\$ 1,900	0%
18	MM - High Efficiency Air Conditioning	0	0%	814	0%	16,280	0%	20.0	8.8	\$ 1,055	0%	\$ 120	0%	\$ 75	0%
19	Target Cost Request for Proposals	8	0%	14,057	0%	6,506	0%	0.5	0.6	\$ 2,067	0%	\$ 3,617	0%	\$ 3,033	0%
20	Residential System Tune-Ups	1	0%	6,003	0%	6,003	0%	1.0	0.2	\$ 1,104	0%	\$ 6,900	0%	\$ 1,150	0%
21	Residential Direct Installation	-	0%	-	0%	-	0%	-	-	\$ -	0%	\$ -	0%	\$ -	0%
22	Landlord, Tenant, AOA Measures	-	0%	-	0%	-	0%	-	-	\$ -	0%	\$ -	0%	\$ -	0%
	<b>Grand Total</b>	<b>15,145</b>	<b>100%</b>	<b>113,198,801</b>	<b>100%</b>	<b>1,064,730,916</b>	<b>100%</b>	<b>9.4</b>	<b>2.1</b>	<b>\$ 116,789,535</b>	<b>100%</b>	<b>\$ 56,213,606</b>	<b>100%</b>	<b>\$ 19,407,652</b>	<b>100%</b>

# PORTFOLIO FOURTH YEAR IMPACTS

## TRC Test

The societal cost test of the TRB/TRC provides a metric of how much “return on investment” is provided by:

- Saving energy versus creating it (kWh reductions)
- Avoiding the need for increased power plant capacity (Peak kW reductions)

The TRB/TRC ratio of 2.1 indicates that society is getting a 2.1 times return (or 210%) on their investment. Currently this does not include the benefits of avoided transmission and distribution costs or any “externalities” that bring benefit to society, such as reductions in air and water emissions.

Refer to **Tables 39 - 40** for details under TRB/TRC.

Table 39a PY12 TRC Measure Values - over 1% TRB Contribution															
PY12 Contribution by Measure in Order of Lifetime Energy Impact - Part 1															
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	7,343	48.5%	53,748,751	47.5%	317,126,792	29.8%	5.9	14.2	\$ 38,071,739	32.6%	\$ 2,672,221	4.8%	\$ 2,408,691	12.4%
2	Customized Measures - Over 5 year Life	1,664	11.0%	12,467,766	11.0%	175,931,784	16.5%	14.1	1.5	\$ 18,956,515	16.2%	\$ 12,379,401	22.0%	\$ 1,987,096	10.2%
3	T8 /T8LW	690	4.6%	6,457,585	5.7%	90,400,263	8.5%	14.0	1.5	\$ 9,737,705	8.3%	\$ 6,488,609	11.5%	\$ 944,899	4.9%
4	LED	802	5.3%	5,711,746	5.0%	85,410,599	8.0%	15.0	2.7	\$ 4,260,155	3.6%	\$ 1,553,045	2.8%	\$ 1,137,708	5.9%
5	Solar Water Heating Incentive - Contractor	895	5.9%	4,019,307	3.6%	60,289,603	5.7%	15.0	0.5	\$ 8,188,050	7.0%	\$ 15,899,400	28.3%	\$ 2,050,500	10.6%
6	Refrigerator with Recycling	174	1.1%	4,208,859	3.7%	58,924,026	5.5%	14.0	2.4	\$ 5,317,506	4.6%	\$ 2,179,440	3.9%	\$ 770,090	4.0%
7	SBDI - Lighting Retrofits	259	1.7%	3,523,159	3.1%	49,324,225	4.6%	14.0	2.1	\$ 4,872,317	4.2%	\$ 2,359,042	4.2%	\$ 2,359,042	12.2%
8	Chillers	284	1.9%	1,432,943	1.3%	28,658,861	2.7%	20.0	2.1	\$ 3,343,658	2.9%	\$ 1,624,644	2.9%	\$ 322,145	1.7%
9	HVAC - Packaged/Split	209	1.4%	1,385,188	1.2%	20,777,818	2.0%	15.0	12.5	\$ 2,429,043	2.1%	\$ 195,099	0.3%	\$ 563,956	2.9%
10	Delamping	126	0.8%	1,385,780	1.2%	19,400,914	1.8%	14.0	22.7	\$ 2,008,973	1.7%	\$ 88,400	0.2%	\$ 76,270	0.4%
11	VFD - Pump	377	2.5%	1,390,718	1.2%	18,791,231	1.8%	13.5	15.2	\$ 2,464,458	2.1%	\$ 162,138	0.3%	\$ 152,600	0.8%
12	Delamp/Reflector	107	0.7%	1,068,743	0.9%	14,962,400	1.4%	14.0	7.3	\$ 1,583,707	1.4%	\$ 216,760	0.4%	\$ 118,045	0.6%
13	SBDI - Restaurant Lighting	105	0.7%	931,318	0.8%	13,038,458	1.2%	14.0	3.6	\$ 1,424,413	1.2%	\$ 394,433	0.7%	\$ 394,433	2.0%
14	Window Tinting	289	1.9%	1,088,902	1.0%	10,889,020	1.0%	10.0	6.4	\$ 1,789,843	1.5%	\$ 278,246	0.5%	\$ 276,962	1.4%
15	Clothes Washer (Tier II/III) + (Tier I GF)	123	0.8%	903,190	0.8%	10,651,346	1.0%	11.8	2.2	\$ 1,295,658	1.1%	\$ 596,750	1.1%	\$ 299,150	1.5%
16	Condominium Submetering	143	0.9%	1,134,484	1.0%	9,530,628	0.9%	8.4	2.5	\$ 1,606,630	1.4%	\$ 640,725	1.1%	\$ 269,250	1.4%

# PORTFOLIO FOURTH YEAR IMPACTS

Table 39b  
PY12 TRC Measure Values - Continued

## PY12 Contribution by Measure in Order of Lifetime Energy Impact - Part 2

Rank	Category	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kW Life)	%	Avg. Measure Life (yrs.)	TRB/ TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives (\$)	%
17	Garage Refrigerator / Freezer Bounty	23	0.2%	585,766	0.5%	8,200,727	0.8%	14.0	7.9	\$ 736,062	0.6%	\$ 92,625	0.2%	\$ 50,885	0.3%
18	Peer Group Comparison	667	4.4%	5,841,701	5.2%	5,841,701	0.5%	1.0	0.9	\$ 833,676	0.7%	\$ 891,460	1.6%	\$ 891,460	4.6%
19	VFD Domestic Water Booster Packages	41	0.3%	381,392	0.3%	5,720,877	0.5%	15.0	2.8	\$ 602,707	0.5%	\$ 214,500	0.4%	\$ 50,200	0.3%
20	Sensors	24	0.2%	584,435	0.5%	4,675,479	0.4%	8.0	1.5	\$ 482,423	0.4%	\$ 318,353	0.6%	\$ 87,220	0.4%
21	VFR - Variable Refrigerant Flow AC	29	0.2%	306,712	0.3%	4,600,682	0.4%	15.0	1.2	\$ 470,745	0.4%	\$ 387,838	0.7%	\$ 160,179	0.8%
22	Kitchen Exhaust Hood Demand Ventilation	51	0.3%	296,635	0.3%	4,449,522	0.4%	15.0	2.2	\$ 543,675	0.5%	\$ 251,550	0.4%	\$ 134,680	0.7%
23	Efficiency Inside Home Design	-	0.0%	574,462	0.5%	4,319,151	0.4%	7.5	2.0	\$ 301,111	0.3%	\$ 147,000	0.3%	\$ 147,000	0.8%
24	Solar Water Heater - Grant	62	0.4%	277,763	0.2%	4,166,452	0.4%	15.0	0.5	\$ 565,800	0.5%	\$1,123,359	2.0%	\$ 1,412,359	7.3%
25	Heat Pumps	54	0.4%	387,755	0.3%	3,877,545	0.4%	10.0	0.9	\$ 494,662	0.4%	\$ 574,200	1.0%	\$ 63,800	0.3%
26	Customized Project Measures - Under 5 Year Life	52	0.3%	330,672	0.3%	3,609,601	0.3%	10.9	0.8	\$ 452,213	0.4%	\$ 584,824	1.0%	\$ 48,560	0.3%
27	Whole House Fan	90	0.6%	179,721	0.2%	3,594,417	0.3%	20.0	10.8	\$ 286,929	0.2%	\$ 26,520	0.0%	\$ 16,575	0.1%
28	VFD - AHU	92	0.6%	233,652	0.2%	3,504,779	0.3%	15.0	14.0	\$ 634,612	0.5%	\$ 45,252	0.1%	\$ 28,550	0.1%
29	VFD Pool Pump Packages	16	0.1%	197,429	0.2%	2,961,434	0.3%	15.0	2.3	\$ 224,170	0.2%	\$ 98,100	0.2%	\$ 46,150	0.2%
30	Heat Pump - Upgrade	9	0.1%	284,006	0.3%	2,840,062	0.3%	10.0	7.2	\$ 272,393	0.2%	\$ 37,762	0.1%	\$ 37,762	0.2%
31	VFR Split System AC	83	0.5%	192,365	0.2%	2,834,528	0.3%	14.7	1.5	\$ 471,174	0.4%	\$ 306,960	0.5%	\$ 77,177	0.4%
32	ECM	20	0.1%	182,994	0.2%	2,744,906	0.3%	15.0	5.8	\$ 289,736	0.2%	\$ 50,298	0.1%	\$ 21,165	0.1%
33	Ceiling Fans	51	0.3%	448,044	0.4%	2,240,221	0.2%	5.0	13.3	\$ 300,520	0.3%	\$ 22,563	0.0%	\$ 132,960	0.7%
34	Solar Water Heating Incentive - Lender	33	0.2%	147,488	0.1%	2,212,319	0.2%	15.0	0.5	\$ 300,448	0.3%	\$ 587,400	1.0%	\$ 89,000	0.5%
35	HID Pulse Start	20	0.1%	152,604	0.1%	2,136,458	0.2%	14.0	13.4	\$ 243,875	0.2%	\$ 18,133	0.0%	\$ 30,600	0.2%
36	VFD Controlled Pool Pumps	1	0.0%	119,241	0.1%	1,192,407	0.1%	10.0	0.7	\$ 106,842	0.1%	\$ 147,450	0.3%	\$ 37,050	0.2%
37	LED - Refrigerated Case Lighting	24	0.2%	151,436	0.1%	757,179	0.1%	5.0	0.4	\$ 112,783	0.1%	\$ 318,440	0.6%	\$ 52,050	0.3%
38	Solar Water Heating - Commercial	51	0.3%	47,842	0.0%	717,633	0.1%	15.0	19.5	\$ 257,360	0.2%	\$ 13,200	0.0%	\$ 14,472	0.1%
39	Refrigerator (<\$600)	6	0.0%	36,497	0.0%	510,959	0.0%	14.0	1.3	\$ 62,936	0.1%	\$ 47,300	0.1%	\$ 21,500	0.1%
40	Energy Hero Gift Packs - Akamai PowerStrips	11	0.1%	96,752	0.1%	483,761	0.0%	5.0	1.8	\$ 64,946	0.1%	\$ 37,026	0.1%	\$ 37,445	0.2%
41	Solar Attic Fans	3	0.0%	90,092	0.1%	450,461	0.0%	5.0	1.6	\$ 49,090	0.0%	\$ 30,900	0.1%	\$ 10,300	0.1%
42	Energy Study Assistance	-	0.0%	26,913	0.0%	376,785	0.0%	14.0	0.1	\$ 29,797	0.0%	\$ 335,949	0.6%	\$ 302,610	1.6%
43	CEE Tier 1 - Premium Efficiency Motors	11	0.1%	23,917	0.0%	358,757	0.0%	15.0	10.7	\$ 72,694	0.1%	\$ 6,791	0.0%	\$ 5,745	0.0%
44	ECM - Evaporator Fans	3	0.0%	23,880	0.0%	358,196	0.0%	15.0	4.1	\$ 37,814	0.0%	\$ 9,292	0.0%	\$ 5,610	0.0%
45	Garage Active Ventilation Control	5	0.0%	45,862	0.0%	286,280	0.0%	6.2	0.2	\$ 33,412	0.0%	\$ 144,932	0.3%	\$ 5,934	0.0%

# PORTFOLIO FOURTH YEAR IMPACTS

Table 39c  
PY12 TRC Measure Values - Continued

PY12 Contribution by Measure in Order of Lifetime Energy Impact - Part 3															
Rank	Category	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kW Life)	%	Avg. Measure Life (yrs.)	TRB/ TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives (\$)	%
47	Cool Roof Technologies	8	0.1%	20,799	0.0%	211,785	0.0%	10.2	0.6	\$ 56,871	0.0%	\$ 102,516	0.2%	\$ 20,503	0.1%
48	Induction	3	0.0%	26,514	0.0%	53,028	0.0%	2.0	1.2	\$ 7,162	0.0%	\$ 6,065	0.0%	\$ 5,300	0.0%
49	Commercial Solar Water Heating	2	0.0%	1,868	0.0%	28,022	0.0%	15.0	2.7	\$ 10,050	0.0%	\$ 3,750	0.0%	\$ 559	0.0%
50	Whole House Energy Metering	0	0.0%	2,545	0.0%	11,406	0.0%	4.5	0.6	\$ 1,330	0.0%	\$ 2,200	0.0%	\$ 892	0.0%
51	Custom Packaged Proposals	8	0.1%	14,057	0.0%	6,506	0.0%	0.5	0.6	\$ 2,067	0.0%	\$ 3,617	0.0%	\$ 3,033	0.0%
52	Room Occupancy Sensors	0	0.0%	770	0.0%	6,159	0.0%	8.0	1.1	\$ 982	0.0%	\$ 920	0.0%	\$ 359	0.0%
53	Central AC Maintenance	1	0.0%	6,003	0.0%	6,003	0.0%	1.0	0.2	\$ 1,104	0.0%	\$ 6,900	0.0%	\$ 1,150	0.0%
54	Dishwasher (GF)	0	0.0%	53	0.0%	640	0.0%	12.0	1.2	\$ 94	0.0%	\$ 80	0.0%	\$ 50	0.0%
55	Custom SWH Proposals	-	0.0%	-	0.0%	-	0.0%			\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
56	TBD	-	0.0%	-	0.0%	-	0.0%			\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
57	AC Bounty (GF)	-	0.0%	-	0.0%	-	0.0%		-	\$ -	0.0%	\$ 50	0.0%	\$ 50	0.0%
58	Central Plant Performance - Benchmark Metering	-	0.0%	-	0.0%	-	0.0%		-	\$ -	0.0%	\$ 749,682	1.3%	\$ 536,160	2.8%
59	Central Plant Performance - Commissioning	-	0.0%	-	0.0%	-	0.0%		-	\$ -	0.0%	\$ 693,472	1.2%	\$ 663,354	3.4%
60	CFL Exchange	-	0.0%	-	0.0%	-	0.0%			\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
61	Energy Hero Gift Packs	-	0.0%	-	0.0%	-	0.0%			\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
62	Cofunded Leveraged Project Assistance	-	0.0%	-	0.0%	-	0.0%			\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
63	Design Assistance - 50%	-	0.0%	-	0.0%	-	0.0%		-	\$ -	0.0%	\$ 25,131	0.0%	\$ 12,565	0.1%
64	Solar Inspections (WAP)	-	0.0%	-	0.0%	-	0.0%			\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
65	Energy Project Catalyst	-	0.0%	-	0.0%	-	0.0%		-	\$ -	0.0%	\$ 5,301	0.0%	\$ 5,301	0.0%
66	Hawaii Energy Hero Landlord Program	-	0.0%	-	0.0%	-	0.0%			\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
67	Solar Water Heater Tune-Ups	-	0.0%	-	0.0%	-	0.0%			\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
68	Hawaii Energy Hero Audits	-	0.0%	-	0.0%	-	0.0%			\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
69	<b>Grand Total</b>	<b>15,145</b>	<b>100%</b>	<b>113,198,801</b>	<b>100%</b>	<b>1,064,730,916</b>	<b>100%</b>	<b>9.4</b>	<b>2.1</b>	<b>\$116,789,535</b>	<b>100%</b>	<b>\$ 56,213,606</b>	<b>100%</b>	<b>\$19,407,652</b>	<b>100%</b>

# PORTFOLIO FOURTH YEAR IMPACTS

Table 40a			
Total vs. Incremental Measure Cost - Part 1 of 2			
Total and Incremental Measure Costs by Measure Sorted by Total Measure Cost - Part 1 of 2			
Measure	Measure Total Cost (\$)	Measure Incremental Cost (\$)	Difference (\$)
Solar Water Heating Incentive - Contractor	\$ 15,899,400	\$ 15,899,400	\$ -
Customized Measures - Over 5 year Life	\$ 12,379,401	\$ 12,379,401	\$ -
Chillers	\$ 8,123,220	\$ 1,624,644	\$ 6,498,576
Refrigerator with Recycling	\$ 7,264,800	\$ 2,179,440	\$ 5,085,360
T8 /T8LW	\$ 6,621,040	\$ 6,488,609	\$ 132,431
CFL	\$ 3,560,884	\$ 2,672,221	\$ 888,663
Clothes Washer (Tier II/III) + (Tier I GF)	\$ 2,983,750	\$ 596,750	\$ 2,387,000
LED	\$ 2,389,300	\$ 1,553,045	\$ 836,255
SBDI - Lighting Retrofits	\$ 2,359,042	\$ 2,359,042	\$ -
Solar Water Heater - Grant	\$ 1,123,359	\$ 1,123,359	\$ -
Window Tinting	\$ 1,112,982	\$ 278,246	\$ 834,737
HVAC - Packaged/Split	\$ 975,494	\$ 195,099	\$ 780,395
Customized Project Measures - Under 5 Year Life	\$ 937,207	\$ 584,824	\$ 352,383
Peer Group Comparison	\$ 891,460	\$ 891,460	\$ -
VFR - Variable Refrigerant Flow AC	\$ 775,675	\$ 387,838	\$ 387,838
Central Plant Performance - Benchmark Metering	\$ 749,682	\$ 749,682	\$ -
Central Plant Performance - Commissioning	\$ 693,472	\$ 693,472	\$ -
VFD - Pump	\$ 648,550	\$ 162,138	\$ 486,413
Condominium Submetering	\$ 640,725	\$ 640,725	\$ -
VFR Split System AC	\$ 613,919	\$ 306,960	\$ 306,960
Solar Water Heating Incentive - Lender	\$ 587,400	\$ 587,400	\$ -
Heat Pumps	\$ 574,200	\$ 574,200	\$ -
Cool Roof Technologies	\$ 410,064	\$ 102,516	\$ 307,548
SBDI - Restaurant Lighting	\$ 394,433	\$ 394,433	\$ -
Energy Study Assistance	\$ 335,949	\$ 335,949	\$ -
LED - Refrigerated Case Lighting	\$ 318,440	\$ 318,440	\$ -
Sensors	\$ 318,353	\$ 318,353	\$ -
VFD Domestic Water Booster Packages	\$ 285,000	\$ 214,500	\$ 70,500
Kitchen Exhaust Hood Demand Ventilation	\$ 251,550	\$ 251,550	\$ -
Refrigerator (<\$600)	\$ 236,500	\$ 47,300	\$ 189,200
Delamp/Reflector	\$ 216,760	\$ 216,760	\$ -
VFD Controlled Pool Pumps	\$ 183,750	\$ 147,450	\$ 36,300
HID Pulse Start	\$ 181,332	\$ 18,133	\$ 163,199

# PORTFOLIO FOURTH YEAR IMPACTS

Table 40b  
Total vs. Incremental Measure Cost - Part 2 of 2

Total and Incremental Measure Costs by Measure Sorted by Total Measure Cost - Part 2 of 2			
Measure	Measure Total Cost (\$)	Measure Incremental Cost (\$)	Difference (\$)
VFD - AHU	\$ 181,007	\$ 45,252	\$ 135,755
Efficiency Inside Home Design	\$ 147,000	\$ 147,000	\$ -
Ceiling Fans	\$ 112,815	\$ 22,563	\$ 90,252
VFD Pool Pump Packages	\$ 98,100	\$ 98,100	\$ -
Garage Refrigerator / Freezer Bounty	\$ 92,625	\$ 92,625	\$ -
High Efficiency HVAC	\$ 90,422	\$ 90,422	\$ -
Delamping	\$ 88,400	\$ 88,400	\$ -
Garage Active Ventilation Control	\$ 54,510	\$ 54,510	\$ -
ECM	\$ 50,298	\$ 50,298	\$ -
Design Assistance - 50%	\$ 50,262	\$ 25,131	\$ 25,131
Lanai Hui Up	\$ 40,794	\$ 15,594	\$ 25,200
Induction	\$ 40,434	\$ 6,065	\$ 34,369
Heat Pump - Upgrade	\$ 37,762	\$ 37,762	\$ -
Energy Hero Gift Packs - Akamai PowerStrips	\$ 37,026	\$ 37,026	\$ -
Solar Attic Fans	\$ 30,900	\$ 30,900	\$ -
Whole House Fan	\$ 26,520	\$ 26,520	\$ -
Solar Water Heating - Commercial	\$ 13,200	\$ 13,200	\$ -
ECM - Evaporator Fans	\$ 9,292	\$ 9,292	\$ -
Central AC Maintenance	\$ 6,900	\$ 6,900	\$ -
CEE Tier 1 - Premium Efficiency Motors	\$ 6,791	\$ 6,791	\$ -
Energy Project Catalyst	\$ 5,301	\$ 5,301	\$ -
Commercial Solar Water Heating	\$ 3,750	\$ 3,750	\$ -
Custom Packaged Proposals	\$ 3,617	\$ 3,617	\$ -
Whole House Energy Metering	\$ 2,200	\$ 2,200	\$ -
Room Occupancy Sensors	\$ 920	\$ 920	\$ -
Dishwasher (GF)	\$ 400	\$ 80	\$ 320
AC Bounty (GF)	\$ 50	\$ 50	\$ -
Custom SWH Proposals	\$ -	\$ -	\$ -
Solar Inspections (WAP)	\$ -	\$ -	\$ -
Solar Water Heater Tune-Ups	\$ -	\$ -	\$ -
Energy Hero Gift Packs	\$ -	\$ -	\$ -
Hawaii Energy Hero Audits	\$ -	\$ -	\$ -
Cofunded Leveraged Project Assistance	\$ -	\$ -	\$ -
CFL Exchange	\$ -	\$ -	\$ -
Hawaii Energy Hero Landlord Program	\$ -	\$ -	\$ -
TBD	\$ -	\$ -	\$ -

## PORTFOLIO FOURTH YEAR IMPACTS

### Island Equity

The Island Equity target is based on incentive dollars spent as compared to the contribution of each County towards the Public Benefits fund.

In PY12, the Program heavily invested in the County of Hawaii in two direct install programs:

- Hard-to-Reach Residential Solar Water Heating, a partnership with the Hawaii Community Economic Opportunity Council (HCEOC).
- Direct Installation Lighting Program in small businesses and restaurants.

The impact of the actual incentive distributed within each County are as follows:

- PY11 = 66% of incentive funds in Honolulu, 16% in Hawaii and 18% in Maui counties.
- PY12 = 64% of incentive funds in Honolulu, 23% in Hawaii and 13% in Maui counties as shown in **Table 41**.



# PORTFOLIO FOURTH YEAR IMPACTS

Table 41  
PY12 Island Equity by Business and Residential

## PY12 Island Program Level Energy Savings by Business and Residential % of Total

County	Island	2012 kWh Sales*	%	Business Energy Reduction	% of Business Savings	% of Sales	Residential Energy Reduction	% of Residential Savings	% of Sales	Total Energy Reduction	% of Total Savings	% of Sales
Hawaii	Hawaii	1,085,171,000	11.8%	4,876,658	11.5%	0.4%	11,281,041	15.9%	1.0%	16,157,700	14.3%	1.5%
Honolulu	Oahu	6,975,996,000	75.8%	32,275,456	76.1%	0.5%	50,161,451	70.8%	0.7%	82,436,907	72.8%	1.2%
Maui		1,144,833,000	12.4%	5,239,652	12.4%	0.5%	9,364,543	13.2%	0.8%	14,604,194	12.9%	1.3%
	Lanai	24,857,143	0.3%	44,248	0.1%	0.2%	469,514	0.7%	1.9%	513,762	0.5%	2.1%
	Maui	1,088,547,286	11.8%	5,173,523	12.2%	0.5%	8,441,545	11.9%	0.8%	13,615,068	12.0%	1.3%
	Molokai	31,428,571	0.3%	21,881	0.1%	0.1%	453,483	0.6%	1.4%	475,364	0.4%	1.5%
<b>Total</b>		<b>9,206,000,000</b>	<b>100.0%</b>	<b>42,391,766</b>	<b>100.0%</b>	<b>0.5%</b>	<b>70,807,035</b>	<b>100.0%</b>	<b>0.8%</b>	<b>113,198,801</b>	<b>100.0%</b>	<b>1.2%</b>

## PY12 Island Customer Level Energy Savings by Business and Residential % of Total

County	Island	2012 kWh Sales*	%	Business Energy Reduction	% of Business Savings	% of Sales	Residential Energy Reduction	% of Residential Savings	% of Sales	Total Energy Reduction	% of Total Savings	% of Sales
Hawaii	Hawaii	1,085,171,000	11.8%	6,128,765	11.7%	0.6%	14,177,506	16.2%	1.3%	20,306,271	14.5%	1.9%
Honolulu	Oahu	6,975,996,000	75.8%	39,770,586	75.9%	0.6%	61,810,146	70.5%	0.9%	101,580,731	72.5%	1.5%
Maui		1,144,833,000	12.4%	6,527,770	12.5%	0.6%	11,670,386	13.3%	1.0%	18,198,156	13.0%	1.6%
	Lanai	24,857,143	0.3%	55,324	0.1%	0.2%	587,048	0.7%	2.4%	642,373	0.5%	2.6%
	Maui	1,088,547,286	11.8%	6,445,087	12.3%	0.6%	10,516,334	12.0%	1.0%	16,961,421	12.1%	1.6%
	Molokai	31,428,571	0.3%	27,358	0.1%	0.1%	567,004	0.6%	1.8%	594,362	0.4%	1.9%
<b>Total</b>		<b>9,206,000,000</b>	<b>100.0%</b>	<b>52,427,121</b>	<b>100.0%</b>	<b>0.6%</b>	<b>87,658,038</b>	<b>100.0%</b>	<b>1.0%</b>	<b>140,085,158</b>	<b>100.0%</b>	<b>1.5%</b>

\*Reported total sales by county in HEI's 2012 10k Annual Report filed with the Securities and Exchange Commission.

## PORTFOLIO FOURTH YEAR IMPACTS

Table 42  
Island Incentive Spending by Island and Rate Schedule

PY12 Portfolio Incentives by Rate Schedule									
Island	R	G	J	P	DS	U	F	Total	%
Hawaii Island	\$ 2,716,455	\$ 599,727	\$ 525,434	\$ 504,933	\$ -	\$ -	\$ -	\$ 4,346,548	22.4%
Lanai	\$ 73,080	\$ 22,588	\$ 1,319	\$ -	\$ -	\$ -	\$ -	\$ 96,987	0.5%
Maui	\$ 1,098,801	\$ 174,079	\$ 235,485	\$ 605,311	\$ -	\$ -	\$ 80	\$ 2,113,755	10.9%
Molokai	\$ 71,040	\$ 279	\$ 2,848	\$ -	\$ -	\$ -	\$ -	\$ 74,167	0.4%
Oahu	\$ 4,831,637	\$ 1,235,409	\$ 2,344,597	\$ 3,682,861	\$ 681,195	\$ 496	\$ -	\$ 12,776,194	65.8%
<b>Total</b>	<b>\$ 8,791,013</b>	<b>\$ 2,032,082</b>	<b>\$ 3,109,681</b>	<b>\$ 4,793,105</b>	<b>\$ 681,195</b>	<b>\$ 496</b>	<b>\$ 80</b>	<b>\$ 19,407,652</b>	<b>100.0%</b>
<b>%</b>	<b>45.3%</b>	<b>10.5%</b>	<b>16.0%</b>	<b>24.7%</b>	<b>3.5%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>100.0%</b>	

Table 43 shows the island equity by program budget category. In total, energy-saving achievement was distributed as follows:

- PY11 = 78.9% in Honolulu, 11.4% in Hawaii and 9.7% in Maui counties.
- PY12 = 72.8% in Honolulu, 14.3% in Hawaii and 12.9% in Maui counties.

Table 43  
Island Equity by Program

PY12 Island Equity by Program Level Savings by Program (First Year kWh Savings)							
Program	Hawaii Island	Lanai	Maui	Molokai	Oahu	Total	%
<b>Business Program</b>	<b>4,876,658</b>	<b>44,248</b>	<b>5,173,523</b>	<b>21,881</b>	<b>32,275,456</b>	<b>42,391,766</b>	<b>37.4%</b>
BEEM	2,871,960	-	3,467,574	17,367	18,644,228	25,001,128	22.1%
CBEEM	772,829	7,324	1,236,412	4,514	10,823,221	12,844,300	11.3%
BESM	973,760	18,114	355,132	-	2,203,066	3,550,072	3.1%
BHTR	258,109	18,809	114,405	-	604,942	996,266	0.9%
<b>Residential Program</b>	<b>11,281,041</b>	<b>469,514</b>	<b>8,441,545</b>	<b>453,483</b>	<b>50,161,451</b>	<b>70,807,035</b>	<b>62.6%</b>
REEM	10,983,951	449,791	8,402,008	453,483	49,537,143	69,826,376	61.7%
CESH	-	-	-	-	-	-	0.0%
RESM	12,756	-	3,635	-	578,132	594,523	0.5%
RHTR	284,335	19,723	35,903	-	46,176	386,136	0.3%
<b>Grand Total</b>	<b>16,157,700</b>	<b>513,762</b>	<b>13,615,068</b>	<b>475,364</b>	<b>82,436,907</b>	<b>113,198,801</b>	<b>100.0%</b>
<b>%</b>	<b>14.3%</b>	<b>0.5%</b>	<b>12.0%</b>	<b>0.4%</b>	<b>72.8%</b>	<b>100.0%</b>	
Program	Hawaii Island	Lanai	Maui	Molokai	Oahu	Total	%
Business	4,876,658	44,248	5,173,523	21,881	32,275,456	42,391,766	37.4%
Residential	11,281,041	469,514	8,441,545	453,483	50,161,451	70,807,035	62.6%
<b>Total</b>	<b>16,157,700</b>	<b>513,762</b>	<b>13,615,068</b>	<b>475,364</b>	<b>82,436,907</b>	<b>113,198,801</b>	<b>100.0%</b>
<b>%</b>	<b>14.3%</b>	<b>0.5%</b>	<b>12.0%</b>	<b>0.4%</b>	<b>72.8%</b>	<b>100.0%</b>	

## PORTFOLIO FOURTH YEAR IMPACTS

**Table 44** shows island equity by incentive dollars spent and the resulting customer bill savings. In aggregate, ratepayers realized a \$45,054,796 reduction in their bills in PY12.

Table 44 Incentive Equity by Program and Customer Bill Savings							
PY12 Island Equity by Incentive by Program (Incentive Dollars Spent)							
Program	Hawaii Island	Lanai	Maui	Molokai	Oahu	Total	%
<b>Business Program</b>	<b>\$ 1,603,529</b>	<b>\$ 24,432</b>	<b>\$ 1,015,716</b>	<b>\$ 3,127</b>	<b>\$ 7,709,672</b>	<b>\$ 10,356,475</b>	<b>53.4%</b>
BEEM	\$ 505,013	-	\$ 608,807	\$ 2,848	\$ 2,866,272	\$ 3,982,940	20.5%
CBEEM	\$ 119,383	\$ 741	\$ 182,828	\$ 279	\$ 1,738,360	\$ 2,041,590	10.5%
BESM	\$ 833,202	\$ 12,464	\$ 176,149	-	\$ 2,857,217	\$ 3,879,032	20.0%
BHTR	\$ 145,930	\$ 11,228	\$ 47,932	-	247,823	\$ 452,913	2.3%
<b>Residential Program</b>	<b>\$ 2,743,020</b>	<b>\$ 72,555</b>	<b>\$ 1,098,039</b>	<b>\$ 71,040</b>	<b>\$ 5,066,523</b>	<b>\$ 9,051,177</b>	<b>46.6%</b>
REEM	\$ 1,354,799	\$ 68,805	\$ 1,060,775	\$ 71,040	\$ 4,888,625	\$ 7,444,044	38.4%
CESH	-	-	-	-	-	-	0.0%
RESM	\$ 2,733	-	\$ 750	-	\$ 147,700	\$ 151,183	0.8%
RHTR	\$ 1,385,488	\$ 3,750	\$ 36,514	-	\$ 30,198	\$ 1,455,950	7.5%
<b>Total</b>	<b>\$ 4,346,548</b>	<b>\$ 96,987</b>	<b>\$ 2,113,755</b>	<b>\$ 74,167</b>	<b>\$ 12,776,194</b>	<b>\$ 19,407,652</b>	<b>100.0%</b>
<b>%</b>	<b>22.4%</b>	<b>0.5%</b>	<b>10.9%</b>	<b>0.4%</b>	<b>65.8%</b>	<b>100.0%</b>	
Program	Hawaii Island	Lanai	Maui	Molokai	Oahu	Total	%
Business	\$ 1,603,529	\$ 24,432	\$ 1,015,716	\$ 3,127	\$ 7,709,672	\$ 10,356,475	53.4%
Residential	\$ 2,743,020	\$ 72,555	\$ 1,098,039	\$ 71,040	\$ 5,066,523	\$ 9,051,177	46.6%
<b>Total</b>	<b>\$ 4,346,548</b>	<b>\$ 96,987</b>	<b>\$ 2,113,755</b>	<b>\$ 74,167</b>	<b>\$ 12,776,194</b>	<b>\$ 19,407,652</b>	<b>100.0%</b>
Customer Bill Reduction (July 2013 effective marginal kWh rates)*							
Island	Hawaii Island	Lanai	Maui	Molokai	Oahu	Total	
First Year Bill Savings	\$ 7,900,581	\$ 302,363	\$ 5,993,087	\$ 273,401	\$ 30,585,373	\$ 45,054,796	
Lifetime Bill Savings	\$ 66,431,933	\$ 812,378	\$ 54,613,735	\$ 463,762	\$ 282,630,900	\$ 404,952,708	

\*Reference **Table 1** PY12 Customer Energy Cost Savings (page10)

# BUSINESS PROGRAM PERFORMANCE

## Business Program Impacts

For PY12, Hawaii Energy's Business program achieved savings of 42,391,766 kWh (first year) and 5,512 kW savings with \$10,356,475 in incentives. In relative terms, 53.4% of Hawaii Energy's incentives captured 37.4% of kWh (first year) and 36.4% of kW demand first year savings, respectively, with a Total Resource Benefit to Cost ratio of 2.0.

**Table 45** provides a detailed breakdown by program with a closer look at each program to follow.

*The University of Hawaii Community College System adopted energy efficiency measures for their campuses which will save them more than \$3.7 million dollars over the next 14 years. This savings will allow the colleges to reinvest money back into the students. The project included low wattage T8 fluorescent lamps, LED parking lot lighting, HVAC upgrades and vending machine controls.*



Table 45  
Business Program Impacts

PY12 Business Program Impacts															
Category	Units	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	119,795	3,417	62%	25,001,128	59%	328,154,362	57%	13.1	2.8	\$ 33,839,141	57%	\$ 12,103,633	41%	\$ 3,982,940	38%
CBEEM	341	1,720	31%	12,844,300	30%	179,827,666	31%	14.0	1.5	\$ 19,442,140	33%	\$ 13,109,157	44%	\$ 2,041,590	20%
BESM	31,406	259	5%	3,550,072	8%	49,701,010	9%	14.0	1.2	\$ 4,902,114	8%	\$ 4,168,577	14%	\$ 3,879,032	37%
BHTR	6,338	116	2%	996,266	2%	14,012,669	2%	14.1	3.4	\$ 1,543,451	3%	\$ 450,233	2%	\$ 452,913	4%
<b>Total</b>	<b>157,880</b>	<b>5,512</b>	<b>100%</b>	<b>42,391,766</b>	<b>100%</b>	<b>571,695,706</b>	<b>100%</b>	<b>13.5</b>	<b>2.0</b>	<b>\$ 59,726,846</b>	<b>100%</b>	<b>\$ 29,831,600</b>	<b>100%</b>	<b>\$ 10,356,475</b>	<b>100%</b>

## BUSINESS PROGRAM PERFORMANCE

For PY12, Hawaii Energy's Business program realized results by continuing to offer 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 with customers, manufacturers, facility management firms, consultants and contractors that produced impressive results.

- **Central Plant Optimization Program**

This complex offer was phased out in PY12 due to relatively low cost-effectiveness and mixed results and replaced with our benchmarking offer. Before phase out, the program incentivized the completion of six projects. These projects show potential for significant savings. Hawaii Energy, in coordination with the customers, is currently in the data collection phase and anticipates final reports in PY13. Significant hurdles regarding information technology, customer contracting procedures, contractor business models, cost and quality control, and metering and sensor technology had to be overcome to bring six central plants online with permanent kW/ton data, as well as detailed energy data to the component level. Along with this data collection was a chiller plant retro-commissioning effort, which was the optimization component of this offering. The initial savings projections from the first project are very encouraging and achieved 687,022 kWh savings in the eight months since project completion. These savings will be permanent and will likely improve with operational refinements and future capital investment. Although initial savings projections are considerable, they will not be claimed until PY13.

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 \$663,354 for six projects in PY12. Due to the length of time to optimize the central plant operation, energy savings will be realized in PY13.

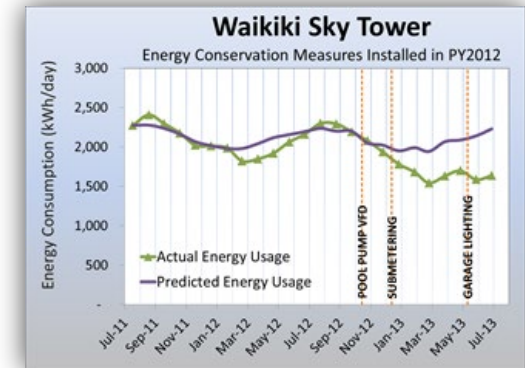
## BUSINESS PROGRAM PERFORMANCE

- **Condominium Submetering**

Requiring significant effort by Program specialists to assist condominium boards and condominium and apartment residents to save energy, the continuation of this program in PY12 saw eight additional successful installations of submetering at major condominium or apartment complexes. In total, Hawaii Energy paid out \$269,250 in incentives for the installation of submeters on 1,795 individual units. These facilities are expected to save more than 143 kW in demand reductions and approximately 1.1 million kWh in annual tenant energy usage.

- **Central Chiller Plant Benchmarking Program**

In PY11, the Central Plant Optimization Program was introduced. One of the findings of this program was that many large commercial facilities did not have sufficient operational and performance data of their central plants to make informed decisions regarding plant optimization. In response to this and other obstacles, the Central Chiller Plant Benchmarking Program was established in PY12. This program, which was not originally included in the PY12 Annual Plan, would eventually replace the Central Plant Optimization Program. The intent of the program is to incentivize certain large local facility operators to install the metering necessary to monitor performance of their chilled water plants. With accurate, real-time operational and efficiency information, building engineers and managers are able to make smarter decisions related to operations, maintenance and capital investment in their facility. For example, a large resort on Hawaii Island installed benchmark metering and was able to determine that their newly-purchased chiller was not performing as efficiently as expected. As a result, they are collaborating with the chiller contractor and Hawaii Energy to resolve the problem. For engineers at Hawaii Energy, having access to real-time and trend data for a variety of applications is an invaluable resource.

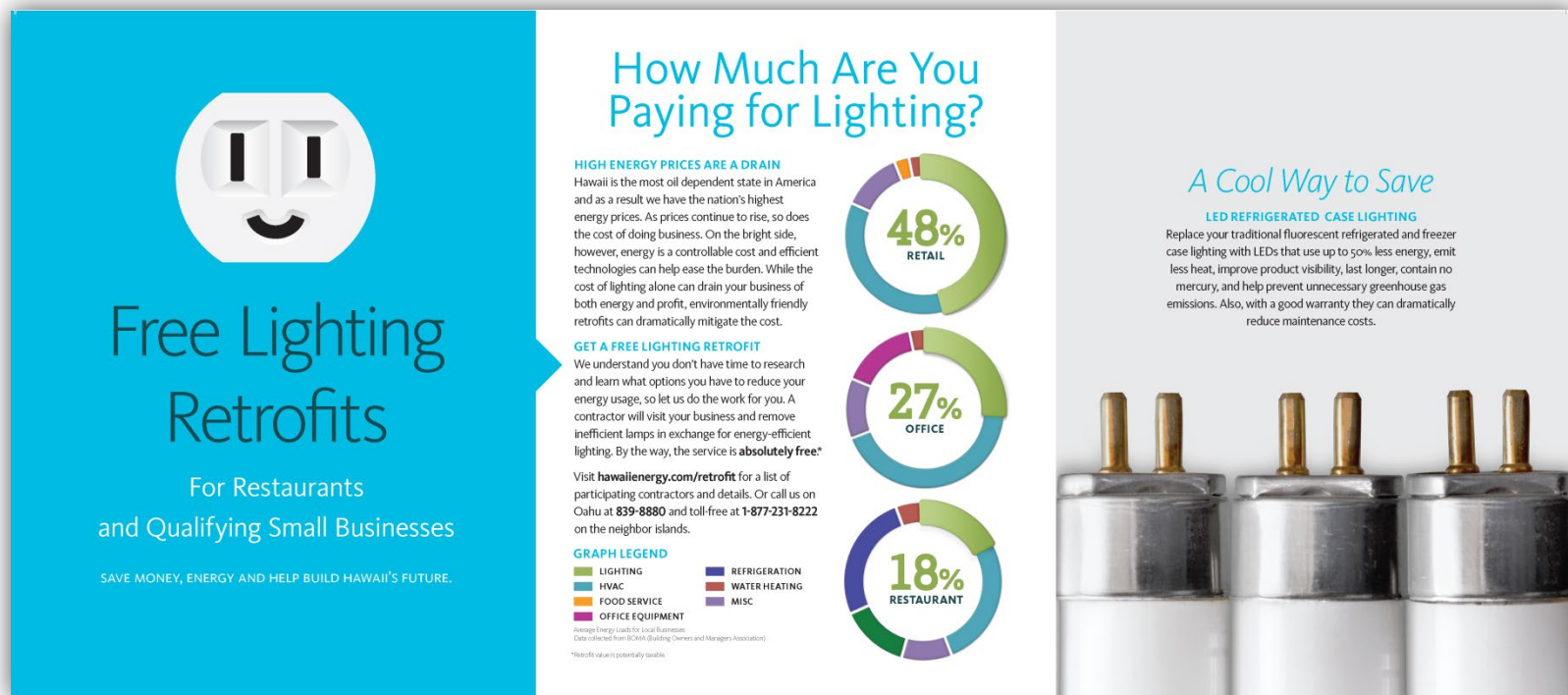


*Waikiki Sky Tower is a 30-story condominium building in the Waikiki area of Honolulu. The average daily energy usage in the month of July 2012 was 2,194 kWh. During PY12, the management at Waikiki Sky Tower installed several new energy conservation measures, including a new VFD on the pool pump, residential unit submetering, and reduced wattage garage lighting. By July 2013, the average daily energy usage had dropped to 1,636 kWh, a reduction of 25%. As illustrated by the graph, submetering accounted for a large portion of this decline in energy usage. This declining pattern is very common with condominium associations when residents change their behavior because they are now financially responsible for their own energy usage.*

## BUSINESS PROGRAM PERFORMANCE

- **Small Business Direct Install Lighting (SBDIL)**

This offer provided full-cost lighting retrofits to 583 small businesses and restaurants to achieve 77,338,924 kWh/Life in customer level savings. The \$2,753,475 of PBFA funds invested into these projects are now producing over \$1,909,914 in annual savings for these businesses. This is a 69% annual Internal Rate of Return (IRR) and will achieve over \$26.7 M in lifetime cost savings.



# BUSINESS PROGRAM PERFORMANCE

## Business Program Expenditures

The Hawaii Energy commercial team broadened its focus beyond the BEEM and CBEEM Program in PY12, with particular attention to the hard-to-reach sector (BHTR) and energy service and maintenance (BESM). Notable this year was the \$4,350,788 spent in customer incentives in the BHTR and BESM programs, an increase of over 430% over the \$1,010,674 spent on customer incentives for these two programs in the previous program year.

See **Table 46** for the detailed expenditures and unspent funds.

Table 46 Business Program Expenditures					
	PY12 Expenditures	PY12 Budget R2	Percent Spent	PY12 Unspent	Percent Unspent
<b><u>Business (C&amp;I) Programs</u></b>					
Business Programs Ops and Management					
BEEM	\$ 1,062,925.22	\$ 1,311,945	81%	\$ 249,019.78	19%
CBEEM	\$ 851,357.70	\$ 865,678	98%	\$ 14,320.30	2%
BESM	\$ 651,976.28	\$ 656,296	99%	\$ 4,319.72	1%
BHTR	\$ 417,188.44	\$ 498,320	84%	\$ 81,131.56	16%
Total Business Programs	\$ 2,983,447.64	\$ 3,332,239	90%	\$ 348,791.36	10%
Business Market Evaluation	\$ 116,463.75	\$ 255,550	46%	\$ 139,086.25	54%
Business Outreach	\$ 1,084,114.96	\$ 1,324,895	82%	\$ 240,780.04	18%
<b>Total Business Non-Incentive</b>	\$ 4,184,026.35	\$ 4,912,684	85%	\$ 728,657.65	15%
Business Incentives					
BEEM	\$ 4,005,628.00	\$ 4,122,730	97%	\$ 117,102.00	3%
CBEEM	\$ 2,012,703.59	\$ 2,049,000	98%	\$ 36,296.41	2%
BESM	\$ 3,879,032.04	\$ 4,588,647	85%	\$ 709,614.96	15%
BHTR	\$ 471,756.11	\$ 1,140,000	41%	\$ 668,243.89	59%
Subtotal Business Incentives	\$ 10,369,119.74	\$ 11,900,377	87%	\$ 1,531,257.26	13%
Business Transformational	\$ 1,346,967.20	\$ 1,428,224	94%	\$ 81,256.80	6%
<b>Total Business Incentives</b>	\$ 11,716,086.94	\$ 13,328,601	88%	\$ 1,612,514.06	12%
<b>Total Business Programs</b>	\$ 15,900,113.29	\$ 18,241,285	87%	\$ 2,341,171.71	13%

# BUSINESS PROGRAM PERFORMANCE

## Business Trade Allies

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### 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 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 47** for details.

### 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 business incentive program. Educational and promotional workshops are conducted to influence commercial purchase decisions.

# BUSINESS PROGRAM PERFORMANCE

Table 47  
Business Trade Ally Projects

	Trade Allies	Measures	Customer Level Demand Savings (kW)	Customer Level Energy Savings (kWh - 1st yr.)	Customer Level Energy Savings (kWh - Life)	Cumulative Customer Level Energy Savings (%)	Incentives
1	Participant Driven	574	2,111	15,928,505	203,556,815	28.8%	\$ 2,002,895
2	Noresco	34	367	3,280,451	44,934,411	6.4%	\$ 309,408
3	Energy Industries	585	408	3,184,818	44,034,811	6.2%	\$ 634,004
4	Pono Energy Solutions	1,840	142	3,068,536	42,995,694	6.1%	\$ 1,855,924
5	EMCC	174	263	2,506,516	34,874,832	4.9%	\$ 473,777
6	Johnson Controls	45	382	1,883,351	27,740,383	3.9%	\$ 258,461
7	Island Palm Communities (Actus)	30	145	1,283,351	25,854,639	3.7%	\$ 253,969
8	Hawaii Energy Systems	5	219	1,638,750	24,565,500	3.5%	\$ 218,500
9	Gon LED	19	216	1,717,368	24,428,576	3.5%	\$ 170,965
10	Hawaii Energy - Program Grants	148	177	1,508,869	22,633,040	3.2%	\$ 163,759
11	Norman Wright	6	178	817,870	14,742,692	2.1%	\$ 155,659
12	Kobayashi Group	8	131	1,102,185	14,685,802	2.1%	\$ 97,365
13	Lighting Services Inc.	314	137	1,000,066	13,753,083	1.9%	\$ 260,652
14	Forest City	7	53	471,322	11,621,564	1.6%	\$ 137,120
15	Quality Mechanical Design, LLC	1	51	448,517	11,212,925	1.6%	\$ 73,678
16	Paradise Lighting	155	83	688,962	9,347,637	1.3%	\$ 175,971
17	21st Century Lighting	64	85	654,460	8,851,158	1.3%	\$ 64,669
18	Sylvania Lighting Services	29	96	629,871	8,579,681	1.2%	\$ 45,860
19	Energy Metering And Monitoring Systems	1	117	995,070	7,960,560	1.1%	\$ 153,750
20	Dial Electric Supply	27	96	945,295	6,642,679	0.9%	\$ 53,834
21	Dorvin D Leis	4	54	299,224	5,773,860	0.8%	\$ 59,600
22	AI&E	21	69	487,322	5,585,004	0.8%	\$ 61,719
23	T & T Tinting Specialists	17	138	518,441	5,184,409	0.7%	\$ 109,066
24	Mattos Electric LLC	106	37	305,778	4,308,534	0.6%	\$ 126,844
25	Melink Corporation	2	44	259,351	3,890,258	0.6%	\$ 69,375
26	Grainger - Hawaii	9	34	249,613	3,688,677	0.5%	\$ 26,255
27	Trane	3	36	186,496	3,565,483	0.5%	\$ 25,500
28	King'S Kustom Tinting	7	94	354,866	3,548,661	0.5%	\$ 72,422
29	Servco Appliance	21	11	251,528	3,521,392	0.5%	\$ 16,450
30	Light Bulb Source	10	40	355,101	3,508,372	0.5%	\$ 39,846
	Remaining Balance of Projects	1,051	803	5,405,268	61,548,719	8.7%	\$ 2,189,181
	<b>Total Business Programs</b>	<b>5,317</b>	<b>6,816</b>	<b>52,427,121</b>	<b>707,139,849</b>	<b>100.0%</b>	<b>\$ 10,356,475</b>

# BUSINESS PROGRAM PERFORMANCE

## 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



*Located in the heart of Waikiki, the Hilton Hawaiian Village Waikiki Beach Resort utilized our incentive offers by installing variable frequency drives (VFD) to the motors of chilled water pumps and chilled water pump returns, as well as replacing three old booster pumps. Through these measures, it is estimated that the hotel will save over 397,000 kWh per year, which equates to approximately \$107,190 in energy costs per year.*

# BUSINESS PROGRAM PERFORMANCE

## BEEM Program Accomplishments

### ENERGY STAR® LED

The number of approved ENERGY STAR® LED lamps continued to increase in Program Year 2012, allowing Hawaii Energy to continue offering a prescriptive incentive for ENERGY STAR® LED lamps. This LED offering achieved energy savings of 4,514,505 kWh this past year or 18% of the total BEEM program energy savings. In addition to increasing the usage of LEDs, the offering encouraged customers to upgrade their lighting controls by providing higher incentives for dimmable LED lamps. With dimmable LED lamps customers can achieve even more energy savings.

### 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 AOAOs, submetering presented a great opportunity to eliminate their largest variable cost: energy. This program was initially developed in PY10 and the first projects were completed in PY11, but this year the program generated a number of successful installations. In total, 1,795 submeters were installed on individual apartments and condominium units in PY12 resulting in 1,134,484 kWh first year energy savings. This was an increase in savings from this measure by more than ten times over the previous year.



*Lahaina Printsellers located on Maui installed energy-efficient LED lighting and an inverter variable refrigerant flow air conditioning system to help save their retail store money and energy.*

## BUSINESS PROGRAM PERFORMANCE

### BEEM Program Impacts

For PY12, the BEEM Program achieved savings of 25,001,128 kWh (first year) and 3,417 kW savings with \$3,982,940 in incentives. In relative terms, 20.5% of Hawaii Energy's incentives captured 22.1% kWh (first year) and 22.6% kW of the demand first year savings for PY12.

**Table 48** provides further details.

- # 1 Contributor to BEEM – T8/T8LW High Efficiency Lighting (26%)

T8 to T8 low wattage lighting was the largest contributor to the BEEM Program savings with energy (first year) and demand savings of 6,457,585 kWh and 690 kW, respectively.

- # 2 Contributor to BEEM – LED Lamps (18%)

LED lamps were the second largest contributor to the BEEM Program savings with energy (first year) and demand savings of 4,514,505 kWh and 586 kW, respectively.



*Ala Moana Hotel installed energy management systems to the air conditioners in each of their guestrooms. Through the use of occupancy sensors, these controls set back the air conditioners to a preset temperature when the room is empty.*

# BUSINESS PROGRAM PERFORMANCE

Table 48  
BEEM Program Impacts

## PY12 BEEM - Business Energy Efficiency Measures Program Impacts

Category	Units	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Avg. Measure Life (yrs.)	TRB /TRC	Total Resource Benefit (TRB)	%	Total Resource Cost (TRC)	%	Incentives (\$)	%
T8 /T8LW	52,512	690	20%	6,457,585	26%	90,400,263	28%	14	1.5	\$ 9,737,705	29%	\$ 6,488,609	54%	\$ 944,899	24%
Chillers	26	284	8%	1,432,943	6%	28,658,861	9%	20	2.1	\$ 3,343,658	10%	\$ 1,624,644	13%	\$ 322,145	8%
LED	30,045	586	17%	4,514,505	18%	67,480,423	21%	14.9	8.5	\$ 3,322,140	10%	\$ 390,585	3%	\$ 503,968	13%
VFD - Pump	58	377	11%	1,390,718	6%	18,791,231	6%	13.5	15.2	\$ 2,464,458	7%	\$ 162,138	1%	\$ 152,600	4%
HVAC - Packaged/Split	969	209	6%	1,385,188	6%	20,777,818	6%	15	12.5	\$ 2,429,043	7%	\$ 195,099	2%	\$ 563,956	14%
Delamping	7,922	126	4%	1,385,780	6%	19,400,914	6%	14	22.7	\$ 2,008,973	6%	\$ 88,400	1%	\$ 76,270	2%
Window Tinting	52	289	8%	1,088,902	4%	10,889,020	3%	10	6.4	\$ 1,789,843	5%	\$ 278,246	2%	\$ 276,962	7%
Condominium Submetering	1,795	143	4%	1,134,484	5%	9,530,628	3%	8.4	2.5	\$ 1,606,630	5%	\$ 640,725	5%	\$ 269,250	7%
Delamp/Reflector	6,786	107	3%	1,068,743	4%	14,962,400	5%	14	7.3	\$ 1,583,707	5%	\$ 216,760	2%	\$ 118,045	3%
CFL	11,898	185	5%	1,784,176	7%	5,352,528	2%	3	40.3	\$ 718,365	2%	\$ 17,846	0%	\$ 29,031	1%
VFD - AHU	41	92	3%	233,652	1%	3,504,779	1%	15	14	\$ 634,612	2%	\$ 45,252	0%	\$ 28,550	1%
VFD Domestic Water Booster Packages	13	41	1%	381,392	2%	5,720,877	2%	15	2.8	\$ 602,707	2%	\$ 214,500	2%	\$ 50,200	1%
Refrigerator with Recycling	630	17	1%	419,633	2%	5,874,860	2%	14	4.2	\$ 530,000	2%	\$ 125,280	1%	\$ 57,340	1%
Sensors	4,361	24	1%	584,435	2%	4,675,479	1%	8	1.5	\$ 482,423	1%	\$ 318,353	3%	\$ 87,220	2%
VFR - Variable Refrigerant Flow AC	163	29	1%	306,712	1%	4,600,682	1%	15	1.2	\$ 470,745	1%	\$ 387,838	3%	\$ 160,179	4%
Kitchen Exhaust Hood Demand Ventilation	8	40	1%	231,687	1%	3,475,311	1%	15	2.2	\$ 424,637	1%	\$ 195,750	2%	\$ 76,200	2%
ECM	249	20	1%	182,994	1%	2,744,906	1%	15	5.8	\$ 289,736	1%	\$ 50,298	0%	\$ 21,165	1%
Heat Pump - Upgrade	5	9	0%	284,006	1%	2,840,062	1%	10	7.2	\$ 272,393	1%	\$ 37,762	0%	\$ 37,762	1%
Solar Water Heating - Commercial	30	51	2%	47,842	0%	717,633	0%	15	19.5	\$ 257,360	1%	\$ 13,200	0%	\$ 14,472	0%
HID Pulse Start	621	20	1%	152,604	1%	2,136,458	1%	14	13.4	\$ 243,875	1%	\$ 18,133	0%	\$ 30,600	1%
VFD Pool Pump Packages	26	16	0%	197,429	1%	2,961,434	1%	15	2.3	\$ 224,170	1%	\$ 98,100	1%	\$ 46,150	1%
LED - Refrigerated Case Lighting	838	24	1%	151,436	1%	757,179	0%	5	0.4	\$ 112,783	0%	\$ 318,440	3%	\$ 52,050	1%
CEE Tier 1 - Premium Efficiency Motors	38	11	0%	23,917	0%	358,757	0%	15	10.7	\$ 72,694	0%	\$ 6,791	0%	\$ 5,745	0%
Cool Roof Technologies	6	8	0%	20,799	0%	211,785	0%	10.2	0.6	\$ 56,871	0%	\$ 102,516	1%	\$ 20,503	1%
Clothes Washer (Tier II/III) + (Tier I GF)	222	5	0%	37,055	0%	435,641	0%	11.8	2.2	\$ 53,044	0%	\$ 24,420	0%	\$ 12,450	0%
ECM - Evaporator Fans	66	3	0%	23,880	0%	358,196	0%	15	4.1	\$ 37,814	0%	\$ 9,292	0%	\$ 5,610	0%
Ceiling Fans	204	3	0%	27,424	0%	137,119	0%	5	14.3	\$ 18,388	0%	\$ 1,287	0%	\$ 8,160	0%
Garage Refrigerator / Freezer Bounty	21	0	0%	12,404	0%	173,661	0%	14	9.9	\$ 15,588	0%	\$ 1,575	0%	\$ 925	0%
Commercial Solar Water Heating	1	2	0%	1,868	0%	28,022	0%	15	2.7	\$ 10,050	0%	\$ 3,750	0%	\$ 559	0%
Induction	138	3	0%	26,514	0%	53,028	0%	2	1.2	\$ 7,162	0%	\$ 6,065	0%	\$ 5,300	0%
Refrigerator (<\$600)	46	1	0%	3,906	0%	54,677	0%	14	1.3	\$ 6,736	0%	\$ 5,060	0%	\$ 2,300	0%
Solar Water Heating Incentive - Contractor	2	1	0%	3,286	0%	49,294	0%	15	0.5	\$ 6,694	0%	\$ 13,200	0%	\$ 1,900	0%
Heat Pumps	2	0	0%	2,416	0%	24,157	0%	10	0.9	\$ 3,082	0%	\$ 3,600	0%	\$ 400	0%
Whole House Fan	1	0	0%	814	0%	16,280	0%	20	8.8	\$ 1,055	0%	\$ 120	0%	\$ 75	0%
<b>Grand Total</b>	<b>119,795</b>	<b>3,417</b>	<b>100%</b>	<b>25,001,128</b>	<b>100%</b>	<b>328,154,362</b>	<b>100%</b>	<b>13.1</b>	<b>2.8</b>	<b>\$33,839,141</b>	<b>100%</b>	<b>\$ 2,103,633</b>	<b>100%</b>	<b>\$3,982,940</b>	<b>100%</b>

## BUSINESS PROGRAM PERFORMANCE

### BEEM Program Expenditures

The Program distributed nearly all BEEM operation and incentive budgets due to the popularity and demand for the program's offerings. During the Program's year-end reconciliation process, a discrepancy of (\$22,688) was discovered, bringing the total BEEM expenditure down to \$3,982,940 from an invoiced amount of \$4,005,628 in incentives.

See **Table 49** for details.

Table 49 BEEM Program Expenditures						
	PY12 Expenditures	PY12 Budget R2	Percent Spent	PY12 Unspent	Percent Unspent	
BEEM Operations	\$ 1,062,925.22	\$ 1,311,945	81%	\$ 249,019.78	19%	
BEEM Incentives	\$ 4,005,628.00	\$ 4,122,730	97%	\$ 117,102.00	3%	
<b>Total BEEM</b>	<b>\$ 5,068,553.22</b>	<b>\$ 5,434,675</b>	<b>93%</b>	<b>\$ 366,121.78</b>	<b>7%</b>	

# BUSINESS PROGRAM PERFORMANCE

## 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, energy management systems, exhaust ventilation control systems, high performance lighting, low emissivity glass and HVAC controls.

### CBEEM Program Accomplishments

#### 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 14 cents/kWh (not to exceed project cost), but no demand savings incentive was given. Energy savings of 45,862 kWh and demand savings of 5 kW were achieved in PY12.



*Y. Hata & Co., a Hawaii food service distributor, saved over 340,000 kWh per year, which equates to approximately a \$91,800 savings in energy costs per year by replacing the lighting in their warehouse to LED fixtures and utilizing motion detectors.*

# BUSINESS PROGRAM PERFORMANCE

## CBEEM Program Impacts

For PY12, the CBEEM Program achieved savings of 12,844,300 kWh (first year) and 1,720 kW savings with \$2,041,590 in incentives. In relative terms, 10.5% of Hawaii Energy's incentives captured 11.4% kWh (first year) and 11.3 % kW of the demand first year savings for PY12. **Table 50** provides a detailed breakout of the program.

- #1 Contributor to CBEEM – Customized Measures – Over 5 Year Life (97%)**

A variety of measures with life expectancies of greater than 5 years were the largest contributor to CBEEM Program savings with energy (first year) and demand savings of 12,467,766 kWh and 1,664 kW, respectively.

- #2 Contributor to CBEEM – Customized Measures – Under 5 Year Life (3%)**

Customized measure with life expectancies of less than 5 years, primarily custom applications of LED technologies were the second largest contributor to CBEEM Program savings with energy (first year) and demand savings of 330,672 kWh and 52 kW, respectively.

Table 50 CBEEM Program Impacts															
PY12 CBEEM - Customized Business Energy Efficiency Measures Program Impacts															
Category	Units	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 (\$)	%
Customized Measures - Over 5 year Life	330	1,664	97%	12,467,766	97%	175,931,784	98%	14.1	1.5	\$ 18,956,515	98%	\$ 12,379,401	94%	\$ 1,987,096	97%
Customized Project Measures - Under 5 Year Life	9	52	3%	330,672	3%	3,609,601	2%	10.9	0.8	\$ 452,213	2%	\$ 584,824	4%	\$ 48,560	2%
Garage Active Ventilation Control	1	5	0%	40,166	0%	200,828	0%	5.0	0.5	\$ 26,801	0%	\$ 54,510	0%	\$ 4,657	0%
High Efficiency HVAC	1	-	0%	5,697	0%	85,452	0%	15.0	0.1	\$ 6,611	0%	\$ 90,422	1%	\$ 1,277	0%
Co-funded Leveraged Project Assistance	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
<b>Total</b>	<b>341</b>	<b>1,720</b>	<b>100%</b>	<b>12,844,300</b>	<b>100%</b>	<b>179,827,666</b>	<b>100%</b>	<b>14.0</b>	<b>1.5</b>	<b>\$ 19,442,140</b>	<b>100%</b>	<b>\$ 13,109,157</b>	<b>100%</b>	<b>\$ 2,041,590</b>	<b>100%</b>

## BUSINESS PROGRAM PERFORMANCE

### CBEEM Program Expenditures

The Program distributed nearly 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 \$28,886.41 was discovered, bringing the total CBEEM expenditure up to \$2,041,590 from an invoiced amount of \$2,012,703.59 in incentives.

See **Table 51** for details.

Table 51 CBEEM Program Expenditures						
	PY12 Expenditures	PY12 Budget R2	Percent Spent	PY12 Unspent	Percent Unspent	
CBEEM Operations	\$ 851,357.70	\$ 865,678	98%	\$ 14,320.30	2%	
CBEEM Incentives	\$ 2,012,703.59	\$ 2,049,000	98%	\$ 36,296.41	2%	
<b>Total CBEEM</b>	<b>\$ 2,864,061.29</b>	<b>\$ 2,914,678</b>	<b>98%</b>	<b>\$ 50,616.71</b>	<b>2%</b>	

# BUSINESS PROGRAM PERFORMANCE

## Business Energy Service and Maintenance (BESM) Program

### 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 in Hawaii, Honolulu and Maui counties. Small business customers that were either (1) a Schedule “G” rate class or (2) under master-metered accounts were eligible for this offer. However, in delivering this program Hawaii Energy discovered a number of customers that were actually small business but were either miscoded as residential customers (schedule R) within the utilities’ records or were previous residences that were converted to businesses. Since site visits are required for participation in the program, it is easy enough to determine if a particular location is actually a residence or a business. Since it would be counter-productive and unfair to deny participation to these businesses, just because of an account classification error, Hawaii Energy allowed these installations in this program and provided this information to the respective utility for them to update their records.

In the SBDIL program, Trade Allies recruited small businesses to participate, performed audits and executed the retrofits. This direct installation grant approach achieved first year customer level energy savings of 3,523,159 kWh in PY12, excluding the impacts from the SBDIL specifically for restaurants. This level of energy savings was more than double the previous year’s energy savings for this program. Demand savings from this program in PY12 was 259 kW.



*Through their participation in our Small Business Direct Install Lighting offer, The Mike Carroll Gallery located on Lanai experienced a 40% energy drop.*

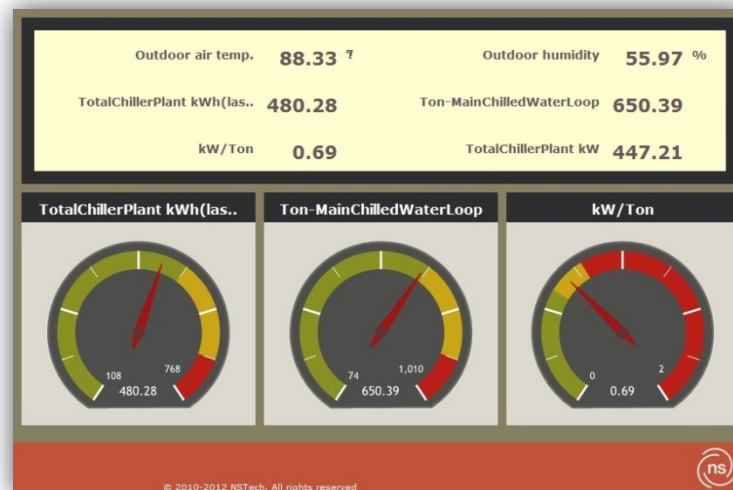
# BUSINESS PROGRAM PERFORMANCE

## Central Plant Optimization Program

This complex offer was phased out in PY12 due to cost effectiveness and mixed results and replaced with our benchmarking offer. Before phase out, the program incentivized the completion of six projects. These projects show potential for significant savings. We are in the data collection phase currently and anticipate final reports in PY13. Significant hurdles regarding information technology, customer contracting procedures, contractor business models, cost and quality control and metering and sensor technology had to be overcome to bring six central plants online with permanent kW/ton data, as well as detailed energy data to the component level. Along with this data collection was a chiller plant retro or re-commissioning effort, which was the optimization component of this offering. Initial savings projections from the first project are very encouraging and achieved 687,022 kWh savings in the eight months since project completion. These savings will be permanent and will likely improve with operational refinements and future capital investment. Although initial savings projections are considerable, they will not be claimed until PY13.

## Central Chiller Plant Benchmarking Program

The Central Chiller Plant Benchmarking Incentive was new to the Hawaii Energy portfolio in PY12. It was designed to encourage business customers to install a central chiller plant metering and data logging system that will provide real-time data and trend data. This data reflects actual tons of cooling and measured efficiency in kW per ton. Many large commercial facilities, such as hotels and multi-level office buildings, lack information to determine whether their chiller plant is running efficiently or not. The new metering equipment makes it possible for the customer to understand the current operational and performance metrics of their Chiller plants and allows them to set meaningful energy efficiency goals and track progress towards those goals. Real-time and trend data is also available to engineers at Hawaii Energy via web interface, so that Hawaii Energy may increase its knowledge base and benchmark data related to typical chiller performance for various businesses on Oahu and the neighbor islands. Hawaii Energy incentivizes 100% of the equipment and installation and in turn has access to the data for five years after the project is complete. This will allow Hawaii Energy to not only benchmark performance but also track energy efficiency improvements directly influenced by data received from this program. A total of eighteen projects were started and completed in PY12, with a total incentive expenditure of \$536,160.



*Our benchmarking initiative is providing building engineers and decision-makers with real-time, actionable Chiller Plant performance information, which will lead to more operational changes and capital investments that will increase performance and save energy.*

# BUSINESS PROGRAM PERFORMANCE

## BESM Program Impacts

For PY12, the BESM Program achieved energy savings of 3,550,072 kWh (first year), an increase of over 70% from the previous program year. Demand savings for the program in PY12 was 259 kW with \$3,879,032 in incentives. In relative terms, 20.0% of Hawaii Energy's incentives captured 3.1% kWh (first year) and 1.7% kW of the demand first year savings for PY12, but this program reached customers that would not otherwise have participated in the energy efficiency programs.

Table 52 provides a detailed breakout of the program.

### #1 Contributor to BESM – Small Business Direct Install Lighting (99%)

Small Business Direct Install Lighting offer was comprised of T8/T8LW, LED, CFL and Custom Lighting incentives and was the largest contributor to the BESM Program with energy (first year) and demand savings of 3,523,159 kWh and 259 kW, respectively.

Table 52 BESM Program Impacts															
PY12 BESM - Business Energy Services and Maintenance Program Impacts															
Category	Units	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 (\$)	%
SBDI - Lighting Retrofits	31,346	259	100%	3,523,159	99%	49,324,225	99%	14.0	2.1	\$ 4,872,317	99%	\$ 2,359,042	57%	\$ 2,359,042	61%
Energy Study Assistance	22	-	0%	26,913	1%	376,785	1%	14.0	0.1	\$ 29,797	1%	\$ 335,949	8%	\$ 302,610	8%
Energy Project Catalyst	1	-	0%	-	0%	-	0%		-	\$ -	0%	\$ 5,301	0%	\$ 5,301	0%
Central Plant Performance – Commissioning	18	-	0%	-	0%	-	0%		-	\$ -	0%	\$ 693,472	17%	\$ 663,354	17%
Central Plant Performance – Benchmark Metering	18	-	0%	-	0%	-	0%		-	\$ -	0%	\$ 749,682	18%	\$ 536,160	14%
Design Assistance - 50%	1	-	0%	-	0%	-	0%		-	\$ -	0%	\$ 25,131	1%	\$ 12,565	0%
<b>Total</b>	<b>31,406</b>	<b>259</b>	<b>100%</b>	<b>3,550,072</b>	<b>100%</b>	<b>49,701,010</b>	<b>100%</b>	<b>14.0</b>	<b>1.2</b>	<b>\$ 4,902,114</b>	<b>100%</b>	<b>\$ 4,168,577</b>	<b>100%</b>	<b>\$ 3,879,032</b>	<b>100%</b>

## BUSINESS PROGRAM PERFORMANCE

### BESM Program Expenditures

The Program had a material surplus in the BESM incentive budgets due to a significant backlog of committed projects in the Small Business Direct Install Lighting projects on all islands.

See **Table 53** for details.

Table 53 BESM Program Expenditures						
	PY12 Expenditures	PY12 Budget R2	Percent Spent	PY12 Unspent	Percent Unspent	
BESM Operations	\$ 651,976.28	\$ 656,296	99%	\$ 4,319.72	1%	
BESM Incentives	\$ 3,879,032.04	\$ 4,588,647	85%	\$ 709,614.96	15%	
<b>Total BESM</b>	<b>\$ 4,531,008.32</b>	<b>\$ 5,244,943</b>	<b>86%</b>	<b>\$ 713,934.68</b>	<b>14%</b>	

## BUSINESS PROGRAM PERFORMANCE

### Business Hard-To-Reach (BHTR) Program

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#### 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

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 in Hawaii, Honolulu and Maui counties 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 of 931,318 kWh, more than three times the previous year's savings. Demand savings for the program for PY12 was 105 kW.

##### Small Business Direct Install Kitchen Exhaust Hood Demand Ventilation Control

This offering resulted in demand ventilation controls installed on four (4) kitchen hoods, achieving energy and demand savings of 64,947 kWh, first year and 11 kW, respectively.

# BUSINESS PROGRAM PERFORMANCE

## BHTR Program Impacts

For PY12, the BHTR Program achieved savings of 996,266 kWh (first year) and 116 kW savings with \$452,913 in incentives. In relative terms, 2.3% of the PBFA's incentives captured 0.9% kWh (first year) and 0.8% kW of the demand first year savings for PY12. **Table 54** provides the detailed measures contributing to this program.

- #1 Contributor to BHTR – Direct Install Restaurant Lighting Retrofit (93%)**

Direct Install Restaurant Lighting Retrofit offer was comprised of LED, T8/T8LW, Custom Lighting and CFL incentives with energy (first year) and demand savings of 931,318 kWh and 105 kW, respectively.

- #2 Contributor to BHTR – Small Business Direct Install Kitchen Exhaust Hood Demand Ventilation Control (7%)**

Small Business Direct Install Kitchen Exhaust Hood Demand Ventilation Control achieved energy (first year) and demand savings of 64,947 kWh and 11 kW, respectively.

Table 54  
BHTR Program Impacts

### PY12 BHTR - Business Hard-To-Reach Program Impacts

Category	Units	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 (\$)	%
SBDI - Restaurant Lighting	6,334	105	90%	931,318	93%	13,038,458	93%	14.0	3.6	\$ 1,424,413	92%	\$ 394,433	88%	\$ 394,433	87%
Kitchen Exhaust Hood Demand Ventilation	4	11	10%	64,947	7%	974,211	7%	15.0	2.1	\$ 119,038	8%	\$ 55,800	12%	\$ 58,480	13%
Hawaii Energy Hero Landlord Program	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
<b>Total</b>	<b>6,338</b>	<b>116</b>	<b>100%</b>	<b>996,266</b>	<b>100%</b>	<b>14,012,669</b>	<b>100%</b>	<b>14.1</b>	<b>3.4</b>	<b>\$ 1,543,451</b>	<b>100%</b>	<b>\$ 450,233</b>	<b>100%</b>	<b>\$ 452,913</b>	<b>100%</b>

# BUSINESS PROGRAM PERFORMANCE

## Small Business Direct Install Lighting Program – Customer Level Impacts

Customers participating in the SBDIL program have saved over \$1,909,000 in operating expenses. Over the life of the lighting measures installed, the customers will save over \$26,738,000. This is money that they can invest into business driving more job growth and profitability. See **Table 55** for further details.

These lighting projects provide customers with a return-on-investment of over 971%, generating a 69% internal rate of return.

The restaurant projects saw greater returns due to their longer hours of operation and more frequent change from incandescent to LED technology.

In PY13 the program will drive up cost effectiveness of this program by eliminating the T8 to low-wattage T8 retrofits and concentrate on T12 conversions.

Table 55 SBDIL Program Impacts						
PY12 Small Business Direct Install Lighting Program Customer Level Impacts						
	Hawaii	Lanai	Maui	Oahu	Total	Program Cost per kWh
<b>SBDI - Lighting Retrofits</b>						
Customers	194	7	47	224	470	
Measures	749	33	216	1,443	2,441	
kW Reduction	57	0	44	219	320	
kWh - First Year	1,223,778	22,649	408,889	2,714,670	4,369,986	\$ 0.540
kWh - Life	17,132,889	317,083	5,724,452	38,005,379	61,179,802	\$ 0.039
Incentives	\$ 615,296	\$ 12,464	\$ 140,047	\$ 1,591,236	\$ 2,359,042	
<b>SBDI - Restaurant Lighting</b>						
Customers	27	6	16	65	113	
Measures	82	26	81	290	479	
kW Reduction	13	2	24	91	130	
kWh - First Year	242,757	23,518	142,524	745,423	1,154,223	\$ 0.342
kWh - Life	3,398,602	329,251	1,995,341	10,435,927	16,159,122	\$ 0.024
Incentives	\$ 87,450	\$ 11,228	\$ 47,932	\$ 247,823	\$ 394,433	
<b>Total</b>						
Customers	221	13	63	289	583	
Measures	831	59	297	1,733	2,920	
kW Reduction	70	2	68	310	450	
kWh - First Year	1,466,535	46,167	551,414	3,460,093	5,524,209	\$ 0.498
kWh - Life	20,531,492	646,334	7,719,793	48,441,305	77,338,924	\$ 0.036
Incentives	\$ 702,746	\$ 23,691	\$ 187,979	\$ 1,839,059	\$ 2,753,475	
<b>Financial Benefits</b>						
Avg. "G" Rate	\$ 0.414	\$ 0.476	\$ 0.380	\$ 0.310	\$ 0.346	
Annual Savings	\$ 606,546	\$ 21,955	\$ 209,477	\$ 1,071,937	\$ 1,909,914	
Lifetime Savings	\$ 8,491,640	\$ 307,365	\$ 2,932,672	\$ 15,007,116	\$ 26,738,793	
Simple Payback	1.2	1.1	0.9	1.7	1.4 yrs	
IRR	86%	93%	111%	58%	69%	

## BUSINESS PROGRAM PERFORMANCE

### BHTR Program Expenditures

The Program had a material surplus in the BHTR incentive budget due to a significant backlog of committed projects in the Small Business Direct Install Lighting projects on all islands. During the Program's year-end reconciliation process, a discrepancy of \$18,843.11 was discovered, bringing the total BHTR expenditure down to \$452,913 from an invoiced amount of \$471,756.11 in incentives.

See **Table 56** for details.

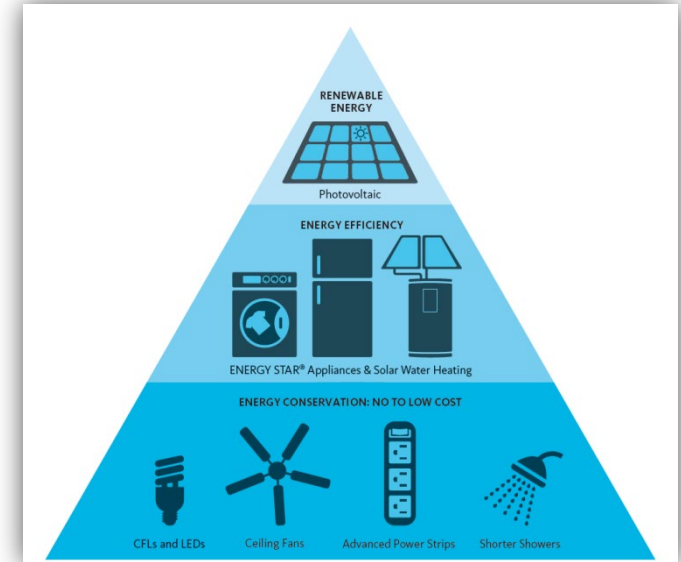
Table 56 BHTR Program Expenditures								
	PY12 Expenditures		PY12 Budget R2	Percent Spent	PY12 Unspent	Percent Unspent		
BHTR Operations	\$	417,188.44	\$	498,320	84%	\$	81,131.56	16%
BHTR Incentives	\$	471,756.11	\$	1,140,000	41%	\$	668,243.89	59%
<b>Total BHTR</b>	\$	888,944.55	\$	1,638,320	54%	\$	749,375.45	46%

# RESIDENTIAL PROGRAM PERFORMANCE

## Residential Program Impacts

For PY12, Hawaii Energy's Residential program achieved savings of 70,807,035 kWh (first year) and 9,632 kW savings with \$9,051,177.08 in incentives. In relative terms, 46.6% of Hawaii Energy's incentives captured 62.6% and 63.6% of kWh (first year) and kW savings, respectively. See **Table 57**.

*This illustration from a residential brochure recommends that households focus on conservation and energy efficiency, starting with low to no-cost measures, appliances and solar water heating, before considering renewable energy (i.e., photovoltaics).*



**Table 57**  
**Residential Program Summary Impacts**

### PY12 Residential Program Impacts

Category	Application/ 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	1,954,603	9,550	99%	69,826,376	99%	483,817,730	98%	6.9	2.2	\$ 56,108,200	98%	\$ 25,050,907	95%	\$ 7,444,044	82%
CESH	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
RESM	175	9	0%	594,523	1%	4,331,660	1%	7.3	1.9	\$ 304,282	1%	\$ 157,517	1%	\$ 51,183	2%
RHTR	2,236	73	1%	386,136	1%	4,885,820	1%	12.7	0.6	\$ 650,207	1%	\$ 1,173,581	4%	\$ 1,455,950	16%
<b>Total</b>	<b>1,957,014</b>	<b>9,632</b>	<b>100%</b>	<b>70,807,035</b>	<b>100%</b>	<b>493,035,210</b>	<b>100%</b>	<b>7.0</b>	<b>2.2</b>	<b>\$ 57,062,689</b>	<b>100%</b>	<b>\$ 26,382,006</b>	<b>100%</b>	<b>\$ 9,051,177</b>	<b>100%</b>

## RESIDENTIAL PROGRAM PERFORMANCE

### Residential Program Expenditures

The residential portfolio budget increased by 34% from PY11 to \$11,734,115. Despite reaching 98.6% of the first year kWh target and 96.3% of kW savings target for the residential portfolio, PY12 ended with a \$2.6M surplus, or 23%. Residential Energy Efficiency Measures (REEM), which represents the backbone of the residential portfolio, utilized 90% of its budget with the remaining 10% accounting for nearly a third of this surplus. Residential Energy Services & Maintenance (RESM) was underspent by nearly \$700,000, primarily due to a lag in construction and related completion of applications for the specific program, Efficiency Inside Home Design, and represented nearly 26% of the surplus. With the economy rebounding, projects that did not get completed in PY12 will hit in PY13 with some budget pressures resulting. Similar to PY11, the modest budget for Customized Solutions for the Home (CESH) did not play a role in PY12. This contributed \$10,500 to the incentive surplus and is not discussed in this report. Despite a major effort on the hard-to-reach sector, the Residential Hard-to-Reach budget closed PY12 with a \$1.2M or 45% surplus. In addition to executing a large direct install project of solar water heating systems on Hawaii Island, the Residential team was challenged to find similar viable opportunities throughout the program year. A number of meetings, however, did plant seeds for the Program to assist the hard-to-reach sector in PY13.

During the Program's year-end reconciliation process, a discrepancy of \$12,644.55, or 0.1% of spend was discovered, bringing the total Residential incentive expenditure to \$9,051,177.08, up from an invoiced amount of \$9,038,532.53.

See **Table 58** for details.



## RESIDENTIAL PROGRAM PERFORMANCE

Table 58  
Residential Program Expenditures

	PY12 Expenditures	PY12 Budget R2	Percent Spent	PY12 Unspent	Percent Unspent
<b>Residential Programs</b>					
Residential Program Ops and Management					
REEM	\$ 2,267,588.62	\$ 2,509,143	90%	\$ 241,554.38	10%
CESH	\$ 4,935.00	\$ 27,881	18%	\$ 22,946.00	82%
RESM	\$ 29,483.75	\$ 103,237	29%	\$ 73,753.25	71%
RHTR	\$ 92,764.34	\$ 103,238	90%	\$ 10,473.66	10%
Total Residential Programs	\$ 2,394,771.71	\$ 2,743,499	87%	\$ 348,727.29	13%
Residential Market Evaluation	\$ 26,106.85	\$ 127,300	21%	\$ 101,193.15	79%
Residential Outreach	\$ 878,530.86	\$ 1,068,601	82%	\$ 190,070.14	18%
<b>Total Residential Non-Incentive</b>	\$ 3,299,409.42	\$ 3,939,400	84%	\$ 639,990.58	16%
Residential Incentives					
REEM	\$ 7,437,751.48	\$ 8,218,682	90%	\$ 780,930.52	10%
CESH	\$ -	\$ 10,500	0%	\$ 10,500.00	100%
RESM	\$ 150,033.00	\$ 847,500	18%	\$ 697,467.00	82%
RHTR	\$ 1,450,748.05	\$ 2,657,433	55%	\$ 1,206,684.95	45%
Subtotal Residential Incentives	\$ 9,038,532.53	\$ 11,734,115	77%	\$ 2,695,582.47	23%
Residential Transformational	\$ 1,059,432.97	\$ 1,097,340	97%	\$ 37,907.03	3%
<b>Total Residential Incentives</b>	\$ 10,097,965.50	\$ 12,831,455	79%	\$ 2,733,489.50	21%
<b>Total Residential Programs</b>	<b>\$ 13,397,374.92</b>	<b>\$ 16,770,855</b>	<b>80%</b>	<b>\$ 3,373,480.08</b>	<b>20%</b>

# RESIDENTIAL PROGRAM PERFORMANCE

## Residential Trade Allies

### Background

The residential trade allies include product manufacturers, wholesalers, retailers and contractors. These companies range from global entities to local proprietorships and all play a vital role in the Program's success. Some are on the front lines, selling energy-efficient products, while others are behind the scenes delivering appliances and recycling those which have been replaced. In all, Hawaii Energy enjoyed the support of almost 200 unique companies playing a role in driving energy efficiency in the residential market.

### Trade Ally Program Feedback

Hawaii Energy solicits feedback on a daily basis when contractors call in for work orders, or the Program delivers applications to retailers. Twice a year, the Program hosts the solar water heating contractors and contractors installing other measures to congregate for a "State of the Program" presentation, which includes future plans. Feedback is always solicited and the Program has done more to meet the needs of the industry. See **Table 59** for details.

### Ongoing Training

In PY12, the Residential program took explicit steps to enhance the quality of programs offered through trade allies. Most notable was the introduction of a quarterly score card sent to every participating solar contractor. This score card reported the first-pass inspection rate for the prior three months and continues to keep quality at the forefront of our participating contractor's attention. The Program actively coaches contractors experiencing challenges that arise from time to time, which has been well received.



*Solar water heating trade ally meetings are held twice a year. At each meeting, participating solar water heating contractors are recognized for having the highest first-pass inspection rate.*

# RESIDENTIAL PROGRAM PERFORMANCE

Table 59  
Residential Trade Ally Activity

	Trade Allies	Measures	Customer Level Demand Savings (kW)	Customer Level Energy Savings (kWh - 1st yr.)	Customer Level Energy Savings (kWh - Life)	Cumulative Customer Level Energy Savings (%)	Incentives
1	Costco	497,734	2,357	16,772,709	110,539,535	18.1%	\$ 989,581
2	Feit Electric Company	469,448	2,338	16,945,614	102,389,644	16.8%	\$ 671,581
3	Home Depot	293,518	1,518	11,591,093	77,708,084	12.7%	\$ 523,495
4	City Mill	235,867	1,174	8,510,777	51,454,561	8.4%	\$ 582,767
5	Sears	5,019	179	2,663,838	35,350,494	5.8%	\$ 462,600
6	Lowes	68,868	410	3,402,828	26,992,771	4.4%	\$ 246,487
7	TCP Lighting	116,670	576	4,162,270	25,524,071	4.2%	\$ 147,638
8	Ponchos's Solar Service	418	192	863,170	12,947,550	2.1%	\$ 347,050
9	Participant Driven	7,359	73	969,783	11,746,870	1.9%	\$ 76,759
10	Sams Club	40,882	202	1,463,146	8,940,434	1.5%	\$ 44,238
11	Haleakala Solar	286	131	589,065	8,830,575	1.4%	\$ 250,200
12	Walmart	36,941	185	1,340,958	8,045,750	1.3%	\$ 37,545
13	OPower	75,000	833	7,295,468	7,295,468	1.2%	\$ 891,460
14	Solar Help Hawaii	217	94	427,156	6,322,110	1.0%	\$ 165,700
15	Hawaii Energy - Program Grants	2,347	92	468,949	5,834,595	1.0%	\$ 1,454,597
16	Best Buy	834	26	424,313	5,761,162	0.9%	\$ 75,175
17	Webco	25,163	126	913,417	5,477,670	0.9%	\$ 26,802
18	Hawaiian Island Solar	184	80	364,710	5,416,650	0.9%	\$ 139,850
19	Alternate Energy	171	78	352,553	5,280,780	0.9%	\$ 137,050
20	Navy Exchange (NEX)	961	29	394,910	5,232,413	0.9%	\$ 75,140
21	Island Cooling Llc	210	105	210,167	4,195,240	0.7%	\$ 15,725
22	Hi-Tech Plumbing Corporation	132	61	272,580	4,088,700	0.7%	\$ 101,000
23	Drainpipe Plumbing & Solar	129	59	266,385	3,995,775	0.7%	\$ 136,500
24	Greenlite Lighting	17,850	89	647,955	3,887,730	0.6%	\$ 24,990
25	Pacific Sustainable Building Science	33	-	495,586	3,211,280	0.5%	\$ 76,800
26	C&J Solar Solutions	96	44	198,240	2,973,600	0.5%	\$ 75,750
27	Safeway	12,789	64	464,241	2,783,992	0.5%	\$ 12,789
28	Philips Lighting	11,906	54	374,112	2,685,104	0.4%	\$ 37,367
29	Mid Town Radio / Disco Mart	322	11	190,594	2,586,962	0.4%	\$ 31,900
30	Energy Unlimited, Inc.	82	38	169,330	2,539,950	0.4%	\$ 65,550
	REMAINING TRADE ALLIES	35,578	707	4,452,119	50,024,411	8.2%	\$ 1,127,091
	<b>Residential Program</b>	<b>1,957,014</b>	<b>11,924</b>	<b>87,658,038</b>	<b>610,063,931</b>	<b>100.0%</b>	<b>\$ 9,051,177</b>

# RESIDENTIAL PROGRAM PERFORMANCE

## 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 offer, involving CFLs, was administered through indirect upstream incentives to customers via lighting distributors and manufacturers. Second to the CFL offering was Solar Water Heating, which saw a rebound due to the Program's successful marketing campaign and an improving economy. In summary, rounding out the top three initiatives were CFLs, Solar Water Heating and Refrigerator with Trade-In.

### REEM Program Impacts

For PY12, the REEM program achieved savings of 69,826,376 kWh (first year) and 9,550 kW savings with \$7,444,044 in incentives. In relative terms, 82.2% of Residential program incentives captured 98.6% and 99.1% of kWh (first year) and kW savings, respectively. See Table 6o for details. The three largest contributors were:

- **#1 Contributor to REEM – CFLs (74.4%)**  
CFLs were the largest contributor to the REEM Program savings with energy (first year) and demand savings of 51,964,575 kWh and 7,158 kW, respectively. While the absolute savings from CFLs decreased by approximately 2% from PY11, as a percent of the residential portfolio, the reliance on CFLs dropped over 8% with CFLs accounting for 74.4% of REEM savings in PY12 down from 81.1% in PY11.
- **#2 Contributor to REEM – Solar Water Heating (6.0%)**  
Solar water heating, incentivized directly and through participating lenders, was the second largest contributor to the REEM Program savings with energy (first year) and demand savings of 4,163,509 kWh and 927 kW, respectively. While as a percentage of the REEM portfolio, solar water heating increased 1.0% in PY12 (up from 5.0% in PY11), the number of systems increased 17% and savings increase 27% due to systems being fully funded by PBFA funds and not subsidized by ARRA funds.

## RESIDENTIAL PROGRAM PERFORMANCE

- #3 Contributor to REEM – Refrigerator with Trade-In (5.4%)**

The Refrigerator with Recycling program marketed as “Trade-Up for Cool Cash” was the third largest contributor to the REEM Program savings with energy (first year) and demand savings of 3,789,226 kWh and 157 kW, respectively. This performance was consistent with PY11 in both scale and contribution to the REEM portfolio. See **Table 6o** for details.

Table 6o  
REEM Program Impacts

PY12 REEM - Residential Energy Efficiency Measures Program Impacts															
Category	Apps/ 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	1,770,503	7,158	75%	51,964,575	74%	311,774,264	64%	6.0	14.1	\$ 37,353,374	67%	\$ 2,654,375	11%	\$ 2,379,660	32%
Solar Water Heating Incentive - Contractor	2,407	895	9%	4,016,021	6%	60,240,309	12%	15.0	0.5	\$ 8,181,356	15%	\$ 15,886,200	63%	\$ 2,048,600	28%
Refrigerator with Recycling	5,702	157	2%	3,789,226	5%	53,049,166	11%	14.0	2.3	\$ 4,787,506	9%	\$ 2,054,160	8%	\$ 712,750	10%
Clothes Washer (Tier II/III) + (Tier I GF)	5,200	118	1%	866,135	1%	10,215,706	2%	11.8	2.2	\$ 1,242,614	2%	\$ 572,330	2%	\$ 286,700	4%
LED	89,420	216	2%	1,197,241	2%	17,930,176	4%	15.0	0.8	\$ 938,015	2%	\$ 1,162,460	5%	\$ 633,740	9%
Peer Group Comparison	75,000	667	7%	5,841,701	8%	5,841,701	1%	1.0	0.9	\$ 833,676	1%	\$ 891,460	4%	\$ 891,460	12%
Garage Refrigerator / Freezer Bounty	1,214	23	0%	573,362	1%	8,027,066	2%	14.0	7.9	\$ 720,474	1%	\$ 91,050	0%	\$ 49,960	1%
Heat Pumps	317	54	1%	385,339	1%	3,853,388	1%	10.0	0.9	\$ 491,580	1%	\$ 570,600	2%	\$ 63,400	1%
VFR Split System AC	373	83	1%	192,365	0%	2,834,528	1%	14.7	1.5	\$ 471,174	1%	\$ 306,960	1%	\$ 77,177	1%
Solar Water Heating Incentive – Lender	89	33	0%	147,488	0%	2,212,319	0%	15.0	0.5	\$ 300,448	1%	\$ 587,400	2%	\$ 89,000	1%
Whole House Fan	220	89	1%	178,907	0%	3,578,138	1%	20.0	10.8	\$ 285,874	1%	\$ 26,400	0%	\$ 16,500	0%
Ceiling Fans	3,120	48	1%	420,620	1%	2,103,102	0%	5.0	13.3	\$ 282,132	1%	\$ 21,276	0%	\$ 124,800	2%
VFD Controlled Pool Pumps	247	1	0%	119,241	0%	1,192,407	0%	10.0	0.7	\$ 106,842	0%	\$ 147,450	1%	\$ 37,050	0%
Refrigerator (<\$600)	384	5	0%	32,592	0%	456,282	0%	14.0	1.3	\$ 56,200	0%	\$ 42,240	0%	\$ 19,200	0%
Solar Attic Fans	206	3	0%	90,092	0%	450,461	0%	5.0	1.6	\$ 49,090	0%	\$ 30,900	0%	\$ 10,300	0%
Energy Hero Gift Packs - Akamai PowerStrips	141	1	0%	8,102	0%	40,512	0%	5.0	2.3	\$ 5,439	0%	\$ 2,397	0%	\$ 2,397	0%
Whole House Energy Metering	11	0	0%	2,545	0%	11,406	0%	4.5	0.6	\$ 1,330	0%	\$ 2,200	0%	\$ 892	0%
Room Occupancy Sensors	46	0	0%	770	0%	6,159	0%	8.0	1.1	\$ 982	0%	\$ 920	0%	\$ 359	0%
Dishwasher (GF)	1	0	0%	53	0%	640	0%	12.0	1.2	\$ 94	0%	\$ 80	0%	\$ 50	0%
AC Bounty (GF)	2	-	0%	-	0%	-	0%	-	-	\$ -	0%	\$ 50	0%	\$ 50	0%
<b>Total</b>	<b>1,954,603</b>	<b>9,550</b>	<b>100%</b>	<b>69,826,376</b>	<b>100%</b>	<b>483,817,730</b>	<b>100%</b>	<b>6.9</b>	<b>2.2</b>	<b>\$ 56,108,200</b>	<b>100%</b>	<b>\$ 25,050,907</b>	<b>100%</b>	<b>\$ 7,444,044</b>	<b>100%</b>

## RESIDENTIAL PROGRAM PERFORMANCE

### REEM Program Expenditures

In PY12, the Program utilized 90% of available incentive funds, while realizing a surplus of \$780,930.52. Despite the budget being increased by approximately \$500,000 due to the PY11 carry over request, the PY12 surplus was less than half of the PY11 surplus. Among the mix of measures in the PY12 plan, the goal of 4,000 solar water heating systems (an increase of 87% over PY11 results) may have been a bit aggressive despite the gains seen in PY12 and drove, in part, this surplus. During the Program's year-end reconciliation process, a discrepancy of \$6,292.55 was discovered, bringing the total REEM expenditure to \$7,444,044.03 up from an invoiced amount of \$7,437,751.48 in incentives.

See **Table 61** for details.

Table 61 REEM Program Expenditures						
	PY12 Expenditures		PY12 Budget R2		Percent Spent	
					PY12 Unspent	Percent Unspent
REEM Operations	\$	2,267,588.62	\$	2,509,143	90%	\$ 241,554.38 10%
REEM Incentives	\$	7,437,751.48	\$	8,218,682	90%	\$ 780,930.52 10%
<b>Total REEM</b>	\$	9,705,340.10	\$	10,727,825	90%	\$ 1,022,484.90 10%

# RESIDENTIAL PROGRAM PERFORMANCE

## REEM Program Overall Accomplishments

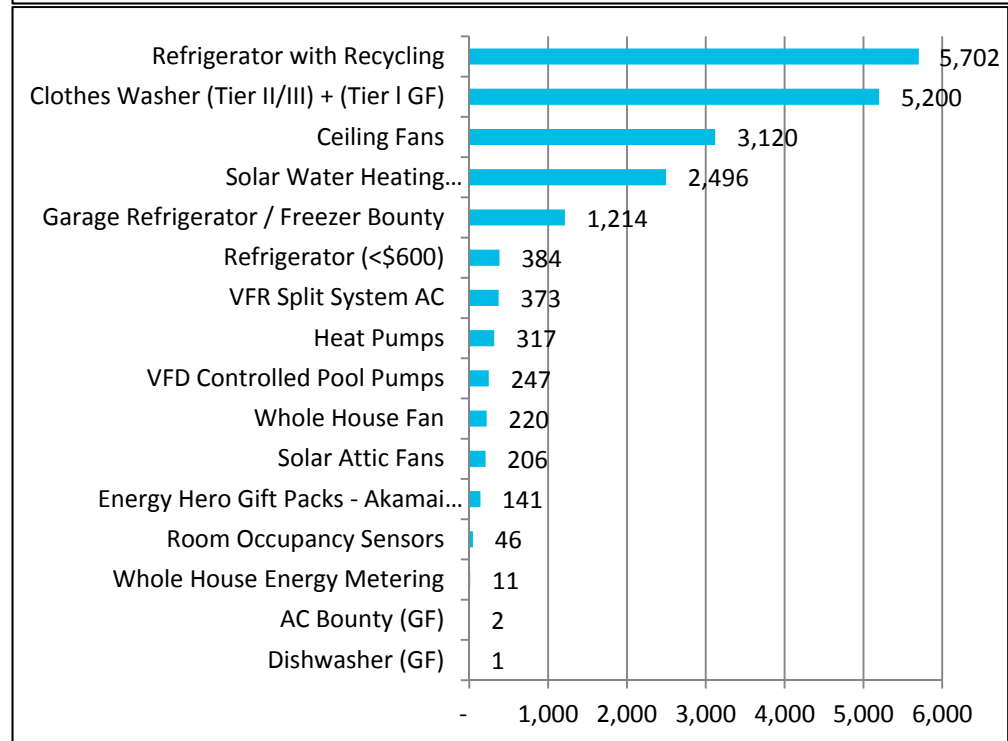
Popular Offerings – **Table 62** summarizes the participation of REEM incentives by measure. The table includes a few new measures, including VFD Controlled Pool Pumps and Room Occupancy Sensors. While these measures were added, some were eliminated or refined to minimize “free ridership”, including:

- Elimination of the \$110 Split Air Conditioning rebate in favor of continuing rebates for inverter-driven split air conditioners, which are more energy efficient.
- Clothes Washers (Tier II & III) was implemented by disqualifying the basic (Tier I) ENERGY STAR® models. The rebate was established at \$75, a \$25 increase, but was then reduced back to the \$50 level.
- Discontinuation of rebates for high efficiency dishwashers and window air conditioners commenced in PY11, however to maintain good customer satisfaction, a few were grandfathered (GF) in PY12.

Quality Customer Support – During PY12, Hawaii Energy’s residential call center handled over 9,566 customer calls ranging from, “What kind of refrigerator should I buy?” to, “How should I size my solar water heating system?” and everything in between. Related to the Peer Group Comparison (Opower Home Energy Report), the Hawaii Energy call center handled 573 calls, which was critical to minimizing participant attrition.

Customer Experience Management – Armed with Medallia, the Program sent out over 7,500 surveys to gauge customer experience with Hawaii Energy. With a response rate of over 33%, the overall satisfaction rating averaged 9.2 out of 10 in areas of field service, rebate satisfaction and willingness to recommend Hawaii Energy offerings. In PY12, Hawaii Energy logged only 8 complaints down from 29 in PY11, which for the most part revolved around customer perception issues.

Table 62  
REEM Rebated Units



# RESIDENTIAL PROGRAM PERFORMANCE

## REEM Program Accomplishments by Incentive Offering

### High Efficiency Water Heating (HEWH)

For PY12, the HEWH program achieved a savings of 4,548,847 kWh (first year) and 981 kW savings with \$2,201,000 in incentives. In relative terms, 29.6% of REEM incentives captured 6.5% and 10.3% of kWh (first year) and kW savings, respectively.

### HEWH - Solar Water Heating (SWH)

*Instant Rebate Program* – With 2,407 solar thermal systems installed in PY12 per Hawaii Energy specifications, the Program saw a solid increase in installations due to a solar water heating marketing campaign, an increased rebate to \$1,000 (up from \$750) and improving market conditions. The popularity of photovoltaics (PV), despite the recommended loading order (i.e., solar water heating first, PV second), continues to overshadow the potential of solar water heating.

*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 89 systems were installed through this offer (down from 166), the Program continues to attract lenders which now numbers 21.

*Solar Water Heating Inspections* – 85% of installations were inspected in PY12. The Program implemented an algorithm to select systems to be inspected based on a number of factors including first-pass rates, however, inspections will also be conducted on an as-requested basis. This has helped to lower administration costs, while not sacrificing quality. Heat pump water heaters saw a 30% increase over PY11, which is a good trend for a newer technology ideal for smaller households. See **Table 63** for details of the High Efficiency Water Heating offers.

Table 63  
REEM HEWH Program Impacts

PY12 High Efficiency Water Heating Program Impacts															
Category	Units	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 Incentive – Contractor	2,407	895	91%	4,016,021	88%	60,240,309	91%	15.0	0.5	\$ 8,181,356	91%	\$ 15,886,200	93%	\$ 2,048,600	93%
Solar Water Heating Incentive – Lender	89	33	3%	147,488	3%	2,212,319	3%	15.0	0.5	\$ 300,448	3%	\$ 587,400	3%	\$ 89,000	4%
Heat Pumps	317	54	5%	385,339	8%	3,853,388	6%	10.0	0.9	\$ 491,580	5%	\$ 570,600	3%	\$ 63,400	3%
<b>Total</b>	<b>2,813</b>	<b>981</b>	<b>100%</b>	<b>4,548,847</b>	<b>100%</b>	<b>66,306,016</b>	<b>100%</b>	<b>14.6</b>	<b>0.5</b>	<b>\$ 8,973,384</b>	<b>100%</b>	<b>\$ 17,044,200</b>	<b>100%</b>	<b>\$ 2,201,000</b>	<b>100%</b>

## RESIDENTIAL PROGRAM PERFORMANCE

### Participating Contractor Meetings

Hawaii Energy continued to meet with its network of Participating Contractors on Oahu, Maui and Hawaii islands. 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 a “town hall” fashion.

See **Table 64** for details on solar water heating systems installed by island and **Table 65** for solar water heating system installations listed by participating contractor.

Table 64 REEM Solar Water Heating System Installations by Island									
PY12 Solar Water Heating Projects by Island									
Category	Units	Program Demand (kW)	%	Program Energy (kWh 1st yr.)	%	Program Energy (kWh Life)	%	Incentives (\$)	%
Hawaii Island	386	141	15.2%	634,245	15.2%	9,513,668	15.2%	394,250	18.4%
Maui	367	136	14.6%	608,337	14.6%	9,125,056	14.6%	355,450	16.6%
Molokai	2	1	0.1%	3,303	0.1%	49,547	0.1%	1,750	0.1%
Oahu	1,741	650	70.1%	2,917,624	70.1%	43,764,357	70.1%	1,386,150	64.8%
<b>Total</b>	<b>2,496</b>	<b>928</b>	<b>100%</b>	<b>4,163,509</b>	<b>100%</b>	<b>62,452,628</b>	<b>100%</b>	<b>\$ 2,137,600</b>	<b>100%</b>

# RESIDENTIAL PROGRAM PERFORMANCE

Table 65 REEM Solar Water Heating System Installations by Participating Contractor			
CONTRACTOR	% TOTAL	CONTRACTOR	% TOTAL
PONCHOS SOLAR SERVICE- OAHU	16.78%	PROFESSIONAL ELECT' HAWAIIAN CONTRACTORS	0.33%
SOLAR HELP HAWAII	8.85%	ALTERNATE ENERGY - MAUI	0.29%
ALTERNATE ENERGY - OAHU	6.97%	PACIFIC ENERGY STRATEGIES, LLC.	0.29%
HALEAKALA SOLAR, INC. - MAUI	6.92%	PERRIN PLUMBING, LLC	0.29%
HAWAIIAN ISLAND SOLAR, INC.	6.70%	ALLEN'S PLUMBING - OAHU	0.25%
HI-TECH PLUMBING CORPORATION	5.87%	TNH PLUMBING	0.25%
HALEAKALA SOLAR - OAHU	5.21%	21ST CENTURY TECHNOLOGIES HI - OAHU	0.21%
DRAINPIPE PLUMBING & SOLAR	4.86%	BUILT TO LAST PLUMBING	0.21%
C&J SOLAR SOLUTIONS	3.90%	PACIFIC ISLANDS CONSTRUCTION	0.21%
TRUE GREEN SOLAR, LLC	3.81%	QUALIFIED PLUMBING	0.21%
ENERGY UNLIMITED, INC.	3.55%	SUNNY SOLUTIONS, INC.	0.21%
HAWAIIAN SOLAR & PLUMBING	2.41%	ADVANTAGE MECHANICAL PLUMBING, INC.	0.17%
KEITH SHIGEHARA PLUMBING, INC.	2.15%	KNIGHT'S PLUMBING, INC.	0.17%
MAUI PACIFIC SOLAR, INC.	2.02%	PONCHO'S SOLAR SERVICE - MAUI	0.17%
SONSHINE SOLAR CORP.	1.93%	AHI, INC.	0.13%
ISLAND SOLAR SERVICE, INC. - OAHU	1.84%	CALVIN'S PLUMBING	0.13%
HI-POWER SOLAR, LLC	1.62%	SOUTH PACIFIC PLUMBING, LLC	0.13%
AFFORDABLE SOLAR CONTRACTING	1.58%	TAMURA PLUMBING	0.13%
GRAND SOLAR	1.45%	ADON CONSTRUCTION, INC. - OAHU	0.08%
SOLAR SERVICES HAWAII	1.40%	AOKI PLUMBING	0.08%
SUN KING - MAUI	1.40%	M. TORIGOE PLUMBING, INC.	0.08%
PONCHO'S SOLAR SERVICE - BIG ISL	1.14%	MOLOKAI SOLAR	0.08%
SOLAR AIDE COMPANY	1.14%	ROYAL FLUSH PLUMBING	0.08%
BONTERRA SOLAR SERVICES	0.96%	SOLAR ENG & CONTRACTING-OAHU	0.08%
KONA SOLAR SERVICE, LLC	0.96%	CED'S PLUMBING	0.04%
GIANT SOLAR, LLC	0.92%	DORVIN D LEIS COMPANY INC-OAHU	0.04%
RT'S PLUMBING, INC	0.92%	KIHEI PLUMBING	0.04%
ALLEN'S PLUMBING - MAUI	0.79%	RED OPAE PLUMBING	0.04%
SUN KING - OAHU	0.79%	ROMEO VALLESTEROS	0.04%
APOLLO SOLAR	0.70%	W CONTRACTING INC. DBA ENERGYPRO HAWAII	0.04%
COMMERCIAL PLUMBING, INC.	0.44%	<b>TOTAL</b>	<b>100.00%</b>

## RESIDENTIAL PROGRAM PERFORMANCE

### High Efficiency Lighting

For PY12, the High Efficiency Lighting Program achieved savings of 53,161,817 kWh (first year) and 7,374 kW savings with \$3,013,400 in incentives. In relative terms, 40.5% of REEM incentives captured 76.1% of kWh (first year) and 77.2% kW savings, respectively.

The program moderated the volume of CFLs to a level of 1.7M (down from 1.8M), which ironically required a higher average incentive level due to a late program year promotion. PY12 saw the LED market make significant strides in qualifying products for the residential market. The 89,420 units rebated reflect an increase of 750% over PY11.

Much effort was spent maintaining program participation with both manufacturers and retailers gained in PY12.

See **Table 66** for details.

Table 66  
REEM High Efficiency Program Lighting Impacts

PY12 High Efficiency Lighting Program Impacts															
Category	Units	Program Demand %		Program Energy (kWh 1st yr.) %		Program Energy (kWh Life) %		Avg. Measure Life (yrs.)	TRB/ TRC	Total Resource Benefit %		Total Resource Cost %		Incentives %	
		(kW)		(kWh 1st yr.)		(kWh Life)				(TRB)		(TRC)		(\$)	
CFL	1,770,503	7,158	97%	51,964,575	98%	311,774,264	95%	6.0	14.1	\$ 37,353,374	98%	\$ 2,654,375	70%	\$ 2,379,660	79%
LED	89,420	216	3%	1,197,241	2%	17,930,176	5%	15.0	0.8	\$ 938,015	2%	\$ 1,162,460	30%	\$ 633,740	21%
Total	1,859,923	7,374	100%	53,161,817	100%	329,704,440	100%	6.2	10.0	\$ 38,291,389	100%	\$ 3,816,835	100%	\$ 3,013,400	100%

# RESIDENTIAL PROGRAM PERFORMANCE

## High Efficiency Air Conditioning

For PY12, the High Efficiency Air Conditioning Program achieved savings of 878,612 kWh (first year) and 223 kW savings with \$227,777 in incentives. In relative terms, 3.1% of REEM incentives captured 1.3% and 2.3% of kWh (first year) and kW savings, respectively.

For PY12, Hawaii Energy ceased the rebate for Split-AC Ductless Systems in favor of continuing Variable Refrigerant Flow (VRF) Systems, which experienced an uptick of 231% from PY11.

Solar Attic Fans and Whole House Fans, introduced in PY10, continued to show steady demand.

See **Table 67** for details.

Table 67 REEM High Efficiency Air Conditioning Program Impacts															
PY12 High Efficiency Air Conditioning Program Impacts															
Category	Units	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 (\$)	%
Ceiling Fans	3,095	47	21%	417,249	47%	2,086,244	23%	5.0	13.2	\$ 279,874	26%	\$ 21,168	5%	\$ 123,800	54%
Solar Attic Fans	206	3	1%	90,092	10%	450,461	5%	5.0	1.6	\$ 49,090	5%	\$ 30,900	8%	\$ 10,300	5%
VFR Split System AC	373	83	37%	192,365	22%	2,834,528	32%	14.7	1.5	\$ 471,174	43%	\$ 306,960	80%	\$ 77,177	34%
Whole House Fan	220	89	40%	178,907	20%	3,578,138	40%	20.0	10.8	\$ 285,874	26%	\$ 26,400	7%	\$ 16,500	7%
Total	3,894	223	100%	878,612	100%	8,949,371	100%	10.2	2.8	\$ 1,086,012	100%	\$ 385,428	100%	\$ 227,777	100%

## RESIDENTIAL PROGRAM PERFORMANCE

### High Efficiency Appliances

For PY12, the High Efficiency Appliances Program achieved savings of 5,383,981 kWh (first year) and 304 kW savings with \$1,106,760 in incentives. In relative terms, 14.9% of REEM incentives captured 7.7% and 3.2% 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 195 retail participants, doubling last year's count. 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's Point-of-Purchase (POP) collateral. Throughout the program year, retailers were regularly updated via emails and phone calls.

As ENERGY STAR® products become more common (and non-ENERGY STAR® models become less available), the Program has continued to curtail rebate offerings for some common ENERGY STAR® products. In PY12, the Program modified its refrigerator rebate offers to better target its incentives. First, the \$50 rebate for ENERGY STAR® refrigerators was limited to models priced at \$600 or less in order to target the low-end higher energy-consuming models that might suit a landlord. For models above \$600, the participant would have to trade-in the refrigerator being replaced. This traded-in refrigerator would be recycled and therefore not end up in a garage or refurbished and resold. In order to moderate demand and manage the available PBF funds, the Program offered this rebate in four (4) batches throughout PY12 and secured 3,789,226 kWh savings from this offer, reflecting 70% of the High Efficiency Appliance Program. New in PY12 was the VFD Controlled Pool Pump, which saw a good inaugural showing at 247 units.

***Garage Refrigerator/Freezer Bounty Program*** – This program offered a rebate to customers who unplugged and recycled a working refrigerator and/or freezer. The neighbor island offer was retooled and now curbside pick-up is available to all participants. With industry partners properly recycling appliances, Hawaii Energy has a solid foundation upon which to grow the recycling component of its Programs. In all, 1,214 units yielding 573,362 kWh savings came from this offer, reflecting 11% of the High Efficiency Appliance Program. This reflected a 15% increase from PY11.

See **Table 68** for details.



## RESIDENTIAL PROGRAM PERFORMANCE

Table 68

### REEM High Efficiency Appliances Program Impacts

#### PY12 High Efficiency Appliance Program Impacts

Category	Units	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 with Recycling	5,702	157	52%	3,789,226	70%	53,049,166	73%	14.0	2.3	\$ 4,787,506	69%	\$ 2,054,160	71%	\$ 712,750	64%
Clothes Washer (Tier II/III) + (Tier I GF)	5,200	118	39%	866,135	16%	10,215,706	14%	11.8	2.2	\$ 1,242,614	18%	\$ 572,330	20%	\$ 286,700	26%
Garage Refrigerator / Freezer Bounty	1,214	23	7%	573,362	11%	8,027,066	11%	14.0	7.9	\$ 720,474	10%	\$ 91,050	3%	\$ 49,960	5%
VFD Controlled Pool Pumps	247	1	0%	119,241	2%	1,192,407	2%	10.0	0.7	\$ 106,842	2%	\$ 147,450	5%	\$ 37,050	3%
Refrigerator (<\$600)	384	5	2%	32,592	1%	456,282	1%	14.0	1.3	\$ 56,200	1%	\$ 42,240	1%	\$ 19,200	2%
Ceiling Fans	25	0	0%	3,372	0%	16,859	0%	5.0	20.9	\$ 2,258	0%	\$ 108	0%	\$ 1,000	0%
Dishwasher (GF)	1	0	0%	53	0%	-	0%	12.0	1.2	\$ 94	0%	\$ 80	0%	\$ 50	0%
AC Bounty (GF)	2	-	0%	-	0%	-	0%	-	-	\$ -	0%	\$ 50	0%	\$ 50	0%
<b>Total</b>	<b>12,775</b>	<b>304</b>	<b>100%</b>	<b>5,383,981</b>	<b>100%</b>	<b>72,958,124</b>	<b>100%</b>	<b>13.6</b>	<b>2.4</b>	<b>\$ 6,915,988</b>	<b>100%</b>	<b>\$ 2,907,468</b>	<b>100%</b>	<b>\$ 1,106,760</b>	<b>100%</b>



## RESIDENTIAL PROGRAM PERFORMANCE

### Energy Awareness, Measurement and Control Systems

For PY12, the Energy Awareness, Measurement and Control Systems Program achieved savings of 5,853,119 kWh (first year) and 668 kW savings with \$895,108 in incentives. In relative terms, 12.0% of REEM incentives captured 8.4% and 7.0% of kWh (first year) and kW savings, respectively.

**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.

**Peer Group Comparison** – In PY12, Hawaii Energy continued the Home Energy Report program in Ewa and the neighbor islands, including Maui, Molokai, Lanai and Hawaii Island with the number of households participating totaling approximately 75,000. 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 elicit a strong response followed by behavioral changes. 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, 5,841,701 kWh savings came from this offer, reflecting 99.8% of the Energy Awareness and Control System program.

**Room Occupancy Sensors** – In PY12, Hawaii Energy soft-launched this offer via a pilot with a limited number of qualifying products at four locations of one big-box retailer. The mail-in rebate yielded little participation, so an upstream program was instituted. With only 46 units rebated, the Program will evaluate this offer in PY13.

**Whole House Energy Metering** – Hawaii Energy soft-launched this offer with a variable rebate in PY10. 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 understanding their usage better. A strategy to increase targeted participation is being devised for PY13.

See **Table 69** for details.



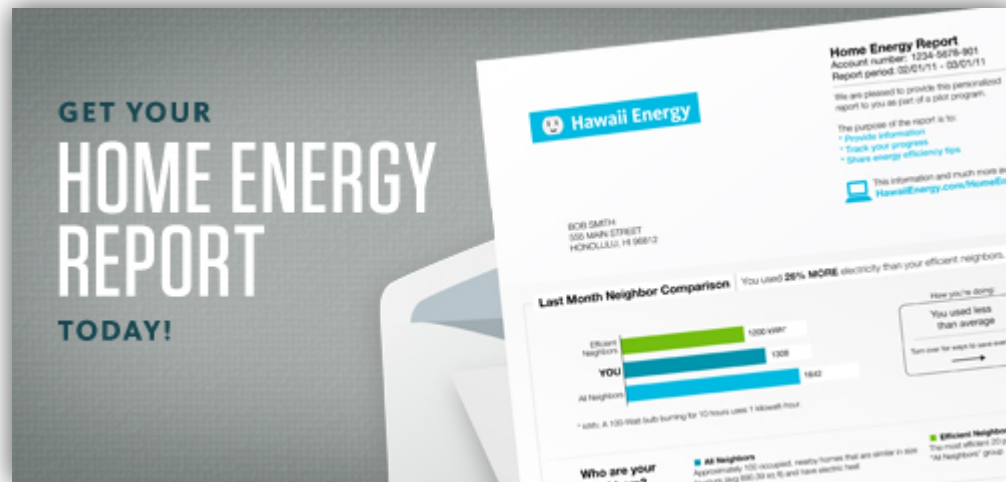
# RESIDENTIAL PROGRAM PERFORMANCE

Table 69

## REEM Energy Awareness, Measurement and Control Systems Program Impacts

### PY12 Energy Awareness, Measurement and Control Systems Program Impacts

Category	Units	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	75,000	667	99.8%	5,841,701	99.8%	5,841,701	99.0%	1.0	0.9	\$ 833,676	99.1%	\$ 891,460	99.4%	\$ 891,460	99.6%
Energy Hero Gift Packs – Akamai Power Strips	141	1	0.1%	8,102	0.1%	40,512	0.7%	5.0	2.3	\$ 5,439	0.6%	\$ 2,397	0.3%	\$ 2,397	0.3%
Whole House Energy Metering	11	0	0.0%	2,545	0.0%	11,406	0.2%	4.5	0.6	\$ 1,330	0.2%	\$ 2,200	0.2%	\$ 892	0.1%
Room Occupancy Sensors	46	0	0.0%	770	0.0%	6,159	0.1%	8.0	1.1	\$ 982	0.1%	\$ 920	0.1%	\$ 359	0.0%
<b>Total</b>	<b>75,198</b>	<b>668</b>	<b>100%</b>	<b>5,853,119</b>	<b>100%</b>	<b>5,899,779</b>	<b>100%</b>	<b>1.0</b>	<b>0.9</b>	<b>\$ 841,427</b>	<b>100%</b>	<b>\$ 896,977</b>	<b>100%</b>	<b>\$ 895,108</b>	<b>100%</b>



## RESIDENTIAL PROGRAM PERFORMANCE

### Custom Energy Solutions for the Home (CESH)

This incentive category provided a measure of flexibility within the prescriptive portfolio to accommodate unforeseen market opportunities with budgetary and unit cost targets to provide financial efficacy guidance to the Program and allies who champion these opportunities. In PY12, there were no such proposals; rather all opportunities were addressed through the other programs (e.g., REEM, RESM and RHTR). As the market continues to evolve in PY13, the Program may see some activity for which this incentive category plays a modest role.

Table 70  
CESH Program Impacts

PY12 CESH - Customized Energy Solutions for the Home													
Category	Units	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 (\$)
Custom Packaged Proposals	-	-		-		-		-	-	-		-	-
<b>Total</b>	-	-		-		-		-	-	-		-	-

A modest amount of time was spent reviewing a few inquiries involving the PY12 expenditures. See **Table 71** for more detail.

Table 71  
CESH Program Expenditures

	PY12 Expenditures		PY12 Budget R2		Percent Spent	PY12 Unspent		Percent Unspent
CESH Operations	\$	4,935.00	\$	27,881	18%	\$	22,946.00	82%
CESH Incentives	\$	-	\$	10,500	0%	\$	10,500.00	100%
<b>Total CESH</b>	\$	4,935.00	\$	38,381.00	13%	\$	33,446.00	87%

# RESIDENTIAL PROGRAM PERFORMANCE

## Residential Energy Services & Maintenance (RESM) Program

For PY12, the RESM Program achieved savings of 594,523 kWh (first year) and 9 kW savings with \$151,183 in incentives.

For details, see **Table 72**.

Table 72 RESM Program Impacts															
PY12 RESM - Residential Energy Services and Maintenance Program Impacts															
Category	Units	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 (\$)	%
Efficiency Inside Home Design	150	-	0%	574,462	97%	4,319,151	100%	7.5	2.0	\$ 301,111	99%	\$ 147,000	93%	\$ 147,000	97%
Custom Packaged Proposals	2	8	85%	14,057	2%	6,506	0%	0.5	0.6	\$ 2,067	1%	\$ 3,617	2%	\$ 3,033	2%
Central AC Maintenance	23	1	15%	6,003	1%	6,003	0%	1.0	0.2	\$ 1,104	0%	\$ 6,900	4%	\$ 1,150	1%
Solar Water Heater Tune-Ups	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
Direct Install	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
Hawaii Energy Hero Audits	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
<b>Total</b>	<b>175</b>	<b>9</b>	<b>100%</b>	<b>594,523</b>	<b>100%</b>	<b>4,331,660</b>	<b>100%</b>	<b>7.3</b>	<b>1.9</b>	<b>\$ 304,282</b>	<b>100%</b>	<b>\$ 157,517</b>	<b>100%</b>	<b>\$ 151,183</b>	<b>100%</b>

## RESIDENTIAL PROGRAM PERFORMANCE

### RESM Program Expenditures

In PY12, the program had a material surplus primarily due to the deferral in launching another solar thermal tune-up offer and a delay in participating vendors providing applications relating to the Efficiency Inside Home Design offer. During the Program's year-end reconciliation process, a discrepancy of \$1,150 was discovered, bringing the total RESM expenditure up to \$151,183 from an invoiced amount of \$150,033 in incentives. In this case, Central AC Maintenance was invoiced under REEM, rather than RESM.

See **Table 73** for details.

Table 73 RESM Program Expenditures						
	PY12 Expenditures		PY12 Budget R2	Percent Spent	PY12 Unspent	Percent Unspent
RESM Operations	\$	29,483.75	\$	103,237	29%	\$ 73,753.25 71%
RESM Incentives	\$	150,033.00	\$	847,500	18%	\$ 697,467.00 82%
<b>Total RESM</b>	\$	179,516.75	\$	950,737.00	19%	\$ 771,220.25 81%

# RESIDENTIAL PROGRAM PERFORMANCE

## 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:

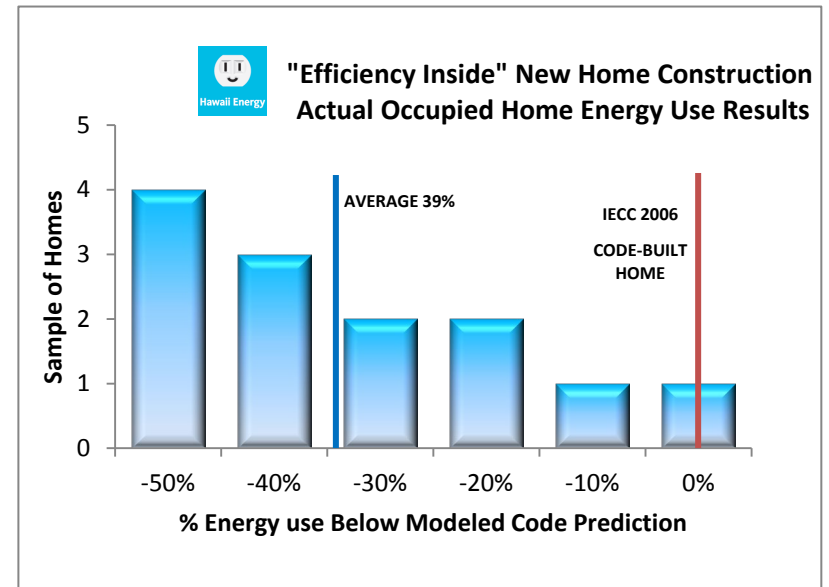
- The ability to base energy savings on computer energy modeling programs to compare a code-built homes to the home designs being offered by the developer;
- Providing the developer the maximum flexibility in designing homes to dovetail with existing federal tax credits and ENERGY STAR® programs;
- Possible 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 but received fewer applications in PY12 than the strong pipeline of projects had indicated. Therefore, 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.

With the economy improving, 150 homes underwent energy modeling and testing and yielded 574,462 kWh (first year) savings with incentives of \$147,000.



*Hawaii Energy has found that all participating developers are building homes 39% better than International Energy Conservation Code (IECC) 2006 requirements.*

# RESIDENTIAL PROGRAM PERFORMANCE

## Residential Hard-To-Reach (RHTR) Program

The Program significantly increased resources to this traditionally underserved demographic, most notably through a major solar water heating grant and collaboration with Blue Planet Foundation to bring the refrigerator exchange program, Hui Up, to Lanai.

For PY12, Hawaii Energy's Residential Hard-to-reach Program achieved savings of 386,136 kWh (first year) and 73 kW savings with \$1,455,950 in incentives. In relative terms, 16.1% of Hawaii Energy's incentives captured 0.5% and 0.8% of kWh (first year) and kW savings, respectively.

See **Table 74** for details.

Table 74 RHTR Program Impacts															
PY11 RHTR - Residential Hard-to-Reach Program Impacts															
Category	Units	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 - Grant	169	62	85%	277,763	72%	4,166,452	85%	15.0	0.5	\$ 565,800	87%	\$ 1,123,359	96%	\$ 1,412,359	97%
Energy Hero Gift Packs – Akamai Power Strips	2,037	10	14%	88,650	23%	443,249	9%	5.0	1.7	\$ 59,507	9%	\$ 34,629	3%	\$ 35,048	2%
Lanai Hui Up	30	1	1%	19,723	5%	276,119	6%	14.0	1.6	\$ 24,900	4%	\$ 15,594	1%	\$ 8,544	1%
Solar Inspections (WAP)	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
Hawaii Energy Hero Landlord Program	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
Custom SWH Proposals	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
Energy Hero Gift Packs	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
CFL Exchange	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
Hawaii Energy Hero Audits	-	-	0%	-	0%	-	0%			\$ -	0%	\$ -	0%	\$ -	0%
<b>Total</b>	<b>2,236</b>	<b>73</b>	<b>100%</b>	<b>386,136</b>	<b>100%</b>	<b>4,885,820</b>	<b>100%</b>	<b>12.7</b>	<b>0.6</b>	<b>\$ 650,207</b>	<b>100%</b>	<b>\$ 1,173,581</b>	<b>100%</b>	<b>\$ 1,455,950</b>	<b>100%</b>

# RESIDENTIAL PROGRAM PERFORMANCE

## RHTR Program Expenditures

PY12 saw a 238% rise in Program support for the Residential Hard-to-reach (RHTR) sector through nearly \$840,000 more incentives than in PY11. Despite a number of solicitations and concerted efforts to find organizations in need, the Program was unable to secure viable projects within the program year and closed PY12 with a \$1.2M surplus, or 45.4% of the expanded RHTR budget. During the Program's year-end reconciliation process, a discrepancy of \$5,202 was discovered, bringing the total RHTR expenditure to \$1,455,950, up from an invoiced amount of \$1,450,748.05 in incentives.

See **Table 75** for detailed expenditures and unspent funds.

Table 75 RHTR Program Expenditures					
	PY12 Expenditures	PY12 Budget R2	Percent Spent	PY12 Unspent	Percent Unspent
RHTR Operations	\$ 92,764.34	\$ 103,238	90%	\$ 10,473.66	10%
RHTR Incentives	\$ 1,450,748.05	\$ 2,657,433	55%	\$ 1,206,684.95	45%
<b>Total RHTR</b>	<b>\$ 1,543,512.39</b>	<b>\$ 2,760,671.00</b>	<b>56%</b>	<b>\$ 1,217,158.61</b>	<b>44%</b>

## RESIDENTIAL PROGRAM PERFORMANCE

### Solar Water Heater – Direct Install

In late PY11, the Program was keen on achieving island equity targets and mindful of a difficult solar water heating market. Therefore, the Program sought out funding opportunities on Maui and Hawaii Island. We 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 this project with the Program providing funding for solar water heating systems, HCEOC could extend its grant to help more families in other ways. In addition to the 53 systems in PY11, the project continued to install 169 more systems to clients of HCEOC in PY12.

### Smart Strip – Event Promotion

In PY12, the Program distributed energy-saving smart strips, many of which were in support of the Program-funded Helen N. Wai 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.

### Lanai Hui Up

In late PY11, Blue Planet Foundation approached Hawaii Energy to support their effort to bring Hui Up to Lanai. The project was at-risk because the ARRA funding that supported the previous Hui Up on Molokai was no longer available. After some creative planning and financial analysis, the Program was able to support this initiative with its standard “refrigerator with recycling” or “Trade-Up for Cool Cash” rebate offer as well as supportive funding characterized as “catalyst funding.” Without this catalyst funding, the Lanai Hui Up would have been canceled. It was the first time Hui Up was brought to Lanai, so participation was light with only 30 households participating. That said, it made a material difference to those participating and seed interest for future energy efficiency initiatives.



# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Introduction

Introduced in PY11, the Transformational program diversified its offerings in PY12 to focus on four key areas, specifically: (1) Government, (2) Business & Industry, (3) Education and (4) Residential. Government-related initiatives supported State agencies, the State University system and the National Guard. Business-related initiatives provided both technical and sales education to spur more activity in energy efficiency arena, including professional certifications. Education-related initiatives supported the professional development of teachers and those entering the energy-related workforce, while residential-related initiatives focused on developing fundamental energy literacy in a number of ways. The underlying intent of these offerings is to transform the market, through various means, that will lead to gains through energy efficiency and conservations within three to five years.



*Local teachers on Oahu participating in the Hawaii Energy-sponsored National Energy Education Development workshop.*



*Kupuna of Alu Like in Nanakuli learning about how to save energy.*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Government Support

### Residential and Commercial Code Training Seminars

#### 2009 International Energy Conservation Code (IECC) & Design Strategies to Achieve Compliance

The State Building Code Council has approved a new energy code and adoption is underway in Hawaii, Honolulu, Maui and Kauai counties. Hawaii Energy in co-sponsorship with the Department of Business, Economic Development, and Tourism (DBEDT) held two one-day technical seminars for building professionals, architects, engineers, contractors and other private sector professionals, as well as local building and code officials. The training provided a review of IECC 2009 Code and Hawaii-specific amendments, as well as information on Design Strategies for Code Compliance for air-conditioned residences and small commercial buildings.

Two meetings were held on Oahu on November 13<sup>th</sup> & 14<sup>th</sup>; one on Maui on Nov 16<sup>th</sup>; and in Hilo and Kona on the 19<sup>th</sup> and 20<sup>th</sup>, respectively. In all, over 300 professionals and officials attended these seminars.



*Training workshop to review the 2009 International Energy Conservation Code.*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Rebuild Hawaii Consortium

### Focus on the Hospitality Industry

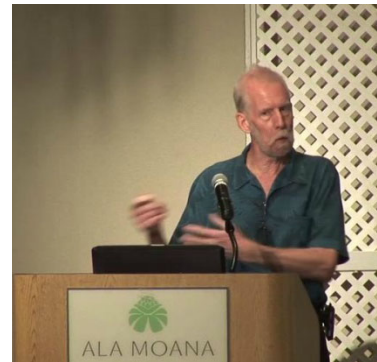
The Rebuild Hawaii Consortium promotes sharing best practices and lessons learned about the proven benefits of energy and resource efficiency. The consortium has representatives from federal, state and local government agencies, utilities and the private sector. Because Waikiki is one the largest economic engines for Hawaii, due in large part to its international appeal and reputation as a premium tourist destination, this meeting focused on hospitality industry. Industry experts from the Sheraton Hotels, the Four Seasons Resorts and the Marriott Hotels shared their recent experience in planning and implementing energy efficiency projects.

This meeting was funded by Hawaii Energy and drew over 80 participants to the Ala Moana Hotel. To expand public access to the meeting, especially for the neighbor islands, the meeting was video-streamed over the Internet bringing total meeting attendance to over 150. This event also offered Hawaii Energy an outreach opportunity to raise awareness of the Program. See “Rebuild Hawaii” in Marketing & Outreach section for further details.



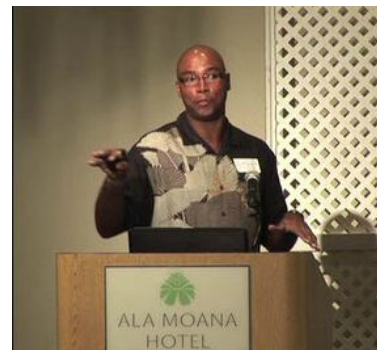
**Revell Newton** from the Sheraton Hotels

Watch the video of Mr. Newton's presentation at <https://vimeo.com/56360575>.



**Patrick Ware** from the Four Seasons Resort

Watch the video of Mr. Ware's presentation at <https://vimeo.com/56360577>.



**Tyrone Crockwell** from Marriott Hotels

Watch the video of Mr. Crockwell's presentation at <https://vimeo.com/56360578>.

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Transforming End-Use Behavior: Achieving the Energy Independence Mission (AEIM)

### Smart Sustainability Consulting, LLC

Hawaii Energy subcontracted Smart Sustainability Consulting (SSC), a local firm specializing in transforming energy-consuming end-use behavior, to engage Hawaii's Department of Defense, specifically the National Guard and State Civil Defense. The primary goal of the project was to educate participants about the unique energy challenges in Hawaii, the basics of energy measurement and how to perform a simple audit. Through this education, the secondary goal was to reduce the facilities' energy consumption through occupant behavior in the work place and to identify potential energy efficiency and conservation measures.

Project sponsors within the National Guard and State Civil Defense called the undertaking Achieving the Energy Independence Mission with the clever acronym AEIM (pronounced "aim"). From multiple facilities, 132 members of the Guard and Civil Defense volunteered for the training. Structured by facility, teams of 4-5 participants were formed and then paired with a trainer from SSC. Training involved three interactive sessions: (1) energy training, (2) a goal setting workshop and (3) a certification ceremony.

As part of the energy training, teams conducted a walk-through energy audit of their respective facilities to identify and measure plug loads, note lighting types and assess illumination levels, and measure room temperatures to assess air conditioning operating parameters.

This training was well received by the participants. One of the participants, Tamah-Lani Noh, an energy auditor representing one of the facilities (Building 300) stated that after the training, she and her team, "felt very comfortable moving forward with audits on their own and confident that they understood the 'hows' and 'whys' of the audit, better preparing them to address any circumstances that would arise." Ms. Noh became an energetic supporter of AEIM when she became aware, through the training, of just how much energy her building, air conditioning and appliances were using. Now aware, she unplugged her personal water cooler, turned off excessive lights, and opened up her shades to allow natural daylight. She also reported that she would be ordering advanced power strips for her team before it was required. In addition to leading her building's initiatives, she utilized the provided "train the trainer" curriculum to recruit and train occupants from four additional buildings. Ms. Noh represents an ideal trainee of the AEIM program.



*Members of the National Guard learning about energy efficiency and conservation measures.*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## First Annual Hawaii Sustainability in Higher Education Summit

### University of Hawaii, Hawaii Pacific University, Brigham Young University-Hawaii, and Chaminade University

Hawaii Energy made a conscious effort in PY12 to develop strong relationships within the University of Hawaii (UH) system. One of the ways in which Hawaii Energy collaborated with the UH system is in the financial and intellectual support of the University of Hawaii Sustainability in Higher Education Summit. The 1st Annual Summit was a two-day conference for policy planning and program sharing about sustainability initiatives within the UH 10-campus system and higher education colleagues at Hawaii Pacific University, Brigham Young University – Hawaii, and Chaminade University. Hawaii Energy was a gold sponsor for this event, a speaker, and a panelist in educating and promoting the Program's mission.

The goal of the conference was to produce a UH System policy document on sustainability and provide an opportunity for building cross-campus collaboration and networking opportunities by sharing insights and best practices. The conference was attended by over 200 university personnel and invited guests, as well as other like-minded thinkers. A system-wide sustainability policy was drafted and action items are being executed currently to improve the sustainability of the UH system.



*The 1<sup>st</sup> annual University of Hawaii Sustainability in Higher Education Summit held at UH West Oahu.*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Green Classroom Professional Certificate Workshop + Toolkits

### United States Green Building Council (USGBC) via Department of Business, Economic Development and Tourism (DBEDT)

Hawaii Energy directly supported DBEDT (and indirectly through SSC's Hawaii Energy-funded participation) in their efforts to collaborate with the USGBC in hosting a workshop for pre-K-12 teachers, paraprofessionals, administrators, and other pre-K-12 stakeholders. The four-hour workshop attended by over 100 individuals offered hands-on training in a classroom setting to reinforce USGBC Green Classroom Professional Certification (GCPC) curriculum. The curriculum includes an online Green Classroom Professional Certificate self-paced course, one Green Classroom Tool Kit per school or per team and a Classroom Mentoring Program.



# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Business & Industry Support

### Energy Efficiency Sales Professional Training

#### EEFG® - Mark Jewell, President

Transformational efforts have been focused on changing the viewpoint of energy-related behavior and acceptance of the value of energy efficiency as the new norm for better decision making in business. As such, decision-making practices of the past need to be approached with new skills that can better communicate the importance of investments in energy efficiency.

Continuing from the last program year of transforming the energy culture in Hawaii and 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 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. 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 professionals how to drive energy efficiency projects 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. The Program presented a number of courses by EEFG throughout the program year, specifically:

#### *Efficiency Sales Professional Boot Camp*

The Efficiency Sales Professional™ (ESP) certificate program included 48 hours of training on sales, energy efficiency, financial analysis, and personal productivity delivered over 6 full-day sessions. The Efficiency Sales Professional Boot Camp continues to be highly valued by its growing audience of market influencers.

His robust course included 24 learning modules teaching participants to find the highest valued targets and capture their attention, to map the decision-making chain and skillfully assess motivations, to concisely communicate value and artfully blend emotion and logic to neutralize objection to gain approval, and to replace myth with math and motivation to escape the clutches of simple payback period.



"The class is comprehensive and sets you up for success through the great material offered."

*Able Konan, Hawaii  
Department of Agriculture*

## MARKET TRANSFORMATION PROGRAM PERFORMANCE



"Mark Jewell brings such a broad background to the table. He makes connecting the dots between the diverse aspects of selling energy efficiency sound so easy."

*Chris Corley,  
Introspective Systems, Inc.*

These workshops were held in Honolulu from October 22 to 27, 2012 with 52 attendees. They were offered a second time by popular demand from June 10 to 15, 2013 with 33 attendees.

Post-training surveys revealed that both Mr. Jewell and the courses were well-received. Many attendees commented on the abundance of valuable course material alongside expressions of gratitude to have the opportunity to attend these high-level trainings at such an affordable cost.

### ***Learning to S.E.E.™ (Sell Efficiency Effectively)***

This one-day workshop was a "sampler" version of the more comprehensive Efficiency Sales Professional (ESP) program. Learning to S.E.E.™ helped participants become better sales professionals. Topics included:

- Engaging all stakeholders in the sales process
- Effectively using tips and templates for sales letters and proposals
- Leveraging knowledge of tariffs, rebates and incentives
- Using metrics for more compelling value propositions

The workshop held on October 29<sup>th</sup> in Honolulu had 49 attendees. 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.

### ***Financial Analysis of Energy Efficiency Projects***

This workshop held on Maui covered several approaches to calculating a project's returns as well as the pros and cons of using various financial metrics when requesting capital. Attendees learned how to model expected cash inflows and outflows over time, how to calculate a project's present value and other financial metrics, and how to generate compelling capital budget requests. The event was held on October 30, 2012 and had 18 participants. 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.

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Workshop Series IV

This 2-day series of workshops included half-day sessions that targeted medium-sized businesses, which typically do not have dedicated energy staff to understand and champion energy projects and their associated benefits. The first day was themed *Using Efficiency to Build Your Business* and included two half-day sessions, *Finding Your Focus* and *Getting Efficiency Projects Approved*. Because of its success, this series was offered for each of the sessions, Honolulu had 47 and 39 attendees, and Hawaii Island had 11 and 7 attendees, respectively. The second day was themed *Boosting Your Competitiveness, Profitability and Value with Efficiency* and included two different half-day sessions, *Taking Control of Your Energy Use* and *Making Efficiency Happen*. These four half-day sessions were designed to allow people the flexibility of investing a smaller time commitment and was offered in both Honolulu and Hawaii Island. Attendees to each of the four sessions in Honolulu were 25 and 24 for the morning and afternoon sessions on Hawaii Island, 18 and 17 attendees for each session, respectively. The Transformational Program continues to receive positive emails and comments regarding this series and requests for more workshops on a regular basis.



*Participants of the Energy Sales Professional™  
Certificate Boot Camp, June 2013*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Fostering Sustainable Behavior through Community-Based Social Marketing (CBSM)

### Doug McKenzie-Mohr

Hawaii Energy sponsored current and potential community partners in fostering sustainability and energy conservation to attend the *Fostering Sustainable Behavior: An Approach to Community-Based Social Marketing (CBSM)* workshop, presented by Dr. Doug McKenzie-Mohr.

The Program supported three sessions. The first two included a one-day introductory workshop and a two-day advanced workshop, while the third was an executive briefing, in which Hawaii Energy addressed the audience about the Program and its mission. Hawaii Energy sponsored current and potential partners by purchasing fifty (50) seats and an additional subsidy to cover the travel cost for nine (9) non-profit attendees from the neighbor islands.

The workshops administered in Hawaii were an approach to community-based social marketing tailored to waste reduction & management, water conservation & management, energy efficiency, pollution prevention, transportation change, climate change adaptation, environmental education, and public health. Participants learned how to develop, implement and monitor human behavior change programs to improve sustainability and protect environmental resources based on the proven community-based social marketing methodology.

The workshops were an opportunity for multiple communities throughout the State of Hawaii to participate in a group setting to learn about community-based social marketing concepts and strategies and how to apply them to various projects. The purpose of engaging these parties was to develop a network of like-minded professionals in which Hawaii can instill positive behavioral change in energy efficiency, sustainability and conservation on multiple fronts.

Willow Krause, Maui Smart Grid Project Coordinator of Maui Economic Development Board (MEDB) and her colleague, Lory Basa stated they, “appreciate Hawaii Energy supporting their attendance” at the workshops, that they “got so much out of it”, and summarized that it was an “excellent experience.” Ms. Krause led two projects in which she engaged local volunteers that connected closely to Hawaii Energy’s mission. From the workshop, she has applied lessons of the workshop to increase enthusiasm, participation, and accountability from her volunteers, and developed stronger relationships between them and MEDB members.



# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Certified Energy Manager (CEM), Energy Manager in Training (EMIT) and Online Training

### 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 recognized as a leading resource for energy education and related certifications.

The Certified Energy Manager (CEM) training 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 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 principle of energy conservation and efficiency which assists business managers, engineers and other professional in making better financial decisions while they reduce Hawaii's overall dependence on imported oil for energy.

During the first half of the program year, the Program identified the CEM course as an ideal workforce development opportunity and decided to pilot a sponsorship for eligible Maui residents to attend the 5-day Certified Energy Manager (CEM) course at a discount of 75% (regular non-AEE member price is \$2,200 per student). Each subsidized student paid \$300 for the cost of the exam. A total of 35 people enrolled in this course with 25 achieving CEM certification and three (3) receiving EMIT certification.

Hawaii Energy also offered two subsidized AEE Online Training Courses, specifically the *Fast Track CEM Prep Course for Energy Managers* and *Justifying Energy Efficiency as a Business Investment*. The purpose of these courses were to stimulate energy efficiency activity within Hawaii Energy's territory, particularly among the commercial customers and to provide professional development to those selling energy-efficient equipment/services and to facility operators in Hawaii. This online training offered flexibility for people who have a limited amount of time and could not be away from the office. Seventeen (17) professionals completed the CEM prep course, while eight (8) completed the course justifying energy efficiency as a business investment.



*Participants of a CEM training session on Maui*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Business Lighting Workshops - “LED vs. Everything” Workshop

### Lighting Wizards – Stan Walerczyk, Principal

With both availability and interest growing in solid-state lighting (the energy-efficient technology using light emitting diodes or LEDs), it is important for consumers to be able to effectively judge the quality, specifications, and comparisons among the many technology choices now available. This workshop, offered four (4) times throughout the program year, provided vendor-neutral education for participants to understand this rapidly evolving lighting technology by comparing LEDs to the most common lighting solutions.

The instructor subcontracted to offer the course was, Stan Walerczyk, Principal of Lighting Wizards, an energy efficiency consultant specializing in lighting. Local to Hawaii (Maui), he has 24 years of lighting experience in maintenance, retrofit contracting, third party review, luminaire design, policy making and research. He is a contributor to the DOE Commercially Available LED Product Evaluation and Reporting (CALiPER) program and a consultant for California’s Title 20 Appliance Standard and Federal EPEAT Standards, which mandates efficiency standards for lighting products. He has done considerable independent project managing for California Lighting Technology Center’s work on California Energy.



The four workshops targeted medium power users (electric rate schedule of J and P) and were offered at the Maui Arts and Culture Center in Kahului, the Natural Energy Laboratory of Hawaii (NELHA) in Kona, the Hawaii Innovation Center in Hilo and the Central Union Church in Honolulu with ninety-two (92) attendees in total. The post surveys indicated that the 98% of attendees rated the workshop as “Excellent” or they were “very satisfied” with the workshop and most found the content provided to be “very helpful” in broadening their understanding of lighting. Overall, the workshop was well-received and successful. Several attendees asked for more information in regards to financing and cost/benefit of different lighting options. Most surveys provided positive feedback and gratitude towards Hawaii Energy for providing this workshop.

*At the Lighting Wizards’ “LED vs. Everything” workshops, participants learn how LEDs compare to the most common lighting solutions. In the photo at left, Stan Walerczyk facilitates a workshop at the Hawaii Innovation Center in Hilo.*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Building Automation Workshops

### International Facility Management Association (IFMA)

Founded in 1980, IFMA is the world's largest and most widely recognized international association for facility management professionals, supporting more than 23,000 members in 85 countries. IFMA certifies facility managers, conducts research, provides educational programs, recognizes facility management certificate programs and produces World Workplace, the world's largest facility management conference and exposition. The association's members, represented in 130 chapters and 17 councils worldwide, manage more than 37 billion square feet of property and annually purchase more than \$100 billion in products and services.

Hawaii Energy partnered with IFMA's Hawaii Chapter to bring two workshops on Building Automation to provide an introductory and intermediate-level workshop to facility operators that would help them run the facilities' equipment at designed efficiency levels. The classes offered were *An Introduction to Energy Management & Control Systems (EMCS)* and *An Explanation of Direct Digital Control (DDC) and Building Automation System (BAS) Fundamentals*. The classes were presented by Ken Richardson, Les Taniyama and Jason Forester.

These courses attracted fifty-nine (59) participants and emphasized the need for energy measurement and how the resulting data allows for managing the energy used by facility equipment. They learned how control of systems and subsystems provide information for operators, so they can make educated decisions for the facility. They were also challenged with examples requiring the review and analysis of energy management data to optimize building operations.



*IFMA Building Automation workshop in Honolulu*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Energy Resource Center

### Molokai's Kuha'o Business Center

The Kuha'o Business Center was established to help Molokai entrepreneurs and other local residents to start small businesses. In 2006, the Center became an extension project of the County of Maui and the Office of Economic Development. Hawaii Energy began a partnership with this organization in June 2012 with the establishment of a modest but valued Energy Resource Center.

The Kuha'o Business Center's mission aligns with Hawaii Energy's mission in that energy plays a large role in the economic viability of any business. The Kuha'o Business Center office serves as an energy efficiency lending library to local businesses and residents. It also 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.

Hawaii Energy provided plug load monitors and advanced power strips to the lending library to allow business and residential customers to evaluate energy use and achieve energy savings. Jennifer Hawkins was recently hired as the Small Business Specialist and is leading the center's efforts. Throughout the last program year, the Lending Library has loaned energy monitoring equipment to 18 Molokai residents and business owners.

*Outside (left) and inside (right) the Kuha'o Business Center on Molokai, which houses an energy efficiency library for local businesses and residences.*



# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Education Support

### Energy Education in the Schools

#### The NEED Project

The NEED Project brings over 30 years of experience in energy education and has correlated their lessons and materials to Hawaii's education standards. NEED programs embrace a "Kids Teaching Kids" philosophy and all programs are designed to practice student peer to peer teaching and cooperative learning. More importantly, NEED's student-directed activities empower students to take active roles in educating their peers, families, and communities about energy issues and in identifying and solving the problems unique to their communities. Distance learning opportunities are available for rural and hard-to-reach communities via NEED's online curriculum, materials and support.

Hawaii Energy, in collaboration with The NEED (National Energy Education Development) Project, reached out to teachers by offering two (2) types of energy education workshops that included curriculum materials to teachers of all grade levels and subject matter to use in integrating energy and energy efficiency education into their classrooms and clubs. These curriculum materials are aligned with the Hawaii State Department of Education (DOE) standards.

The NEED Project workshops focused on developing a clear understanding of the science of energy and energy efficiency and conservation lessons for school, home, and commercial applications. The two one-day workshops: *Basic Energy Workshop* and *Building Science Workshop* were offered to teachers in the Hawaii Energy service area including hard-to-reach areas throughout the school year during PY12. Teachers were provided with professional development credits, a substitute reimbursement for their attendance, plus energy learning kits to use in their classrooms. In addition, teachers who attended the NEED workshops were eligible for grants for up to \$2,500 throughout the program year for projects that build capacity in energy efficiency and conservation. Six (6) grants were awarded to teachers at local schools ranging from \$500 - \$2,500 each yielding a total of \$9,250.



*Teachers experience hands-on learning and curriculum development at The NEED Project workshops, sponsored by Hawaii Energy*

## MARKET TRANSFORMATION PROGRAM PERFORMANCE



*The newly-formed NEED Teacher Advisory Board*

NEED teachers had the opportunity to delve deeper into the NEED curriculum at the annual National Energy Conference for Educators held in July 2012. For PY12, the Program subsidized the travel and attendance cost for eight (8) Hawaii NEED teachers to participate in this 5-day conference to explore the NEED curriculum further with their peers from across the country to learn from well-seasoned NEED teachers as their facilitators.

Some new implementations this program year were the Punahou Sustainable Schools Educator's Energy Exchange and the Teacher Advisory Board (TAB). The purpose of the Punahou Sustainable Schools Educator's Energy Exchange was to reach out to the community of local educators. This

event offered teachers the opportunity to share their integration of energy education and to encourage and support other educators in doing the same. Over the summer, NEED and the Program held a TAB session that was comprised of teachers who have participated in past NEED workshops and have shown high potential and good initiative in the use of NEED materials. These members were selected by Hawaii Energy and NEED staff. The TAB session, which was facilitated by both Hawaii Energy and NEED staff, serves as a platform for teachers to discuss further developments that would benefit teachers to apply energy education into their curriculum. Hawaii Energy and NEED have taken these suggestions from the TAB and have begun to integrate them into NEED curriculum and operations.

Throughout PY12, 262 teachers across the Hawaii Energy service area participated in NEED activities. These teachers were from 87 public and private schools, representing 43 communities. The level of participation surpassed the Program's initial goal for the offering and was well-distributed with a focus on serving the hard-to-reach demographic. Participant evaluations were extremely positive about the NEED offering. Nearly 85% of participants stated that the content was relevant to their teaching assignments and 97% of participants said the workshop was "very good" or, "one of the best workshops I have attended."

*"Students had so much fun learning and exploring these concepts and sharing their experiences with their parents, other students, and other teachers at the school. They have started to analyze their own energy use as well as think about more sustainable ways to utilize energy sources."*

**Laura Cummings**  
Sunset Beach  
Elementary School  
Haleiwa, Hawaii



# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Transforming End-Use Behavior: Student Energy Ambassador Development (SEAD)

### Smart Sustainability Consulting, LLC

Hawaii Energy subcontracted Smart Sustainability Consulting (SSC), a local firm specializing in transforming energy-consuming end-use behavior to engage schools and public institutions. The primary goal of the project was to educate participants about the unique energy challenges in Hawaii, the basics of energy measurement and how to perform a simple energy audit.

SEAD provided training to participating students in the Department of Education and local private schools. Structured by school, teams of 4-5 participants were formed and lead by a teacher. Training by SSC involved three interactive sessions: (1) energy training, (2) a goal setting workshop and (3) a certification ceremony. As part of the energy training, teams conducted a walk-through energy audit of their respective school to identify and measure plug loads, note lighting types and assess illumination levels, and measure room temperatures to assess air conditioning operating parameters.

Lead teachers were charged to champion the implementation of identified opportunities, such that the schools could reduce their energy consumption. In addition, the students were encouraged to apply these lessons in both school and at home.

The SEAD program served 165 participants of which there were enthusiastic responses:

- At the Academy of the Pacific, one of the students filmed a day of energy auditing and created a video. This video was then submitted to a video contest for high school students interested in changing the world.
- With the SEAD program serving as a catalyst, Maryknoll High School created a sustainability club called "The Green Team" shortly following the program.
- At the Hongwanji Mission School, one of the adults, Donald Miller (parent of participating student), audited his home and implemented ECM's. He then messaged SEAD a month later stating that his home energy bill dropped by at least \$100 and he was very thankful for the education provided to him by this program.



*Energy Trainers Mondenna Jamshidi and Jon Fritzler speak to students at Momilani Elementary School (top) and Maryknoll High School (bottom) as part of the SEAD program sessions.*

## MARKET TRANSFORMATION PROGRAM PERFORMANCE

### RISE (Rewarding Internships for Sustainable Employment)

#### Kupu

The Program recognizes the need to prepare the next generation for green jobs and sees great value in green workforce development. Therefore, Hawaii Energy teamed up with RISE program operated by Kupu to recruit, train and mentor interns for green workforce development, specifically in energy efficiency in residential, commercial, and agriculture sectors.



Through the RISE program, college students and young professionals will be provided with opportunities to work in energy efficiency and conservation, market research in agriculture in residential and commercial sector in the form of paid internships. These interns will contribute to green initiatives with guidance and mentorship from Hawaii Energy and Kupu staff.

This initiative was set in place late in the program year with the intent to continue to the subsequent program year. PY12 was used as a launching pad for Kupu and Hawaii Energy to prepare job descriptions, marketing materials, training materials, and coordinate with other local partners. PY13 will be the full implementation of the RISE Program. Hawaii Energy looks forward to conveying the success of this offering in the coming program year.

### Green Workforce Development and Residential Energy Literacy in Hard-to-Reach Communities

#### Hui Up 3.0 with Sustainable Molokai

Hawaii Energy subcontracted Sustainable Molokai and Blue Planet Foundation (see *Residential Support* on following page) to prepare the launch of Hui Up 3.0 on Molokai; a refrigerator exchange program with a required education component to improve the energy literacy of participating households. The professional development and education aspects of this project are driven by Sustainable Molokai, which will recruit and train a team of local youth to convey energy efficiency and conservation information, tips and practices to participating households. In addition to providing this in-home training, these youths will perform a home energy audit with a particular focus on plug loads, especially the refrigerators they encounter.

The Program engaged Sustainable Molokai late in the program year with the intention to launch this initiative in the next program year. Sustainable Molokai used this time to prepare training for interns, develop marketing materials to recruit participants, and to generate interest among local youth for internship positions.

Since this offering is still developing, data and results are not available as of the date of this Report. The Program looks forward to sharing the success of this offering in the subsequent program year.

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Residential Support

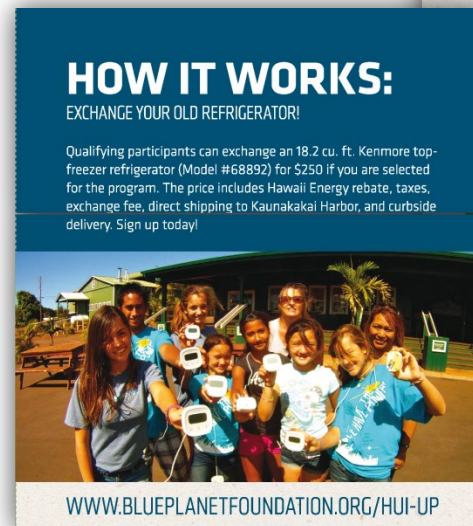
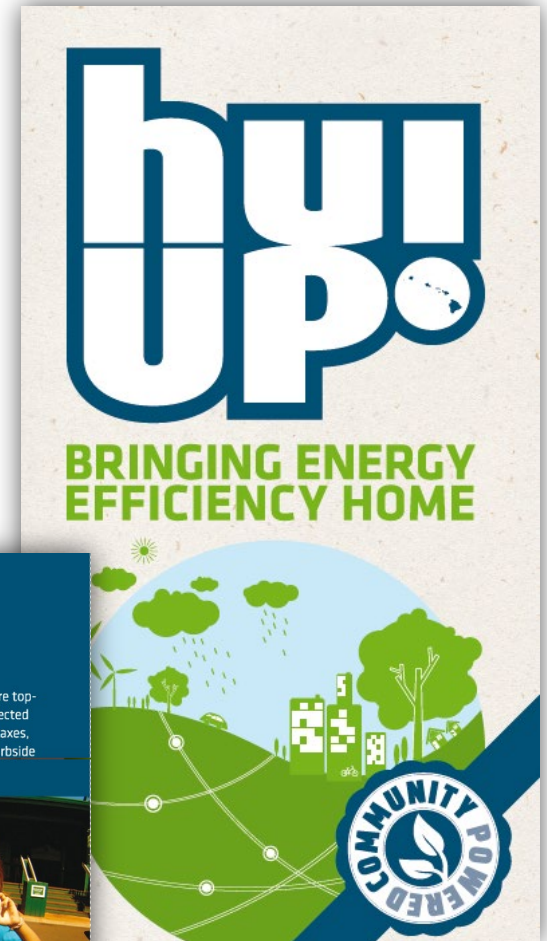
### Marketing and Logistics Support for Residential Energy Literacy in Hard-to-Reach Communities

#### Hui Up 3.0 with Blue Planet Foundation

The Program subcontracted Blue Planet Foundation and Sustainable Molokai (see *Education Support* on prior page) to launch the next round of Hui Up, the refrigerator exchange program on Molokai. Because previous success was achieved on Molokai and Lanai with the support of Hawaii Energy, this project will be fully funded by the Program. In addition to the refrigerator exchange, it will be revived with an added educational component for energy efficiency and conservation within residential households by local youth interns providing these homes with energy audits.

Blue Planet Foundation's focus is to effectively market this opportunity to Molokai residents, recruit eligible participants and handle the logistical and fiduciary components involved in the refrigerator exchange.

This project was started late in the program year with the intention to continue into PY13. Thus far, 97 potential participants have signed up for the refrigerator exchange due to significant marketing efforts. A road map of logistics is in place as well. Since this offering is still developing, data and results are not available as of the date of this report. The Program looks forward to sharing the success of this offering in the subsequent program year.



# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Energy Literacy in Hard-to-Reach Communities

### “Sharing the Aloha” Workshops – A free community workshop with Helen Wai



*“Sharing The Aloha” workshop participants from Alu Like Kupuna of North Kona in April 2013*

Hawaii Energy received many positive emails and phone calls from workshop participants. Participants were empowered by the information and by Helen’s unique local style of delivery making the course material very accessible.

Participants answer to the question “What was the most important thing you’ve learned?”

- “I need to be more vigilant about my spending and wiser concerning the amount of energy we use”
- “To save on my electric bill (Wow) thank you Helen for vital information for my household”
- “I learned so many things, there not just one”
- “How much I can save in area’s I may be over using”
- “I need to save!! My income is the same but the cost of living up tremendously so I need to make a difference & share with my family. I only pay for what I use!!!”

For islanders living at or below Hawaii’s average income level, a cause of great frustration and feeling of helplessness is an apparent inability to control high electricity costs, let alone understand energy. Hawaii Energy subcontracted 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 Helen Wai to augment her classes to address energy efficiency and enhanced her offering with a complimentary energy-saving item for each participant. This free item enhanced participation, but also helped attendees save energy via their plug loads.

Throughout PY12, the need for free community education to assist struggling residents with escalating energy costs became increasingly apparent as there were 91 “Sharing the Aloha” workshops attended by almost 2,600 participants. The greatest level of participation was from Maui County.

Throughout the program year,



*Residents participate in Helen Wai’s workshop at a Lahaina Honolua Senior Club meeting in Nov.2012*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

- “Stop using unnecessary items – this will allow you to save much more now! Thank you very much! Change will make a big difference yearly”
- “We pay for appliances we are not using”
- “When my solar heater runs out of hot water it goes to the electric grid!”
- “About rebates and Hawaii Energy programs”
- “How to Read the electric bill and understand clearly of usage.”

Hawaii Energy continues to get numerous requests from residents and organizations to bring this valuable and dynamic offering to their community.



*A map showing the places where “Sharing the Aloha” workshops were held in PY12 (far right), and participants from a workshop at the Iwalani Village residences in Kapolei (right).*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Energy Efficiency Literacy at Scale – Creating and Disseminating Socially Relevant Energy-Saving Information

### Kanu Hawaii

Hawaii Energy recognizes that developing an energy-literate population is a significant challenge to achieve, but necessary. It requires a long-term and sustainable strategy, not only in capturing and retaining the public's attention and interest, but doing so in a scalable, cost-effective manner. For Hawaii's unique population and culture, a paramount requirement in fostering energy efficiency literacy is to do so with socially relevant information with a local context. This information needed to be crafted in order to achieve three things: (1) educate/inspire action, (2) encourage sharing with friends and family and (3) encourage further conversation amongst friends and family. Furthermore, the information needed to anticipate strategies for distribution via print, internet, mobile devices and social media.

Kanu Hawaii (Kanu) was subcontracted to take on this task based on its vision related to the above challenge and its mission to, “empower people to build more environmentally sustainable, compassionate, and resilient communities rooted in personal commitments to change.” Furthermore, with a deep love for Hawaii and its unique way of life, a membership approaching 20,000 and a social media reach in the hundreds of thousands, Kanu Hawaii was an ideal partner for Hawaii Energy in this endeavor.

The project embarked to identify ten (10) meaningful energy saving areas/activities relevant to Hawaii families and create messages to identify these behaviors and communicate value. It needed to be attractive and appealing to “pull” people to want to learn about saving energy. Next, it needed to demonstrate energy-saving behavior that people can adopt.



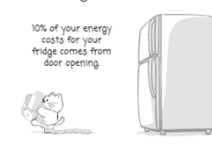





*Kanu Hawaii's Energy Efficiency Literacy memes*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

Kanu's interaction with its large membership distilled these 10 opportunities for this project to address: central air conditioners, DVRs, electric water heaters, refrigerators, kitchen appliances, laundry, power strips, entertainment centers, video games systems and window air conditioners. A series of memes ("an idea, behavior, or style that spreads from person to person within a culture") were created by Kanu reflecting a sense of Hawaii culture that identifies energy-saving activities in an attractive, relatable way. Once a person sees an interesting meme in a printed document, webpage, blog or presentation they are presented with further information in infographics and/or videos that further explain the value of new behaviors that when adopted will produce financial savings.

Hawaii Energy intends to have twenty more energy saving areas/activities crafted next program year to round out a complement of thirty subjects. Consistent with the original vision, this critical mass of information-based assets will be leveraged in a number of ways. Most promising is the development of a free Hawaii-centric, hard-to-reach friendly, energy-efficiency course that will be accessible on various print and online platforms (i.e., internet, mobile devices, social media, etc.). Such an initiative will serve as a starting point for developing new collateral which will appeal to various age groups, social levels and organizations including businesses, government, social clubs, faith groups, schools and past "Sharing the Aloha" participants.

<p>Refrigerators</p> 	<p>TIPS</p> <p>The difference in energy costs per year for a new fridge and an old one is roughly \$400... and that's for Oahu!</p> 	<p>Peek, grab, close! 10%</p> <p>10% of your energy costs for your fridge comes from door opening.</p> 	<p>Don't recreate the tundra!</p>  <p>Set fridge between 37 and 40 degrees F and the freezer at 5 degrees F.</p>	<p>Keep foods covered!</p> <p>Food evaporates causing your fridge to work harder.</p> 	 <p>Tons of tips &amp; a free energy course awaits you at <a href="http://HawaiiEnergyTips.com">http://HawaiiEnergyTips.com</a></p>
Activity/Area	Value	Behavior	Behavior	Behavior	Behavior

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Energy Efficiency Literacy at Scale – Lending Library Pilot

### Kanu Hawaii



*The Modlet by ThinkEco was used during the “Pay It Forward” pilot program. Residents were encouraged to monitor their energy usage and then pass the device on to a friend, family member or neighbor.*

To complement efforts to produce Hawaii-centric information to save electricity, the Program believed there was a need to take the lending library concept (see Energy Resource Center – Molokai’s Kuha’o Business Center) to a new level. The “how to” information being developed by the Program is foundational; however, limited access to the tools that measure plug loads and quantify the saving opportunity remained a significant barrier to acting on this information. A major challenge for the Program to address is the financial and personnel resources required to get tools in the hands of those least likely to have access, and do so at a meaningful scale.

Therefore, Hawaii Energy subcontracted Kanu Hawaii (Kanu) to create and pilot a Lending Library that incorporated a Pay-It-Forward (PIF) model. The Lending Library was designed to recruit participants, deploy and track devices that measure and/or conserve electricity lent by the library, and measure the outcomes.

The PIF model's goal is to provide via the postal service simple to use, energy-saving devices to be self-installed by the household that will help them understand and take action to curb energy use. The innovative PIF model will encourage the original recipient, once the tool has served them well in saving electricity, to become energy ambassadors to their friends, family and neighbors by forwarding the tool along with their personal experience. This

peer-to-peer education is expected to be very effective; however, if the participant declines to “pay-it-forward”, the device can be returned to the Program for future participants. This PIF model has the potential to reach underserved communities, including rural locations, with a program that can be easily measured for effectiveness.

To properly measure the effectiveness and support participating families, an energy-saving device produced by ThinkEco called Modlet was chosen primarily for being compatible with various computer operating systems and popular smart phones, plus its simple installation process. The Modlet records the energy consumption of up to two devices and displays the electricity cost. After a base-load period, savings schedules can be set to turn devices completely off when not in use, eliminating all phantom loads for the devices. With the online account, the participant can see how much electricity was used and saved, along with the associated cost and cost savings. Other devices were piloted as well.

## MARKET TRANSFORMATION PROGRAM PERFORMANCE

During the limited two-month pilot, Kanu engaged over 48 families by sending them the energy-saving devices. Data collected suggests there is demand for this type of offer and that it can make a difference in reducing energy use. Participants responded positively, in feeling that the Modlet will help them learn about their home energy usage and that other people can benefit from this type of energy-saving device. For example, one participant noted that their brand-new, EPA award winning ENERGY STAR® cable DVR used 100 watts when on, but 50 watts when turned-off (stand-by mode). Having the Modlet enabled the participant to see the energy consumption, schedule the unit to cycle on and completely off and see the resulting electricity and dollar savings. Kanu has engaged with the manufacture of the Modlet to acquire energy-related data to firmly quantify the energy savings realized.

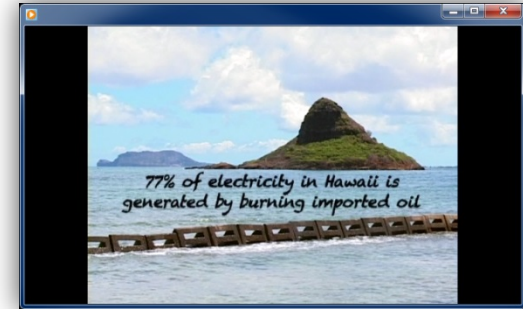
The Program plans to continue and expand this pilot next program year by incorporating additional energy-saving devices, creating short videos “How to use” and linking it to other Hawaii Energy offers focused on energy efficiency literacy (see Creating and Disseminating Socially Relevant Energy-Saving Information). Hawaii Energy expects this offering to produce measurable energy savings over the next year, but more importantly create a broader acceptance and understanding that low and no-cost behaviors can be communicated to the hard-to-reach demographics in a cost effective and scalable manner.



# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Energy Efficiency Literacy - Video Training Project

### ‘Ōlelo Community Media



‘Ōlelo Community Media received funding from Hawaii Energy to offer video training classes at various ‘Ōlelo Community Media Centers (CMCs) throughout the island of Oahu to develop public service announcements (PSAs) related to Hawaii Energy’s mission and goals. The effort included a partnership with the Hawai‘i Centers for Independent Living (HCIL), which helped to enroll seniors and those with disabilities.

These video production classes typically cost \$150 to attend, but were free to the 71 students, adults and kupuna that enrolled, including seven hearing-impaired adults. In all, 10 classes were held in Wai‘anae, Windward, Palolo, Honolulu and Mapunapuna. The course was co-instructed by ‘Ōlelo’s Jeffery Galicinao and Zach Cruz and assisted by an American Sign Language (ASL) interpreter.



Thirty-six (36) PSAs were produced by the cohort of students, who upon completing the class earned a certificate in video production. As demonstrated by the PSAs, the participants all learned more about Hawaii Energy’s initiatives and the practical steps they could implement to reduce their energy consumption in the home. The most exciting result of the project for these students was to have their PSAs aired on ‘Ōlelo’s channels.

*Graduates of a video training held in partnership with the Hawaii Centers for Independent Living, co-instructed by Jeffery Galicinao and Zach Cruz.*

# MARKET TRANSFORMATION PROGRAM PERFORMANCE

## Energy Efficiency Literacy 2012 Youth Exchange Contest

### ‘Ōlelo Community Media

Youth Xchange is a Statewide student video competition that began in 2003 to encourage dialogue among Hawaii's students on community issues. Participation has grown exponentially, making Youth Xchange Hawaii's largest and only issues-oriented student video competition in the State. More than a contest, Youth Xchange creates a way to engage, educate and empower students, providing them with a compelling voice for positive change and community well-being. This competition of Elementary, Intermediate and High School division allows students to do a video between 30 seconds to 5 minutes long on a problem of their choice. The topic choices were Energy Conservation, Peacemaker, Traffic Safety, Start Living Healthy and Water. Hawaii Energy sponsored the energy conservation topic that drew 40 entries from various islands.



### Youth Xchange Energy Conservation category winners:

**Elementary:** “Save Energy, Save Money” – Fern Elementary School

view here: <http://bit.ly/14C6wk7>

**Middle School:** “It’s A Brighter World” – Kapolei Middle School

view here: <http://bit.ly/1837yUM>

**High School:** “Turn It Off” – Mililani High School

view here: <http://bit.ly/1fhQiOp>



*Hawaii Energy's Chelsea Harder with Kapolei Middle School students, winners of the middle school Energy Conservation category*

## MARKETING & OUTREACH

The goal of the Program's marketing, outreach and communications efforts has always been and continues to be to increase the public's awareness of Hawaii Energy's 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.

The Program's marketing, outreach and communications continued to build up capacity in PY12. The marketing and communications team (Marcom) was restructured to consist of a Director of Communications, a Marketing Manager and a recently-hired Outreach and Marketing Specialist. This restructuring enabled the Program to be more strategic in its marketing and communications efforts, utilize existing talent and continue to effectively reach targeted audiences. The Program continued to retain Milici Valenti Ng Pack, Inc. (MVNP) to provide strategic and public relations services. In addition, the Program continued its relationship with creative advertising and web agency Wall-to-Wall Studios to ensure brand consistency.

This team supported Hawaii Energy through the strategic use of marketing, advertising, promotions, public relations and outreach, with highlights presented on the following pages.



*At bottom right, Hawaii Energy collaborated with Special Olympics Hawaii on a "Change A Bulb, Change A Life" project, to increase energy efficiency awareness while helping to raise funds by making a donation in exchange for a CFL.*

# MARKETING & OUTREACH

## Marketing, Advertising and Promotions

### Web Redesign

The Program launched a redesigned website in late June 2013. With everything becoming more online-focused, making sure our website provides the best experience for ratepayers and effectively communicates our message is essential to the success of Hawaii Energy. One of the Program's strongest marketing tools is our website as it is the easiest way for interested residents and businesses to learn more and get all of the information they need on energy efficiency and conservation.

Considering that the average lifespan of a website is 2-3 years and the Program's original website dates back to the Program's inception 4 years ago, it was the appropriate time to evolve and streamline the website. With the redesign, the Program had the opportunity to rethink our site architecture and reevaluate how our content is presented to visitors. The website redesign focused on improving the site's functionality and navigational elements all while developing a sleek, simplified design. Some key elements to note about the new website are:

- Fast, intuitive navigation – The new website has more simplified and streamlined categories so that users can easily find all of the information needed to help them take their first (or continued) steps towards energy efficiency.
- Enhanced user experience – To engage users and make the website more friendly and usable, the new site simplifies complex content to core relevant messages and uses more photos and other images.
- Rebates and incentives finder on homepage – The rebates and incentives finder on the homepage enables users to easily search for relevant rebates and incentives for their homes and businesses. The finder streamlines the search for rebates and incentives by categorizing them into energy-efficient measures.
- “Tips to Save Energy” page – Since everyone may not have the means to invest in energy efficiency measures, the page provides a way to find low to no-cost energy conservation tips on our “Tips to Save Energy” webpage.
- Energy success stories – To make energy conservation and efficiency even more relatable, the site highlights the ways people in our community save energy in their homes. These success stories are featured on a rotating basis at the bottom of the homepage. They are also all featured on a webpage. Winners and finalists from our recent and past Energy Success Story Contests are showcased.

## MARKETING & OUTREACH

Hawaii Energy's website, as with any website, is a continual work in progress to ensure that content remains relevant and that the user continues to have a seamless experience.



*Screenshot of the new Hawaii Energy website*

## MARKETING & OUTREACH

### Hawaii Energy Conservation Award

This year we presented our first-ever Hawaii Energy Conservation Award to Allen Evans of Oahu-based Refrigerant Recycling Inc. at a ceremony during the 20th Annual Hawaii Conservation Conference. The Hawaii Energy Conservation Award honors an individual or organization whose outstanding leadership and innovation in the area of energy conservation has made a positive impact on the well-being of the State of Hawaii. Mr. Evans played an integral part in helping Hawaii Energy develop our “Trade Up for Cool Cash” and refrigerator and freezer “Bounty” offers. His recycling service, the first of its kind, breaks refrigeration devices down to the bare components; including oil, scrap metals, refrigerant and other containments. The Program intends to continue presenting an annual Conservation Award.



*Program Director Ray Starling presenting Allen Evans with the Hawaii Energy Conservation Award*



*"In 2008 I looked into getting PV and it was too expensive. I then learned about home energy efficiency from HawaiiEnergy.com, and started applying what I found."*

- Wes Wada, Energy Success Story contest winner

### 2nd Annual Energy Success Story Contest

From October 8th through the 31st, the Program held its second annual Energy Success Story Contest for electric ratepayers of Hawaii, Honolulu and Maui counties. The contest asked Hawaii's homeowners and renters to send in their inspiring and motivating stories and photos showcasing their outcomes and successes in conserving and using electricity more effectively. We received over 65 entries from Oahu, Hawaii Island and Maui. Wes Wada of Honolulu was selected as the grand prize winner and nine other finalists were also selected for their winning submissions. As the grand prize winner, Mr. Wada received a home energy monitoring system including installation. Each of the finalists received a gift bag consisting of energy efficiency tools such as advanced power strips and conserve power switches. The winning stories were posted on our website and highlighted in a press release with hopes that their stories would help fellow residents learn how they can reduce their electric bills.

## MARKETING & OUTREACH



**SWITCH  
TO SOLAR  
WATER  
HEATING  
AND  
SAVE UP  
TO \$600  
PER YEAR.**

**THAT'S  
ENOUGH  
TO BUY  
200 PAIRS  
OF SLIPPERS.**

VISIT  
[HAWAIIENERGY.COM/  
SOLARWATER](http://HAWAIIENERGY.COM/SOLARWATER)



**Hawaii Energy**  
YOUR CONSERVATION & EFFICIENCY PROGRAM

### Solar Water Heating Marketing and Advertising Campaign

In PY12, the Program experienced a slight decrease in solar water heating installations due to the following factors: (1) depressed market conditions and (2) the rise in popularity of photovoltaics (PV) and companies marketing their installation. Along with the increase of PV companies into the local market came an upsurge in advertising. Due to these factors, it was important for the Program to develop a fully integrated advertising and marketing campaign to highlight the benefits of solar water heating and the increased, limited-time rebate from \$750 to \$1,000.

Marketing objectives were the following:

- **Awareness:** To increase awareness of solar water heating, the Hawaii Energy brand and our mission.
- **Education:** To educate electric ratepayers on the benefits of solar water heating, the Hawaii Energy rebate and the savings you could get by adopting this efficiency measure.
- **Conversion:** To encourage electric ratepayers to act by driving them online to learn more about solar water heating, the compelling reasons to have one installed and the simple steps to take to qualify for a rebate, including finding an approved solar water heating contractor with Hawaii Energy's handy list online.

With a strategy to promote solar water heating while continuing to build the Hawaii Energy brand, Wall-to-Wall Studios developed a creative concept that easily translated into print, television, radio and online advertising. The creative concept focused on highlighting the monetary savings – an estimate of \$600 – you could get if you had installed a solar water heating system in your home. The spots were developed in an exaggerated way focusing on a unique character and the extreme, unrealistic items they bought with their savings (e.g., 200 pair of slippers or 100 bags of rice). The concepts were meant to be humorous but factual.

In order to effectively deliver the message from the creative concepts, the following deliverables were created and distributed across various media channels from March 2013 through June 2013:

- Two (2) 30-second television spots
- One (1) 30-second radio spot
- Two (2) print advertisements
- Two (2) online banner ads

## MARKETING & OUTREACH

For this year's campaign, we continued to reach electric ratepayers through traditional media outlets including television, radio and print. In addition, this year, the Program decided to include online and social media advertising into our media buy and to focus more on advertising on the neighbor islands through their local radio stations and print publications. The portfolio of media purchased for this campaign yielded 31,390,949 estimated reach, which helped to convey our message and increase Hawaii Energy's brand among ratepayers. Reach is defined as the estimated number of readers or viewers reached in a given medium.



*Stills from Hawaii Energy's two 30-second television commercial spots, created by Wall-to-Wall studios, to promote our limited time solar water heating installation rebates.*

### Earned Media

In addition to paid media described above, the campaign successfully garnered considerable media coverage across all channels. For a full list of media coverage, please refer to Attachment G.

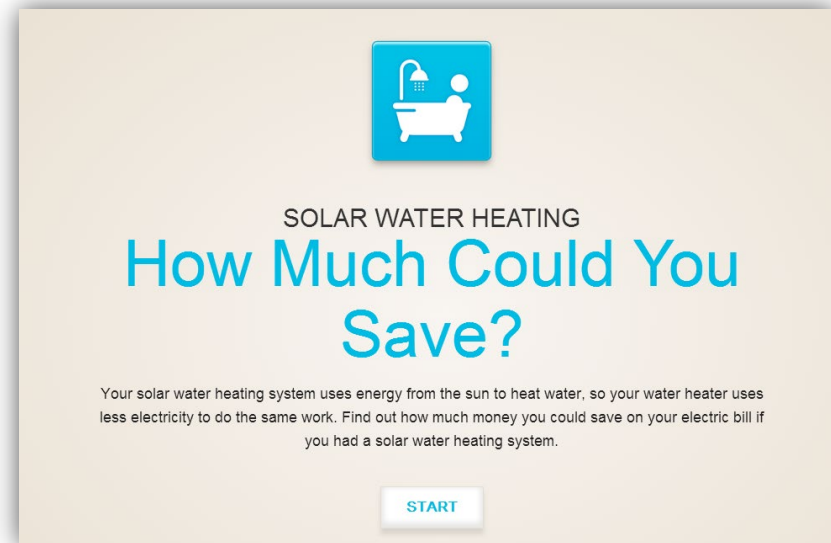
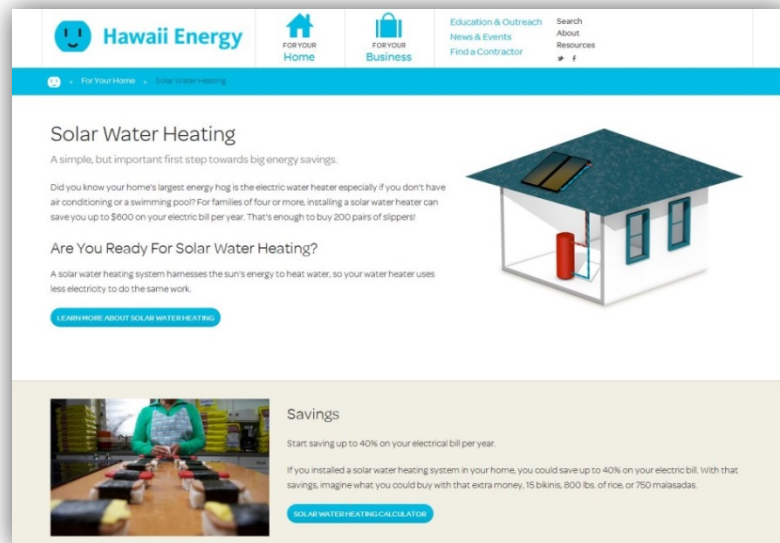
### Website

At the time of the launch of the solar water heating campaign (i.e., March 2013), the Program's redesign of the website was in progress. Since interactive content to help the public understand the benefits of solar water heating and how to take action was important to the campaign, we launched a microsite that mirrored the look and feel of the then to-be-launched redesigned website. This allowed for seamless incorporation of the microsite content into the redesigned site, which was launched in late June.

## MARKETING & OUTREACH

The solar water heating microsite focused on four areas:

- “Resources and Information” was a page where the public could find more information on solar water heating including videos on “how to maintain your solar water heater” and “how to set your timer.”
- “The Cost of a Solar Water Heater” page provided a way to help compare the two different Hawaii Energy offerings available for solar watering heating, so the public could best determine the offering that best fit their needs (i.e., \$1,000 instant rebate vs. \$1,000 solar water interest buy-down).
- “Solar Water Heater Calculator” allowed the public, in an interactive way, to find how much money they could save on their electric bill if they installed solar water heating. By selecting the island you live on and the number of people in the household, an automated calculation showed users the kWh and cost savings on their electric bill if they installed a solar water heater at home.
- “Find a Participating Contractor” page was updated so that users could search by county. In addition, “Tips to Choosing a Contractor” section was added to provide guidelines to search for contractors.



Screen shots from Hawaii Energy's solar water heating microsite, now active on the hawaiienergy.com website. Through the microsite, users are able to easily calculate the potential savings they could receive by installing a solar water heater.

## MARKETING & OUTREACH

### Social Media

To complement the rest of the solar water heating campaign, a promotional contest and application was developed for Facebook. To enter the contest, we asked Facebook users to submit what they would do or how they would spend the \$600 saved if they installed a solar water heating system in their home. One winner was chosen each week and received an energy saving gift pack consisting of various energy efficiency tools like conserve power switches and energy monitors to measure plug loads. The contest launched in mid-June with a run of ten weeks, which will end August 24. Just in the two weeks of June alone, there was active ratepayer participation and interest in the contest with approximately 60 entries received.

### Results

The PY12 goal for solar water heating was to have 3,750 systems installed through our instant \$1,000 rebate and 250 systems installed through our interest buy-down or “Hot Water, Cool Rates” rebate. At the inception of the solar water heating marketing and advertising campaign that began in March, the Program had only reached 45% of its installation goal for the instant rebate and only 30% of its goal for the interest-buy down rebate.

From the time the campaign launched, the Program saw a 25.2% increase in solar water heating authorizations compared to non-campaign time. A solar water heating authorization is defined as when an application is approved and a work order is issued for a participating contractor to move forward with installation.

Some additional notables include:

- Comparing PY12 March – June with PY11 March – June, there was an 8.24% increase in solar water heating authorizations.
- During the first full week in March when the campaign launched, there was a 36% increase in solar water heating authorizations compared to the same time in PY11.



*The Hawaii Energy Facebook page featuring promotion for the Solar Water Heating contest*

## MARKETING & OUTREACH

### Public Relations

Public relations is the management of relationships between an organization and its various stakeholders through strategic communications. Hawaii Energy's public relations focus is media relations, which is the fostering of good working relationships with print, broadcast and online media to communicate newsworthy messages, stories and information to the public. Positive media coverage about the Program (e.g., print or online articles, television or radio mentions) is the tangible result of media relations.

Throughout the program year, Hawaii Energy continued to strategically identify and leverage media opportunities to garner positive coverage to increase ratepayer awareness of and participation in Hawaii Energy as a program as a whole, as well as specific residential and business offerings. Public relations was – and will continue to be – a critical component of the Program's integrated marketing strategy to maximize the credibility and reach of the Program's messages as communicated through other marketing channels such as website, social media, advertising, email communications and community outreach.

### Metrics

Through collaboration with public relations subcontractor MVNP, Hawaii Energy generated substantial media coverage on local radio and television stations, as well as in newspapers, magazines and websites:

- The estimated cumulative reach of the media coverage generated is 9,632,406.
- The total publicity value of the media coverage is estimated at \$244,635. 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.

### Media Coverage Highlights

Key media coverage is highlighted in this section. For a better understanding of the wide range of coverage achieved this year, see the media coverage report in Attachment G.

## MARKETING & OUTREACH

### PY12 - First Quarter

On July 26, 2012, Hawaii Energy orchestrated a major press conference with The Westin Ka'anapali Ocean Resort Villas ("Westin KORV") and presented an incentive check for \$215,657, the largest check to date to a Maui business from Hawaii Energy. The conference was held in recognition of extensive energy efficiency retrofits that Westin KORV recently completed including the replacement of over 9,500 incandescent lamps with energy-efficient, ENERGY STAR® qualified LEDs, which reduces electricity use related to lighting by over 80 percent, as well as a control system that monitors the carbon monoxide levels in the garage, operating the ventilation exhaust fans only when needed thus reducing fan operating times and energy consumption related to garage ventilation by over 90 percent.

These retrofits will save an estimated 1,914,958 kWh of energy annually, a third of the electricity the property purchases from the utility each year - equal to \$608,956 in savings per year. Featured speakers were Maui County Mayor Alan Arakawa, Westin KORV General Manager Angela Nolan and Hawaii Energy Program Director Ray Starling. By-invitation attendees included involved vendors, Maui legislators, county councilmembers, as well as tourism and hospitality industry leaders. The conference generated significant media coverage including KITV-4 and KHON-2 evening news, as well as Maui News.

On August 1, 2012, Hawaii Energy presented its first-ever Hawaii Energy Conservation Award to Allen Evans of Oahu-based Refrigerant Recycling, Inc. during the 20th Annual Hawaii Conservation Conference. The Hawaii Energy Conservation Award honors an individual or organization whose outstanding leadership and innovation in the area of energy conservation has made a positive impact on the well-being of the State of Hawaii.

Mr. Evans helped Hawaii Energy create and fine-tune recycling channels for the "Trade-up for Cool Cash" offer. Following on the success of the "Trade-up" offer, Hawaii Energy developed and launched the residential "Bounty" offer in mid-2011. Since spring of 2010, Mr. Evans' company Refrigerant Recycling, Inc., on behalf of Hawaii Energy's "Trade-up" and "Bounty" offers, has recycled approximately 9,500 refrigerators and freezers. This has netted 300 tons of metals, 8,300 pounds of refrigerant and 9,500 quarts of oil. It is estimated that over 7,828,000 kilowatt hours (kWh) of electricity and approximately \$2,504,960 in electricity costs have been saved as a result of both offers (based on a blended savings of 824 kWh per recycled unit and electricity at 32 cents per kWh). Media coverage received included Hawaii Public Radio, Hawaii News Now morning news and MidWeek.



*The Westin Ka'anapali Ocean Resort Villas received \$215,657 for extensive energy efficiency retrofits – the largest commercial incentive Hawaii Energy has awarded to date to a business on Maui.*

## MARKETING & OUTREACH



*Hawaii Energy's Derrick Sonoda on Hawaii News Now promoting the 2<sup>nd</sup> Annual Energy Success Story Contest*

In September 2012, Hawaii Energy worked with Forest City Military Communities to promote the first two months of savings of Hawaii's Energy Smart Initiative, which was launched on May 29, 2012. In just the first two months, the Initiative had already played a significant role in helping Forest City's Navy and Marine housing to reduce overall electricity use by 674,956 kWh, as compared to the same two-month period last year (June and July). Forest City reduced its electricity use, on average, by 58 kWh per occupied housing unit each month in June and July. This reduction is equal to approximately \$147,125 in savings. Media including Honolulu Star-Advertiser and HawaiiReporter.com covered the story.

### PY12 – Second Quarter

In October, the Program launched Hawaii Energy's second annual Energy Success Story Contest. Marketing communications included an electronic news blast and press release, as well as updated web content. The Program received a variety of coverage including a morning news interview on Hawaii News Now, which aired photos of winners from last year's contest.

Throughout the year, but particularly during the second quarter of PY12, Hawaii Energy focused on identifying and leveraging public relations opportunities. This included developing bylined articles and working with various community and trade publications on features. The Program's efforts were successful and resulted in substantial coverage reaching across various ratepayer segments including:

- *Newsletter from Senator Michelle Kidani (D), Senate District 17, Mililani Mauka, Mililani Town, Waipio Acres and Waipio Gentry, September issue (newsletter for constituents):* Cover page feature "Hawaii Energy Recognizes Mililani's Allen Evans" and "Did You Know . . . that if you purchase a new ENERGY STAR® rated refrigerator . . ."
- *Wiliki o Hawaii (Engineer of Hawaii) newsletter, October 2012 issue:* Cover page story bylined by Hawaii Energy entitled "October is Energy Awareness Month: Hawaii Energy's Incentives Can Help Your Company or Client Battle Rising Electricity Costs" (cover photo at right)
- *Building Management Hawaii, October & November 2012 issue:* "Air It Out: Don't Let Exhaust Fans Blow Your Money" by lined by Deputy Program Director Michael Chang



# MARKETING & OUTREACH

- *Hawaiian Properties newsletter, December 2012 issue (for property managers of Hawaiian Properties):* Cover page feature “Christmas Comes Early to Country Club Village 6” and interior full-page feature “Battle Your Property’s Rising Electricity Costs with Hawaii Energy Incentives”
- *Building Management Hawaii, December 2012 - January 2013 issue:* “Does Your Building Have ‘Heavy Users’? – High Utility Costs, New Technology and a New State Act Make Submetering a Real Possibility for Many Buildings”
- *Maui Family, Winter 2012 issue:* “Holiday Tips to Save You Money & Electricity – From Hawaii Energy, a ratepayer-funded conservation and efficiency program”
- *Hawaii Business, January 2013 issue:* “Military Drives Alternative Energy in Hawaii” (highlighting results of Hawaii Energy Smart Initiative with Forest City Military Communities)
- *Building Management Hawaii, February - March 2013 issue:* “Top 3 Energy Incentives – Minimize Your Operating Budget Variances with Energy Efficiency Measures” bylined by Deputy Program Director Michael Chang
- *Pacific Business News, March 1, 2013:* “State Stays On Course to Meet 2030 Energy Goals” (highlighting Hawaii Energy and Program Director Ray Starling)

## PY12 – Third Quarter

Since January 2013 and continuing through December 2013, Hawaii Energy is featured in a weekly drive-time radio spot broadcasting live on KGU 760AM radio from 4 to 5 p.m. on Wednesdays called “Negawatt<sub>2</sub> Moment with Hawaii Energy”.

<sup>2</sup> A Negawatt is a theoretical unit of power representing an amount of energy (measured in watts) saved. The energy saved is a direct result of energy conservation or increased energy efficiency.

PY12 media clippings  
from (clockwise  
from top): Hawaiian  
Properties newsletter,  
Pacific Business  
News, Maui Family  
magazine and Building  
Management Hawaii



## MARKETING & OUTREACH



*Program Specialist Lisa Harmon presenting the weekly “Negawatt Moment” on the “Hawaii: The State of Clean Energy” radio show, produced by ThinkTech Hawaii.*



*Hawaii Energy’s Larry Newman on Hawaii News Now’s Sunrise morning show promoting Bounty for Earth Day*

This opportunity is a part of Hawaii Energy’s sponsorship of the “Hawaii: The State of Clean Energy” show produced and hosted by Jay Fidell of ThinkTech Hawaii. Since its inception, various Hawaii Energy team members have participated as guests of the “Negawatt Moment” to highlight Hawaii Energy rebate and incentive offerings as well as conservation tips. In addition to being live on KGU, the show is streamed live on Ustream.com.

In March, public relations was a key component of Hawaii Energy’s integrated marketing campaign to promote residential solar water heating and limited-time \$1,000 instant rebate. Hawaii Energy issued a press release and pitched various media to maximize reach. The launch garnered significant and widespread media coverage, including features in Honolulu Star-Advertiser, Maui News and Pacific Business News.

### PY12 – Fourth Quarter

In April 2013, Hawaii Energy pitched a news release reminding ratepayers to take advantage of the Program’s “Bounty” rebate to leverage Earth Day, April 22. For “Bounty”, Hawaii Energy

picks up and recycles old, working refrigerators and freezers for free and provides a rebate. Significant media coverage was garnered including Honolulu Star-Advertiser, KHON-2 morning and evening news, Hawaii News Now morning news, Lahaina News, Maui Weekly and BigIslandNow.com.

On May 29, 2013, the Program orchestrated a presentation of a \$73,678 incentive check to One Kalakaua Senior Living in recognition of extensive energy efficiency measures recently completed including: (1) the installation of a new chiller with variable frequency drives to replace two inefficient chillers, (2) an automated energy management system that monitors and controls the various components associated with this upgrade and (3) an energy-efficient heat pump for hot water.

All together, the project will save One Kalakaua an estimated 448,517 kWh annually and reduce their demand by 51.2 kW, which equates to \$119,206 in savings per year based on \$0.263 per kWh and \$24.34 per kW demand. Public relations work included development and

## MARKETING & OUTREACH



*Hawaii Energy presents the residents and staff of One Kalakaua Senior Living Center with an incentive check for \$73,678.*

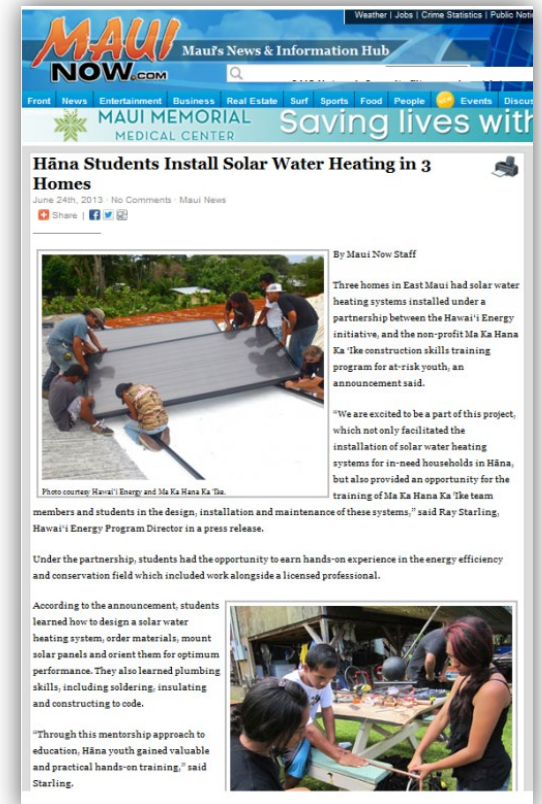
energy efficiency prize pack. To promote the contest, the Program distributed and pitched a news release, which received significant media including HawaiiReporter.com, Pacific Business News, Hawaii News Now morning news and West Hawaii Today.

Additionally, in June, the Hawaii Energy pitched a story highlighting the Program's collaboration with Ma Ka Hana Ka 'Ike, a non-profit construction-skills training program for at-risk youth in Hana, to bring solar water heating systems to three households in the area. Students had the opportunity to work hands-on in the design, installation and maintenance of systems with a licensed professional. The collaboration received media coverage including Maui News, MauiNow.com and HawaiiReporter.com, as well as Maui's Pacific Media Group (92.5FM, 93.5FM, 98.3FM, 99.9FM, AM900 and AM550) news mentions.

*A partnership with Ma Ka Hana Ka 'Ike, a non-profit construction skills training program for at-risk youth, allowed Hawaii Energy to bring solar water heating systems to three households in Hana's rural community.*

distribution of a media advisory and news release. Coverage included a Hawaii News Now morning news segment.

In mid-June, the Program promoted Hawaii Energy's first-ever Facebook contest promoting the limited-time \$1,000 residential solar water heating rebate. The goal of the 10-week contest is to expand the awareness of and participation in the Program and rebate through engagement of ratepayers who are active with social media. As part of the contest, Hawaii Energy asks ratepayers what they would do with the \$600 annual savings from installing solar water heating. One winner was selected each week (in PY13) to receive an



## MARKETING & OUTREACH

### Outreach

For PY12, Hawaii Energy's outreach efforts included: (1) partnering with local businesses and non-profit organizations to further conservation messaging efforts; (2) increasing presence and participation at local events and expos in order to broaden our audience reach and (3) continuing to present the Program to a variety of organizations and groups.

### Partnerships

#### Honolulu Board of Water Supply

Hawaii Energy partnered with the Honolulu Board of Water Supply's (BWS) to develop a unique contest theme, "Save Water, Save Energy" for their 2013 Water Conservation Week Poster and Poetry Contests. The theme challenged students to depict conservation behaviors that promote both water and energy efficiency. More than 1,300 posters and 200 poems were received in the 35th annual poster and 5th 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. Twenty-four (24) Oahu students from kindergarten to 12th grade were recognized and presented with awards at a ceremony at the City and County of Honolulu's Mission Memorial Auditorium.

#### Special Olympics Hawaii – "Change a Bulb, Change a Life"

The Program teamed up with Consolidated Electrical Distributors (CED) and GE Lighting Hawaii to help raise funds for the Special Olympics Summer Games, which were held from Friday, May 24 through Sunday, May 26 at the University of Hawaii at Manoa. As part of the collaboration, the Program provided Special Olympics Hawaii with energy-efficient CFLs. Attendees at the Summer Games were then encouraged to donate a \$1 or more to the non-profit organization to receive a free CFL. Volunteers from Hawaii Energy and CED helped to promote the CFL donation during the games. Special Olympics Hawaii was able to raise \$1,000 to support their athletes and programs.



*Hawaii Energy partnered with the Honolulu Board of Water Supply to support its 2013 Water Conservation Week Poster & Poetry Contest. On May 15th, many of our island's keiki were recognized at an awards ceremony for their winning posters and poetry.*

## MARKETING & OUTREACH

### Hawaii Conservation Conference

Through a sponsorship with the Hawaii Conservation Conference, Hawaii Energy coordinated three symposium panels featuring key community leaders: (1) “Growing Green Jobs in Hawaii”, (2) “Clean Energy as an Economic Development Strategy for Hawaii” and (3) “Energy Conservation through Efficiency Measures.” The annual conference was held from July 31st through August 2nd, 2012 at the Hawaii Convention Center and is the largest gathering of people actively involved in the protection and management of Hawaii’s natural environment. Its purpose is to facilitate information transfer and interaction between natural resource managers and the scientific community.

### Rebuild Hawaii

In conjunction with the Rebuild Hawaii Consortium, the Program presented Business and Residential program offerings to approximately 100 attendees and 200 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.



## MARKETING & OUTREACH

### Event Participation and Presentations

For PY12, the Program's goal for community outreach event participation was three-fold: (1) to reach a wide-array of electric ratepayers; (2) to continue involvement in past outreach events that were deemed successful and (3) to find and participate in new outreach events. Community outreach participation is defined as the Program having a booth or table at an expo, conference, tradeshow, fair or festival and distributing Program-related information and giveaways. Overall, the Program participated in 28 community outreach events in PY12, which reached about 73,122 people. Of these events, 64% of them were in Honolulu County, 21% in Hawaii County and 14% in Maui County.

Furthermore, we identified and participated in some community outreach events that we had never participated in before, such as YMCA Healthy Kids Day, Children & Youth Day, the Maui County Agricultural Festival and the Hawaii Community College Earth Fair. By having a presence at these events, the Program was able to reach different and larger audiences.

In addition to community outreach event participation, the Program conducted 30 presentations to a variety of organizations providing information on Hawaii Energy, residential rebates and business incentives. Of these presentations, 33% were in Hawaii County, 53% in Honolulu County and 13% in Maui County. Hawaii Energy was able to reach approximately 3,882 people through these efforts.

Number of Events and Presentations				
	Counties			Grand Total
	Hawaii	Honolulu	Maui	
Community Outreach Events	6	18	4	28
Presentations	10	16	4	30

Estimated Number of People Reached				
	Counties			Grand Total
	Hawaii	Honolulu	Maui	
Community Outreach Events	1,713	66,150	5,259	73,122
Presentations	333	3,420	129	3,882

# KEY REPORTING ASSUMPTIONS

## Technical Resource Manual (TRM)

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 these energy saving estimates in the Technical Resource Manual (TRM). The following describes how the TRM was developed and the key assumptions that were used in estimating the energy (kWh) savings and demand (kW) reduction impacts claimed by the Program. Changes are made from time to time at the recommendations of the Program Evaluator. Upon the end of each program year, a formal evaluation is conducted by the Program Evaluator whereby updates are implemented for the subsequent program year.

The TRM is intended to be a flexible and living document. New measures may be added as new program designs are implemented. These measures are often not yet characterized, so new information will be gathered through evaluations or research. Savings for current measures may change as the market evolves.

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.

## KEY REPORTING ASSUMPTIONS

### 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 PY12 TRM represents a total of 68 measures for both residential and commercial programs and is shown as Attachment F.

### 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 applied. Referenced data sources, in 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 6/20/13
- ENERGY STAR® Partner Resources
- 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.

## KEY REPORTING ASSUMPTIONS

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.



# KEY REPORTING ASSUMPTIONS

## Factors Determining Program Level Savings

### 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 78**.

Table 78 System Loss Factors		
County System to Customer Energy Loss Factors		
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 actions by separating out the impacts that are a result of other influences, such as consumer self-motivation or free-riders. Free-riders are ratepayers 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 79** 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 79 Net-to-Gross Factor - PY12					
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		0.728		148,625,614	204,241,084
Program		Net-to-Gross Ratio		Savings	
		Energy	Demand	Net Energy Savings 2012	Gross Energy Savings 2012
Hawaii Energy	All	0.730	0.730	113,198,801	155,066,850

## KEY REPORTING ASSUMPTIONS

### New Program Net-to-Gross Values

The Third-Party Evaluator recommendations for Net-to-Gross values were adopted for the development of the PY13 Annual Plan and were based on verified PY11 results. These values recognize the differences in Program-driven savings between the various categories of measures. The evaluation can be found at [www.hawaiienergy.com/information-reports](http://www.hawaiienergy.com/information-reports). The values to be used in PY13 are provided in **Table 8o**:

Table 8o Net-To-Gross Recommendation for PY13				
Program	Measures	PY11 percent of portfolio savings	Recommended NTG Rate for PY13	NTG Adjusted Percent Savings
BEEM	Business Energy Efficiency Measures	27%	0.75	20%
CBEEM	Custom Business Energy Efficiency Measures	17%	0.75	13%
BESM	Business Services and Maintenance	2%	0.95	2%
BHTR	Business Hard-to-reach	1%	0.99	1%
REEM	Residential Energy Efficiency Measures	51%	0.79	40%
CESH	Custom Energy Solutions for the Home	0%	0.65	0%
RESM	Residential Services and Maintenance	0%	0.92	0%
RHTR	Residential Hard-to-reach	2%	1.00	2%
	Composite NTG Rate			77.6%
* Evergreen Economics - Third-Party Evaluation NTG Recommendation Memo January 2013: Net-to-Gross Issues in Hawaii Energy Efficiency Programs: Challenges, Near-term Options, and a Longer-term Approach				

# KEY REPORTING ASSUMPTIONS

## 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 81**. 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 81 HECO IRP4 Avoided Costs		
Year	\$/MWh	\$/kW
2006	\$ 109.62	\$ 180.20
2007	\$ 107.16	\$ 181.14
2008	\$ 102.19	\$ 181.14
2009	\$ 106.89	\$ 181.14
2010	\$ 98.90	\$ -
2011	\$ 100.41	\$ -
2012	\$ 401.04	\$ -
2013	\$ 103.69	\$ -
2014	\$ 108.86	\$ -
2015	\$ (139.65)	\$ 1,530.33
2016	\$ (132.67)	\$ 1,704.00
2017	\$ (118.95)	\$ 1,537.80
2018	\$ (115.35)	\$ 1,412.69
2019	\$ (109.01)	\$ 1,304.38
2020	\$ (104.57)	\$ 1,207.27
2021	\$ (100.02)	\$ 1,149.38
2022	\$ (109.30)	\$ 1,112.04
2023	\$ (111.41)	\$ 1,076.56
2024	\$ 137.30	\$ (411.76)
2025	\$ 114.46	\$ (744.16)

# KEY REPORTING ASSUMPTIONS

## Proxy Avoided Cost Developed

The avoided cost that is used for PY12 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 82** 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.



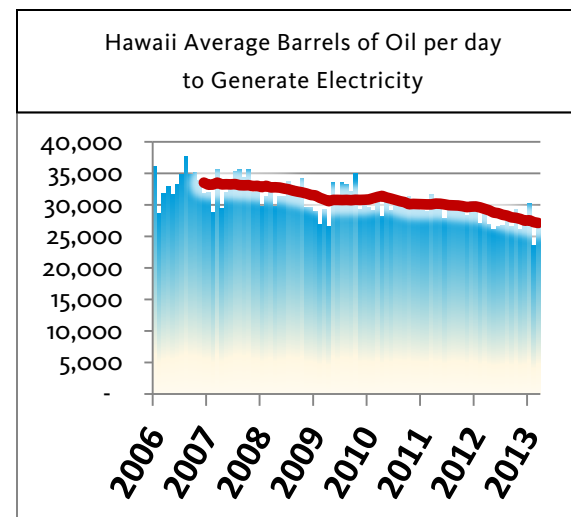
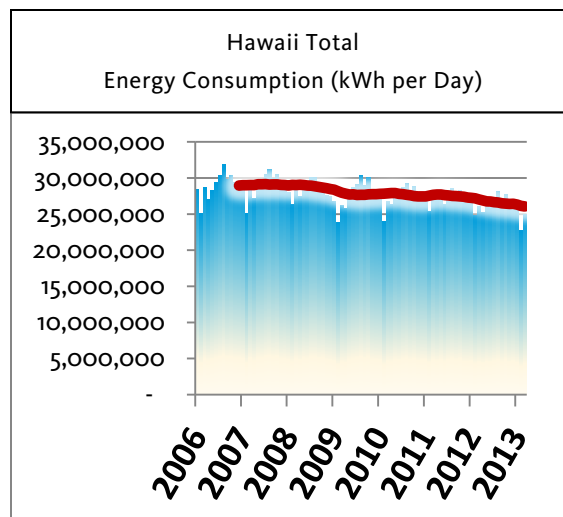
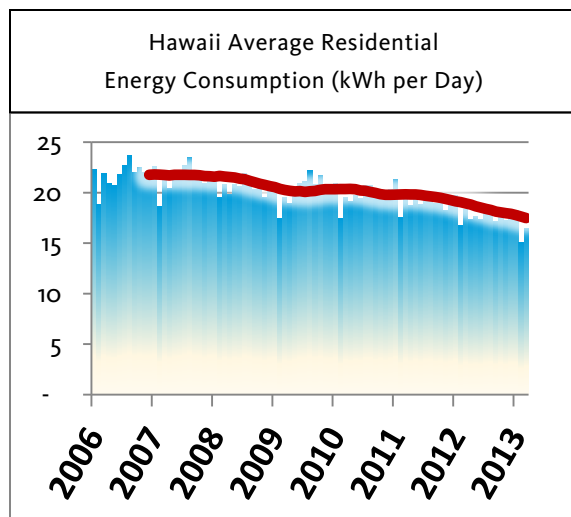
Table 82 Program PY2012 Utility Avoided Cost				
		Discount Rate		
		6%	Utility Avoided Cost	
Year	Measure Life	NPV Multiplier	\$/kW/yr.	\$/kWh/yr.
2012	1	1.00	\$ 339	\$ 0.104
2013	2	0.94	\$ 353	\$ 0.104
2014	3	0.89	\$ 371	\$ 0.109
2015	4	0.84	\$ 383	\$ 0.112
2016	5	0.79	\$ 386	\$ 0.113
2017	6	0.75	\$ 388	\$ 0.114
2018	7	0.70	\$ 389	\$ 0.114
2019	8	0.67	\$ 392	\$ 0.115
2020	9	0.63	\$ 391	\$ 0.115
2021	10	0.59	\$ 395	\$ 0.116
2022	11	0.56	\$ 398	\$ 0.117
2023	12	0.53	\$ 397	\$ 0.117
2024	13	0.50	\$ 401	\$ 0.118
2025	14	0.47	\$ 406	\$ 0.119
2026	15	0.44	\$ 409	\$ 0.120
2027	16	0.42	\$ 416	\$ 0.122
2028	17	0.39	\$ 423	\$ 0.124
2029	18	0.37	\$ 429	\$ 0.126
2030	19	0.35	\$ 436	\$ 0.128
2031	20	0.33	\$ 436	\$ 0.128

## CONCLUSION

In closing this PY12 Annual Report, the Hawaii Energy team would like to thank the PUC and the people of Hawaii for the opportunity and privilege to serve as your Public Benefits Fee Administrator. We particularly appreciate the confidence placed in us by extending our contract for two more years and allowing us to play a key role in the administration of the PUC's exciting new On-Bill Financing program. We intend to exceed your expectations in every way.

We also want to thank the PUC staff, our Contract Manager, subcontractors, allies, friends and constituents for all the support you have provided to help us develop the Program to this point of evolution, positioned to make great advances in clean energy for Hawaii consumers over the next few years.

As we begin our new program year, the Hawaii Energy team pledges to continue our best efforts to accelerate Hawaii's progress towards a 100% clean energy economy.



MAHALO,  
THE HAWAII ENERGY TEAM

## DESCRIPTION OF ATTACHMENTS

**Attachment A: Acronym List**

A list of the commonly used Hawaii Energy acronyms

**Attachment B: PY2012 Program Participation List**

A report of Program impacts by program and measure, including gross and net, annualized and lifecycle savings.

**Attachment C: Contractor Budget (Attachment F from contract)**

The detailed contractor budget as defined in the HEEP contract between the Hawaii Public Utilities Commission and SAIC as well as the budget progression of changes approved by the PUC.

**Attachment D: 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. The attachment includes an overview, description of performance indicators and documentation and verification details.

**Attachment E: PY2012 Annual Plan**

The Program's annual plan, which provides SAIC's strategies and plans for administration and delivery of the Hawaii Energy portfolio for PY12 (July 1, 2012 to June 30, 2013). Through this plan, Hawaii Energy set forth overall strategies to increase program participation, maximize energy savings, and encourage the development of energy efficiency materials.

**Attachment F: PY2012 Technical Reference Manual**

The Program's 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 G: PY2012 Media Coverage Report**

The media coverage report contains highlights of print and online media coverage, which ranged from general population publications to localized media.