Hawaii Energy

Conservation and Efficiency Programs

Annual Plan Program Year 2010

Submitted to: **Hawaii Public Utilities Commission**

Submitted by:

RW BECK (an SAIC company)
1132 Bishop St., Suite 1800
Honolulu, HI 96813

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1.0 INTRODUCTION

This Annual Plan provides strategies and a roadmap for administration and delivery of the Hawaii Energy *Conservation and Efficiency Program*s (HECEP) portfolio for Program Year (PY) 2010 (July 1, 2010 to June 30, 2011). This Plan is for the second year of the Hawaii Energy programs and will therefore build upon the successes and lessons learned during the first year. With this new Plan, we will continue evolution of our overall strategies to increase program participation, maximize cost-effective energy savings, reduce dependence on imported fossil fuel and encourage expansion of energy efficiency, conservation and renewable energy measures throughout the islands. This year, we will introduce a focus on individual behavior change, personal energy awareness and group cultural change regarding energy use and sustainability in Hawaii.

To better understand the strategies we will employ for PY2010, it is useful to briefly review last year's key activities, successes and lessons learned.

1.1 PY2009 Key Activities Summary

The new Hawaii Energy Efficiency Program, operated by Science Applications International Corporation (SAIC), successfully took over the demand side management (DSM) program from the Hawaiian Electric Companies (HECO) as of July 1, 2009.

The transition was relatively smooth, with most rebates and procedures previously offered by HECO continued for the first year under the new SAIC management, so as to prevent customer concerns about rebate interruptions.

An initial staff of nine (9) was hired by SAIC to administer the new Program, which included several key people from the former HECO DSM program. In addition, SAIC subcontracted with Honeywell, Wall-to-Wall and the Bennet Group to provide respectively, residential rebate processing, marketing design and public relations.

After six (6) months of operation from the SAIC offices at the Airport Center, we moved to our permanent downtown location at1132 Bishop St., Suite 1800 in January 2010.

Also in January 2010, SAIC transferred all of its energy efficiency programs to R.W. Beck, a wholly owned SAIC subsidiary. This was done primarily to streamline SAIC's non-federal operations. A contract novation was completed with the Hawaii Public Utilities Commission (PUC) and R.W. Beck became the new contractor.

During PY2009, working with our marketing design subcontractor, we rolled out **"Hawaii Energy *Conservation and Efficiency Programs*"** (HECEP or "Hawaii Energy") as a new program name and brand, complete with a memorable logo.

Additionally, a substantial outreach and ally development effort was initiated to improve our education and marketing of energy efficiency and conservation efforts to our customers. Besides vendor allies who directly marketed our incentive programs, a number of influential outreach partner relationships were established, including:

> American Society of Heating, Refrigerating, Air Conditioning Engineers (ASHRAE), Building Owners and Managers Association Hawaii (BOMA Hawaii), University of Hawaii, Blue Planet Foundation, Native Hawaiian Council, KANU Hawaii, State and County Energy Offices, Hawaiian Electric Companies (HECO, MECO, HELCO), Kauai Island Utility Cooperative (KIUC), Office of Community Services (OCS), Maui Economic Opportunity (MEO), Department of Energy (DOE), Department of Business Economic Development and Tourism (DBEDT), Department of Defense (DOD), Hawaii Building Engineers Association (HBEA), Board of Water Supply (BWS) and Department of Hawaiian Homelands (DHHL).

These outreach partners assisted our Program with shared advertising, marketing, sponsorships, education, strategies, networking, reciprocal website-pointers, residential low income customer contacts, direct install efforts and compact fluorescent lamp (CFL) distributions.

Additionally, Hawaii Energy collaborated with our Contract Manager (Jim Flanagan Associates), our Program Evaluator (ECO Northwest) and our Technical Advisory Group (TAG), including the PUC and its staff to form an active, integrated team approach to improving our Program goals, standards, processes, operations and services. The Program also took a leadership role in development and implementation of the Hawaii Clean Energy Initiative (HCEI), serving on the HCEI Steering Committee and the End Use Efficiency Working Group (EUEWG).

Further, the Program is a standing member of the Hawaii Energy Policy Forum (HEPF), a UH-sponsored think-tank on state energy policy issues and the Consortium for Energy Efficiency (CEE), an international trade group for Programs such as Hawaii Energy.

At the PUC's direction, Hawaii Energy, in its role as the Public Benefits Fee Administrator (PBFA) joined as a participant/party in two pending dockets before the PUC, the Energy Efficiency Portfolio Standard (EEPS) docket and the Integrated Resource Planning Framework (IRP/CESP) docket. These dockets, and possibly others, need input from and collaboration with the PBFA in order to ensure that energy conservation and efficiency interests are adequately represented and reach maximum potential as part of the overall state energy strategy.

As we approach the beginning of our second operational year, the Program is hiring additional staff to accommodate its expanding programs, responsibilities and workload.

1.2 PY2009 Key Successes and Lessons Learned

During its first operational year, the Program experienced a number of successes and lessons learned that have enabled us to plan for future program expansion and improvement from a firm foundation. Some of the key successes and lessons learned from PY2009 are as follows:

- Energy Programs Management Information System (EPMIS) – HECEP and its SAIC software design colleagues developed, tested and commissioned an energy program management and information system that is unique in the industry. EPMIS has been critical to Hawaii Energy's process streamlining, quality control and access to real-time customer and program data. It also automates the process of rebate tracking, processing and accounting, giving Program specialists, managers and Program Evaluators a robust platform from which to operate our Program, manage data and derive useful trends and other information.

- Technical Reference Manual (TRM) – HECEP further developed a comprehensive technical reference manual for the Program that provides methods, formulas and default assumptions for estimating "deemed energy savings" and peak impacts from measures and projects that receive incentives from the HECEP. The TRM will be continuously updated as new information, data and efficiency measures are developed.

- Photovoltaic (PV) Incentive Program – Pursuant to a Legislative initiative and at the PUC's direction, HECEP developed a small PV Incentive Program for consideration by the PUC. We are prepared to move forward to implement the program when direction and funding are determined.

- Residential Low Income (RLI) and Hard to Reach Customers – To satisfy the PUC's high interest in reaching underserved markets, the Program utilized community-based outreach and marketing allies to deliver direct install measures such as smart strips, CFLs and low flow water showerheads to RLI and hard to reach customers. This strategy resulted in greater RLI and hard to reach penetration than that of all previous years of the predecessor program. In addition, it generated strong supportive feedback from our RLI outreach allies and customers.

- Educating Participating Customers – HECEP has designed an expansion of its Solar Water Heater (SWH) inspection program to incorporate a short energy conservation and efficiency education component during each homeowner's new SWH inspection by Program inspectors. Besides a brief overview of the care, maintenance and proper operation of the new SWH heater, the inspector briefs the customer on general energy savings tips and distributes CFLs and low flow water faucets. Full implementation is planned for early PY2010.

- Reduction of SWH Incentives – During PY2009 we had to eliminate SWH incentives for residential new construction and lower incentives from $1,000 to $750 for existing home SWH heaters. This was done to accommodate statutory changes affecting new residential construction and to maintain the budget integrity of the SWH program. During this difficult process, we were in close consultation with our SWH vendor and trade group allies which resulted in an understanding acceptance of these unpopular actions.

- Submetering Trial – HECEP has recently introduced a pilot program to offer rebates to centrally metered condominiums to install submeters on each unit. Preliminary results from submetering efforts are promising and suggest that we should continue to offer and track the results of this program into next year.

- Point of Purchase CFL Rebate Program – With our last quarter CFL push, we have used our exceptional retail, wholesale and distributor ally relations to establish in-store processes that allow Point of Purchase (POP) rebates for qualifying CFL purchases at participating outlets. The POP rebate appears to significantly increase participation and will likely be continued into PY2010 for CFLs and possibly expand to include other Energy Star purchases.

- Energy Star Appliances Expanded to Neighbor Islands – Beginning in March 2010, HECEP initiated a soft start to delivery of the ESH program on the neighbor islands. Since March, the neighbor islands have begun to take advantage of the same incentive benefits that have been available to Oahu for years. The expanded program will continue into PY2010.

- Data Mining of Existing Data – Since HECEP began receiving customer usage data from the HECO companies, we have been able to combine this data with other-sourced information to extrapolate valuable trends and conclusions about energy use, conservation and efficiency. We will further explore the applications of the data in PY2010.

- Complementary Administration of ARRA Stimulus Programs – At the request of the State Energy Office and the PUC, HECEP negotiated and signed supplemental contracts with the PUC to administer an additional $7M in stimulus funds from the American Recovery and Reinvestment Act (ARRA) which the State Energy Office designated for specific energy efficiency programs. Considerable workforce time and effort were spent modifying our programs to accommodate the integration of new ARRA programs with our existing programs. The initial results of the first executed program, Trade-Up for Cool Cash (clunker refrigerator turn-in and Energy Star purchase), were spectacular and far exceeded expectations. The ARRA-funded programs will continue in PY2010 with their own dedicated resources as well as some matrixed resources to leverage program experience.

- Marketing With Social Media, Twitter and Facebook – Recognizing the emerging value of using new social media tools as a component of our marketing and outreach effort, HECEP recently hired a communications specialist to establish the Program on Twitter, Facebook and other social media. In the first month, the Program has an on-line following which we expect will significantly increase in the coming Program Year.

- Hawaii's Critical Energy Needs Suggest Additional Program Success Metrics– HECEP's first Program Year experience suggests that the use of "deemed savings" alone to determine success may be insufficient to meet the bigger critical energy consumption reduction needs of the Hawaii Clean Energy Initiative.

  Because of Hawaii's severe energy situation, there is a clear need to know with some certainty what real progress is being made in reaching the state's energy savings goals on a macro basis. This issue needs to be explored further to determine what is required and how best to meet the requirements.

  As an initial step towards acquiring more actual measured data, PY2010 will introduce programs such as the Central Plant Performance Competition that will include pre, post and on-going metering.

- CFL Contribution to Savings – Due to relative costs of available savings measures and the deemed energy savings allowed for various efficiency measures by the TRM, CFLs have become a major component of energy savings available to the Program. This reality suggests that it will be extremely difficult to meet future Program incentive goals at current levels without continuing use of CFLs and/or significantly higher rebate and operating budgets. Further exploration of this issue is needed going forward.

- Performance Incentive Goals for PY2009 – Currently, HECEP is on track to meet most minimum and some target contract performance goals for PY2009. However, the final result will be dependent on the heightened marketing efforts we have undertaken during the last quarter that will not be completed until 30 Jun 2010. The final results will not be tallied for several weeks thereafter.

2.0 PROGRAM STRATEGIES for PY2010

Within the context of our contract requirements and based on lessons learned and experiences of our first Program Year, HECEP has established the following Program strategies, initiatives and offerings for PY2010:

2.1 General Strategy Refinements and Initiatives

Contract Primacy, Flexibility,Trust and Transparency – The contract between SAIC (now R.W.Beck) and the PUC governs this Program and determines its primary direction and goals. Complementing the contract terms, a strong team working relationship has developed between the PBFA, Contract Manager and the PUC, backed by flexibility, trust and transparency and focused on achieving what is best for Hawaii's energy future. It is HECEP's strategic intent to continue adherence to these core principles in PY2010 and to continue building the team relationship while contributing in substantial ways to Hawaii's energy future success.

Correct Problem Areas Encountered During PY2009 – HECEP will make it a priority to correct critical PY2009 problem areas or deficiencies identified through input from the PUC, Contract Manager, Program Evaluator, allies, customers and vendors. Known critical problem areas from PY2009 are: i) timeliness of deliverables ii) EPMIS software design and data integrity; iii) budget, invoice and accounting consistency.
These problems are currently being addressed internally by HECEP management.

Expand Engagement with Effort to Achieve Hawaii's Energy Goals – Currently, the Program is formally engaged as a participant/party in the IRP/CEIP Framework and EEPS PUC dockets. It is also a key member of the Hawaii Clean Energy Initiative (Steering Committee and End Use Efficiency Working Group). Further, the Program is engaged in a host of other related informal relationships and activities that contribute its expertise to the successful integration of all strategies aimed at energy sustainability for Hawaii. HECEP's strategy will be to continue expansion of its engagement as a source of expertise and advocacy for energy conservation and efficiency as well as its fundamental support for Hawaii's energy sustainability efforts.

Teamwork – Our HECEP program staff and subcontractors, the Contract Manager, Technical Advisory Group (TAG), Program Evaluator and the PUC have demonstrated an unprecedented collaborative effort to improve the performance and cost-effectiveness of the Program. HECEP intends to continue to strongly support this team concept and expand this collaborative effort in the coming Program Year.

Rollover of Unspent PY2009 Funds **–** To the extent allowed under our Contract, any funds budgeted, but not spent in PY2009 will be rolled over to the same budget line item for 2010 (line items that were combined will be added to the new combined budget line item), unless approved otherwise through formal concurrence by the Contract Manager and PUC. At this time, it appears PY2009 carryover is expected to be greater than 10% of the PBF funds and we are seeking the Contract Manager and PUC approval of the carryover.

Eliminate or Mitigate Rebate Activities that Actually Increase Load - During the first Program Year, it has become apparent that certain legacy rebate offerings may actually have adverse affects on desired energy savings. For instance,

- *Air Conditioners Impulse Purchases* - $75 rebates for a window air-conditioner that could be purchased for $99 tended to result in multiple sales of window air-conditioners that were not intended to replace existing air-conditioners.
- *Old Refrigerator in the Garage* - Offering rebates for refrigerators without requiring turn-in or recycling of an old refrigerator tended to result in both the old and new refrigerators being connected to the grid.

In PY2010 we are initiating several changes to our Program offerings that will eliminate or significantly reduce the unwanted load growth resulting from continuation of these rebate practices. Moving forward, we will continue to look for and correct any unintended load building caused by the Program's rebate offerings.

Encourage Real-Time Measurement – There is growing evidence that giving customers access to their own electric usage data in real-time can induce self-initiated conservation and efficiency efforts and better general personal energy awareness. We plan to explore this phenomenon with pilot programs to determine if it is cost-effective to provide a means of real-time energy measurement to a customer and what results can be expected.

Additionally, the ARRA-funded peer group comparison will pilot the premise of feedback on a monthly basis to drive energy awareness and conservation behavior. We will build upon the lessons learned and develop programs to continue the successful aspects of what we learn.

Modify Program Incentive Goals to Include an Actual Measured Component – HECEP will explore with the Contract Manager and PUC a strategy to add an actual measured energy savings component (ie., avg kwh/day billed) to the Program incentive goals, adjusted for weather, economic conditions, population and other variables. This will provide a mechanism to give some measured confirmation to the TRM's "deemed savings" which makes up the majorityof the current Program incentive goals. This will also begin to validate the results of behavior change efforts, especially if the the total measured reduction is more than the total deemed savings. This effort may present its own measurement problems, particularly the adjustments, but for Hawaii's Clean Energy Initiative goals, complete reliance on "deemed savings" is not really answering the question that the state needs answered.

Total Resource Benefit (TRB) for PY2010 – In accordance with Contract Attachment C, Section B.2., HECEP has determined that the appropriate TRB target for PY2010 is $148,176,624. The TRB assumptions and calculations can be found in Appendix E to this Annual Plan.

2.2 Market Intervention and Initiatives

2.2.1 Residential

Residential Program Upgrades – The Residential Program for PY2010 has been modified from the legacy program that was taken over by HECEP and continued through PY2009.

During PY2010 we will make the following changes:

- The former Residential Efficient Water Heating (REWH), Residential New Construction (RNC) and Energy Solutions for the Home (ESH) programs will merge into the first of three major Residential Program components known as "*Residential Energy Efficiency Measures*" or REEM.
- A second Residential Program component known as "*New Residential Programs Incubator"* or NEW will also be established.
- The final Residential Program component for PY2010 will be "*Residential Low Income"* or RLI.

These changes are designed to more accurately describe the programs so as to avoid confusion as programs change. A summary listing of the new Residential Program offerings can be found in the table below and a detailed description of the Residential Program can be found in Sec 4.0 . Appendix C contains a projection of potential energy savings for the planned programs.

Residential Programs PY2010	
Program	**Category**
REEM	**Residential Energy Efficiency Measures**
	High Efficiency Water Heating
	High Efficiency Lighting
	High Efficiency Air Conditioning
	High Efficiency Appliances
	Energy Awareness, Measurement and Control Systems
NEW	**New Residential Programs Incubator**
	Residential Energy Services & Maintenance
	Residential Design and Audits
RLI	**Residential Low Income**

Residential Low Income (RLI) – We will follow-up on the significant success the Program had in PY2009 in serving RLI and hard to reach customers through the use of community-action allies, such as Council for Native Hawaiian Advancement, Honolulu Community Action Program, Maui Economic Opportunity and Hawaii County Economic Opportunity Council. The good relations and cooperation we developed with these important allies will be further enhanced during PY2010, allowing us to reach even more RLI customers.

Explore Residential Financing – One of the most common requests HECEP receives from customers and vendors is that we find a way to provide financing or relief from the signigicant up front capital costs of major conservation and efficiency measures such as residential solar water heating.

- *Solar Interest Buy Down* - With the advent of the ARRA stimulus funding that we will be administering for the State Energy Office, we will be testing an interest buy down mechanism for solar hot water heaters that enables more people to finance and thereby mitigate the high upfront costs of solar hot water installation. This program will be co-funded with 75% from ARRA and 25% from the Public Benefits Fee (PBF).

In addition to the ARRA program, we will continue to work with local financing institutions to develop other ways to provide affordable financing. The results of these multiple efforts will be used to develop a permanent plan for financing energy efficiency measures in the future.

Program Promotion of Professional Recycling and Disposal – During the Program's recent creation and implementation of the ARRA Refrigerator Trade-Up for Cool Cash Rebate Program, it became apparent that there were areas in the islands where professional recycling and proper disposal of refrigerant-containing appliances were not easily available. Therefore, recycling and disposal arrangements developed for the ARRA Programs were designed to provide a service that could be continued after the ARRA Program was completed.

This ARRA-funded effort will now be transitioned to the PBF programs as we make every reasonable effort to ensure that all appliances rebated under our Program will have direct access to proper recycling and/or disposal.

Peer Comparison to Encourage Behavior Change – In addition to running an ARRA-funded pilot Peer Comparison program for residential customers through a contract with OPOWER in PY2010, we are also planning to test our own PBF funded variations of the peer comparison strategy for other peer groups (Office Buildings, Hotels, Etc.). This process will use data mining among commercial and residential customers. Our strategy will look for ways to effect measurable energy savings through behavior change.

Encourage Supplementing A/C with Less Energy Consuming Measures – During the first Program Year, it has become clear that the current home buyer standards for housing in Hawaii have evolved to demand full house air-conditioning in order for a developer to be competitive. Efforts need to be made to encourage design concepts and equipment that use of natural cooling and avoid full house air-conditioning during moderate island weather conditions. Our Program strategy for PY2010 will be to develop allies, designs, education and incentives that can provide alternatives to 24/7 full house air-conditioning.

Point of Purchase (POP) Rebates – During PY2009, POP rebates for CFLs have shown to add value to the rebate by eliminating the customer's paperwork. The retailers also have an incentive to actively pursue sales in market by promoting lower in-store CFL costs leveraging the rebate. Both of these actions combined benefit the program and have resulted in greater program participation. In PY2010, HECEP plans to expand the highly successful POP rebates of CFLs to other rebated products to the extent practical.

2.2.2 Business

Business Program Upgrades – The Business Program for PY2010 has been modified from the legacy program that was taken over by HECEP and continued through PY2009.

During PY2010 we will make the following changes:

- The former Commercial industrial Energy Efficiency (CIEE), and Commercial Industrial New Construction (CINC) programs will merge into the first of four major Business Program components known as "*Business Energy Efficiency Measures*" or BEEM.
- The former Commercial Industrial Customized Rebate (CICR) will be renamed as the "*Custom Business Energy Efficiency Measures"* or CBEEM.
- A third Business Program component known as "*New Business Programs Incubator"* or NEW will be established.
- The final Business Program component for PY2010 will be "*Business Renewable Energy Promotion"* or BREP.

These changes – explained in more detail later - are designed to more accurately describe the programs to avoid customer confusion as programs change.

A summary listing of the new Business Program offerings can be found in the table on the right and a detailed description of the Business Program can be found in Sec 5.0.

Appendix C contains a projection of potential energy savings for the planned programs.

Business Programs PY2010

Program	Category
BEEM	**Business Energy Efficiency Measures**
	High Efficiency Lighting
	High Efficiency HVAC
	High Efficiency Water Heating
	High Efficiency Water Pumping
	High Efficiency Motors
	Building Envelope Improvements
	Energy Star Business Equipment
	Energy Awareness, Measurement and Control Systems
CBEEM	**Custom Business Energy Efficiency Measures**
	Customized Project Measures
NEW	**New Business Programs Incubator**
	Business Service and Maintenance
	Business Direct Installation
	Business Design and Audits
BREP	**Business Renewable Energy Promotion**

2.2.3 Market Evaluation

From the lessons learned of PY2009, Hawaii Energy will dedicate a greater amount of effort to market evaluation activities. The following activities and concepts will be applied to evaluate and determine the next strategies for future program efforts and the best offerings tailored to the residential and business markets.

Evolutionary Program Strategy – In order to evolve in the continuously changing Hawaii energy environment, HECEP's strategy will be to continue to utilize successful legacy programs, eliminate or modify underperforming programs, and institute new programs and strategies in search of the best performance and values in energy savings. This will require timely changes in our operational strategies, incentive offerings and individual program budgets throughout the Program Year. Such changes will be accomplished in close collaboration with our Contract Manager, Program Evaluator, Technical Advisory Group and PUC.

Personal Behavior and Group Cultural Change – From measurable data observed in our first Program Year, it is clear that the Program will likely have to modify its strategy going forward to include greater emphasis on individual personal behavior awareness and group cultural change in order to achieve the aggressive energy savings goals the state needs to achieve as part of its HCEI goals. This will require some fundamental changes and continued innovation in the way we measure and estimate savings, particularly for behavior-based programs.

The first step in this process will be the OPOWER peer comparison initiative scheduled to be tested on 15,000 residential households in PY2010 using ARRA stimulus funds made available by the State Energy Office.

In addition, a number of other educational outreach and ally collaborations, such as the Blue Planet and Kanu Hawaii work, will be initiated and tested in PY2010 to find the best approaches to bring about the necessary individual behavior and group cultural changes for the State.

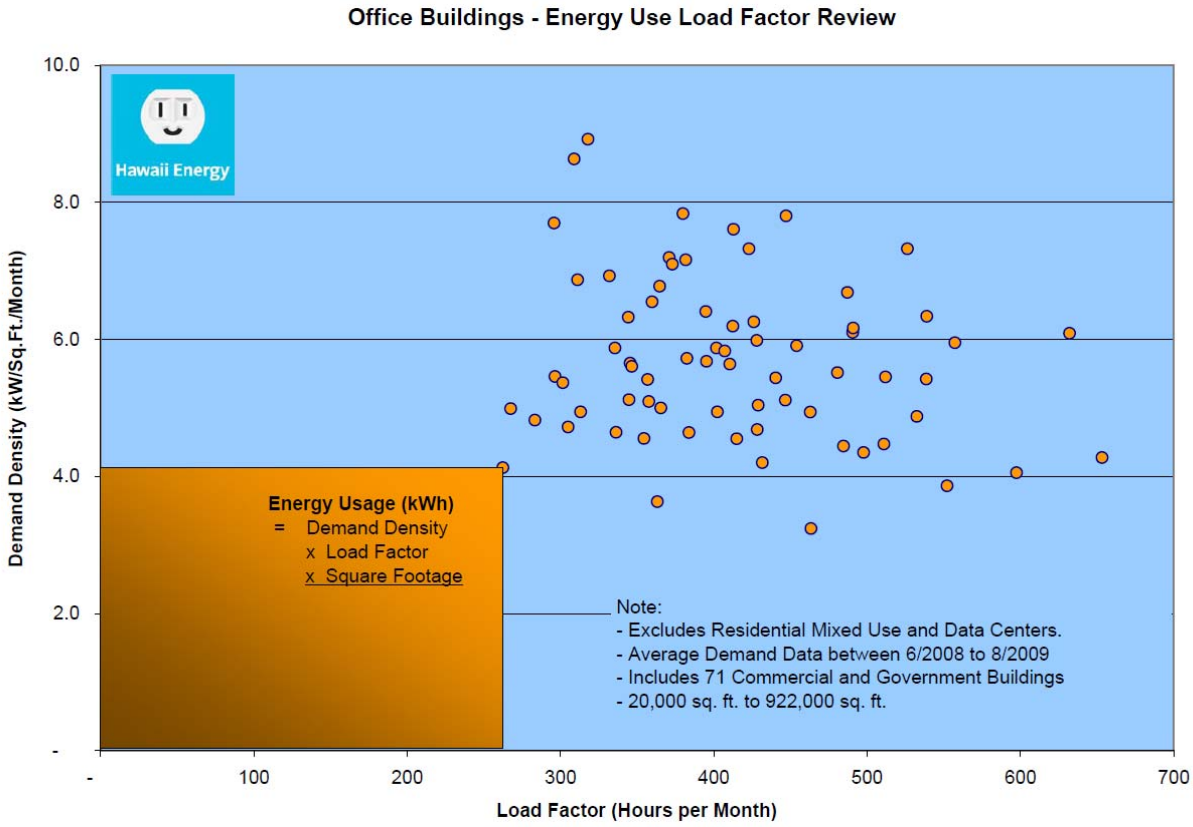
Energy Data Mining and Extrapolation – Building on our first Program Year success at locating and mining raw energy data available (from HECO and DBEDT) and extrapolating useful trends and conclusions for use in the Program, we plan to expand this effort for PY2010.

The trends give us significant indications of which of our residential and commercial customers are doing well with energy use and which are not (compared to the peer group norms).

In PY2010, our strategy will be to use these extrapolations to target customers for outreach and education visits by Program representatives.

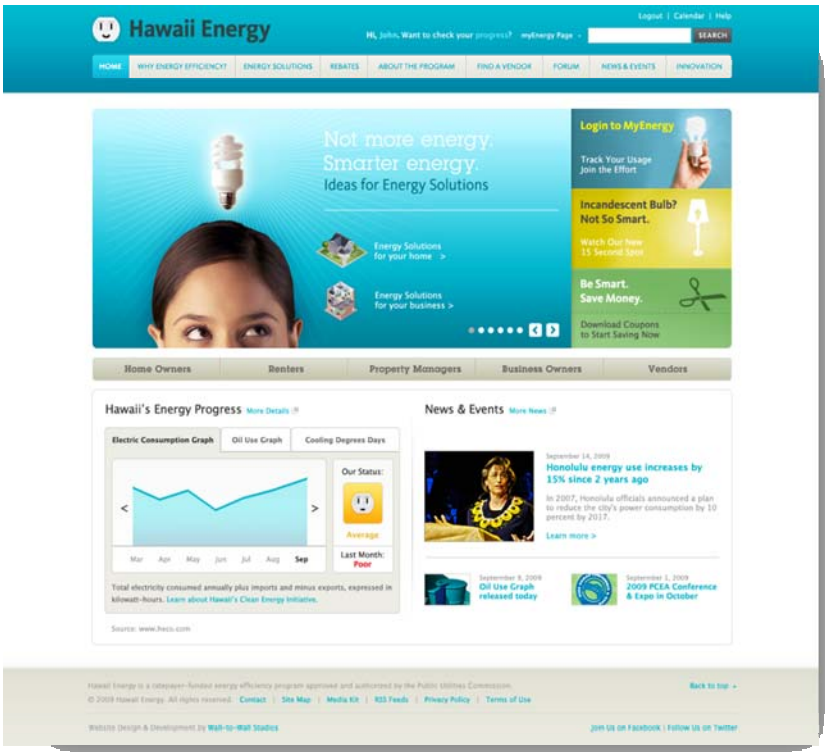
We will coordinate with DBEDT's ARRA effort to benchmark Hawaii Hotels using Energy Star rating criteria.

The figure below demonstrates to office building customers the energy performance envelope of their peer group buildings. This data can be used to validate the work they have performed or demonstrate how much better their building can perform.



2.2.4 Outreach

Complete and Expand New Interactive Website – Development of the Program's interactive website during PY2009 has been delayed by a number of minor difficulties, including design upgrades and a shortage of substantive material readily available in one place. Currently, the first phase of the new website is targeted to be on-line in July 2010 with additional phases scheduled to go live in 30 day intervals until the website is complete.



Some key features of the website will be current report cards for HCEI and Program goals, general energy usage graphs for each island, energy savings tips, FAQs, energy forums, qualified vendor lists, rebates available and the latest energy news. The Program strategy is to use our limited media advertising budget and social media presence to lead customers to our interactive website where the education, engagement and personal energy awareness can begin.

Customer Education, Feedback, and Recognition – With our new interactive website that will be introduced as we start our new Program Year, the Program will make a significant leap forward in its continuing effort to expand customer education, feedback and recognition. The new website will be a central location where customers can learn about Hawaii's energy issues and how they can take advantage of incentive offerings to help increase their conservation and efficiency. The website will also enable instantaneous feedback from customers as to what is on their minds about energy and the Program. Finally, among other things, the website will be used to recognize customers (as well as vendors and allies) for noteworthy contributions to achieving Hawaii's energy goals.

Vendors, Associations and Allies for Marketing and Outreach – During the first Program Year, we have been impressed with the significant positive response received from our efforts to engage trade vendors and associations, community organizations and diverse allies to assist with marketing, education and outreach for our Program.

We have tapped community organizations and allies who have enabled us to engage previously unreachable low income and hard to reach customers with education and direct install programs.

We have benefited greatly from the use of vendors as our primary sales force, improving both sales for the vendors and feedback to the Program. Additionally, we have engaged vendor associations to assist with planning and socializing Program changes affecting their industries with notable success.

We have also experimented with sharing marketing, education and outreach activities with various community-based allies whose energy conservation and efficiency goals are aligned with ours. We intend to continue and expand these joint efforts in PY2010 as they are significant force-multipliers for the Program.

Building Marketing "Buzz" to Move Products and Services – From the Program's overwhelming recent successes in Point of Purchase CFL sales and the rolling out the ARRA-funded Refrigerator Trade-Up for Cool Cash Rebate Program (First Phase - 4000 units - sold out in first day), it is clear that a carefully promoted marketing "buzz" can significantly enhance customer interest and attention to our Program and its message.

We plan to make expanded use of comprehensive marketing and public relation plans to move Program incentives, services and messages during PY2010.

3.0 PROGRAM BUDGET AND PERFORMANCE INCENTIVE GOALS FOR PY2010

3.1 Program Budget

We streamlined the budget to enable Hawaii Energy, the Contract Manager and the PUC to put greater focus on effective implementation rather than line item budget constraints and change requests while also providing a necessary level of visibility to our expenses. Therefore, the majority of the changes are to the non-incentive budget in areas where there is significant overlap in the intention of the activities. Below are the changes:

- The new "REWH," "RNC," and "ESH" are combined as "REEM"
- The new "CINC" and "CIEE" are combined as "BEEM"
- "Education & Training" and "Advertising & Marketing" are combined as "Outreach"
- "General Administration" and "Information Technology" are combined as "Supporting Services."

To offer greater visibility to incentives, we will provide in our Quarterly Reports the status of incentives in the following categories:

- Residential
  - High Efficiency Water Heating
  - High Efficiency Lighting
  - Appliance (includes AC and measurement/control systems)
  - Low Income
  - New

- Business
  - High Efficiency Lighting
  - Non-lighting
  - Custom
  - New

In addition, we can provide further incentive detail through downloads from the EPMIS.

Due to the high interest as to the level of CFL rebate distribution in comparison to our other program offerings, we will immediately notify the Contract Manager as soon as it becomes apparent that we have exceeded or will exceed the amount budgeted for CFLs in Appendix C. CFLs are different from our standard rebates in that there is a significant lag in the time between when the customer receives the rebate until we receive the vendor request for reimbursement. We will request increases in our CFL budget allocation as far in advance as practical to minimize exceeding our budget.

Formal changes to the budget (Attachment A and summarized in Table 3.1.1) will be in accordance with contract Amendment #4, dated 05 April 2010.

Table 3.1.1 PY10 Budget Table Summary

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

Note: This version of the budget includes taxes for each line item. For reporting purposes, subsequent versions of the program budget show tax as a separate line item. The total budget remains the same for either case.

PROGRAM BUDGET AND PERFORMANCE INCENTIVE GOALS FOR PY2010 Cont.

3.2 Performance Incentive Goals Tables

Table C-2	Annual Electric Savings
Res PY10	Net Energy* (MWh)
Target	71,245
Min	53,434
Max	78,370
Bus PY10	
Target	61,370
Min	46,028
Max	67,507

Table C-3	Total Resource Benefit Schedule (2010)
	TRB ($)
Target	$148,596,954
Min	$118,877,563
Max	$178,316,345

Table C-4	Peak Demand Performance Award Schedule
	Demand (kW)
Target	23,126
Min	17,345
Max	25,439

Table C-5	Island Equity Performance Indicator
Island	Energy Achieved (% of kWh)
HECO	70%
MECO	19%
HELCO	11%

Market Transformation	
Activity	Due
Launch RCx Program	01/01/11
Complete 10 State Building Retrofits	06/30/11
Sign 4 Community Partnership Agreements	06/30/11

* Customer Level Savings impacts are grossed up for Generation,Transmission and Distribution losses and then reduced by the Net-to-Gross factor (shown below) to determine program driven impacts.

County Generation and T&D Losses		
Oahu	Maui	Hawaii
11.17%	9.96%	9.00%

Net-to-Gross
All Islands
73.00%

4.0 RESIDENTIAL PROGRAM DETAILS FOR PY2010

4.1 Residential Energy Efficiency Measures

4.1.1 High Efficiency Water Heaters

4.1.1.1 Solar Water Heater Incentive
4.1.1.2 Solar Water Heater Interest Buydown
4.1.1.3 Solar Water Heater Incentive (ARRA Sep Leveraged)
4.1.1.4 Solar Water Heater Energy Hero Gift Packs
4.1.1.5 Heat Pumps
4.1.1.6 High Efficiency Water Heaters
4.1.1.7 High Efficiency Water Heaters w/ Timers
4.1.1.8 Instantaneous Water Heaters

4.1.2 High Efficiency Lighting

4.1.2.1 CFLs
4.1.2.2 LED

4.1.3 High Efficiency Air Conditioning

4.1.3.1 Window AC
4.1.3.2 Split System AC
4.1.3.3 Ceiling Fans
4.1.3.4 Solar Attic and Whole House Fans

4.1.4 High Efficiency Appliances

4.1.4.1 Refrigerator
4.1.4.2 Refrigerator with Recycling
4.1.4.3 Garage Refrigerator / Freezer Bounty
4.1.4.4 Clothes Washer
4.1.4.5 Dishwasher

4.1.5 Energy Awareness, Measurement and Control Systems

4.1.5.1 Room Occupancy Sensors
4.1.5.2 Whole House Energy Metering
4.1.5.3 Residential Energy Awareness and Action Competitions

RESIDENTIAL PROGRAM DETAILS FOR PY2010 Cont.

4.2 New Residential Programs

4.2.1 Residential Energy Services & Maintenance

4.2.1.1 AC Annual Tune-up

4.2.1.2 Solar Water Heater Tune-up

4.2.2 Residential Design and Audits

4.2.2.1 Efficiency Inside Home Design

4.2.2.2 Hawaii Energy Hero Audits

4.3 Residential Low Income

4.3.1 Residential Low Income Measures

4.3.1.1 RLI Solar Inspections (ARRA WAP)

4.3.1.2 RLI Solar Inspections (DHHL)

4.3.1.3 RLI Energy Hero Gift Packs

4.3.1.4 RLI CFL Exchange

4.3.1.5 RLI Hawaii Energy Hero Audits

Program Category	**4.1 All Residential Programs** **Overview of All Categories**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers. • Solar Contractors, Plumbing Contractors and General Contractors • Architect and Engineers
Projected Impacts	Demand 11,184 kW Energy 57,781,668 kWh Incentive Budget $6,186,320
Technologies	**Incentivized Measures** — **Incentive** • Solar Water Heating Systems — $750 • High Efficiency Electric Water Heaters — $40 - $70 • Heat Pumps — $175 • Low Flow Showerheads (RLI give-away) — $5 • CFL- Standard — $ 1 • CFL- Specialty — $ 3 • CFL - Dimmable — $ 5 • Window AC — $50 • Ductless Split Systems — $110 • Solar Attic Fans* — $50 • Whole House Fans* — $50 • Ceiling Fans — $40 • Clothes Washers — $50 • Dishwashers — $50 • Refrigerator — $50 • Refrigerator with Recycling* — $100 • Refrigerator/Freezer Bounty* — $100 • Smart Strips (RLI give-away)* — $20 • Air Conditioner Maintenance* — $50 *New or expanded measures
Key Changes	• Merging of REWH, RNC, and ESH Programs under the single Program Name of “Residential Energy Efficiency Measures” • The creation of categories by equipment type • Addition of new measures as indicated above

Program Category	**4.1.1 Residential Energy Efficiency Measures** **High Efficiency Water Heating**
Target Market	• Homeowners, Landlords, Tenant, and Property Managers • Manufacturers, Distributors, Dealer, and Retailers • Solar Contractors, Plumbing Contractors, and General Contractors • Architect and Engineers
Impacts	Demand 1,104 kW Energy 3,610,051 kWh Incentive Budget $1,590,100

Technologies	**Incentivized**
	• Solar hot water system — Incentive $750 — Units 4,110
	• High efficiency electric water heaters — Incentive $40 - $70 — Units 850
	• Heat pump water heaters — Incentive $175 — Units 250
	• Hawaii Energy hero gift packs — Incentive $40 — Units 4,110
	  o Low flow showerheads
	  o CFLs
	
	Under Review for Potential Incentives
	• Instantaneous water heaters
	• Waste heat recovery from HVAC system
	• Peak demand reduction timers for water heater

Market Barriers	**General** • Trust and credibility of technology providers • Quality of system design, equipment and installation • Knowledge operation and maintenances of technologies • Large up-front cost **Owner Occupant** • Access to and/or understanding of financial options • Time between purchase and tax refunds (carrying cost) **Landlords and Property Managers** • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the hot water system • Renter lease term shorter than simple payback

Description & Implementation Strategies	**Solar Water Heating** *Standard Solar Water Heating* The program will provide a $750 rebate for solar hot water systems installed by qualified contractors. The process is: • Customers contact a contractor from a list of participating contractors on Hawaii Energy's website • Contractor comes to the home, reviews site conditions, interviews the customer to analyze the hot water usage and then provides a written proposal for complete installation; Contractor's proposed sale price reflects the inclusion of the $750 rebate • Contractor fills out the Program's system sizing form • Contractor provides rebate form and helps customer to fill it out • Contractor provides Hawaii Energy with building permit number • Contractor installs solar water heating system • Contractor reviews system operation and maintenance with customer • Hawaii Energy will conduct a post-installation inspection to make sure the system has been installed properly • Upon successful inspection, Hawaii Energy will rebate the contractor $750 *ARRA Leveraged Solar Water Heating* The program will provide a co-funded combined incentive that will buy down the interest charges for a solar water heater loan from a participating lending institution made on solar hot water systems that are installed by qualified contractors. This incentive will cover the first 6 points of the loan interest up to a total maximum of $1,000. The Program will provide 25% of the incentive and the ARRA funded component will provide the remaining 75%. The savings claimed by the Program will be prorated accordingly. The process includes: • The customer contacts a participating lender from a list of participating lenders on Hawaii Energy's website • The customer enters into a financing agreement with the lender that indicates the sale price, loan amount, interest component and the Hawaii Energy Incentive and ARRA buy down amounts • The customer executes the "Standard" installation process • Upon successful inspection, the lender will be paid the combined ARRA / Hawaii Energy incentive

Description & Implementation Strategies (cont'd)	**High Efficiency Electric Hot Water Heaters** For high efficiency electric hot water heaters, we will provide $40, $50, or $70 rebates for qualifying models. Rebate levels are based on the size and efficiency of the water heater. Rebate applications for water heaters are provided by the retailers at the time of purchase or a customer can visit our website and download the form. Rebate applications must include an original purchase receipt showing brand and model number. **Residential Heat Pump** Residential heat pump rebates are available at $175. Rebate applications for water heaters are provided by the retailers at the time of purchase or a customer can visit our website and download the form. Rebate applications must include an original purchase receipt showing brand and model number. **Trade Allies** The program will conduct outreach with key allies including the Solar Technical Advisory Group, solar contractors, suppliers, government and housing agencies; financial institutions; and housing, apartment, and contractor associations. This team will promote the program, solicit feedback for more efficient program operation, and identify opportunities for implementation and coordination of efforts. The program currently inspects 100% of all systems, but may reduce this level for vendors demonstrating high level of performance.
Key Changes	• Change to a performance based inspection program which is expected to reduce final system inspections by 50% • Contractor or customers may request the inspection if one is not selected to be done • Require systems to incorporate backup element active light warning system • Leveraged loan interest buy down incentive • Recognizing the growing product availability and sales efforts regarding residential heat pumps, increase educational efforts
Marketing Strategies	• Direct contact with participating solar contractors • Community event promotion of High Efficiency Water Heating • Utility bill stuffers • Listing of participating contractors on our website • Print advertising and Social media

Program Category	**4.1.2 Residential Energy Efficiency Measures** **High Efficiency Lighting**
Target Market	• Homeowners, Landlords, Tenants, and Property Managers • Manufacturers, Distributors, Dealers, and Retailers
Impacts	Demand 6,244 kW Energy 40,566,948 kWh Incentive Budget $1,582,230
Technologies	• ENERGY STAR CFL – Standard $ 1 • ENERGY STAR CFL – Specialty $ 3 • ENERGY STAR CFL – Dimmable $ 5 • Hawaii Energy private label packaging will have special rebate pricing • ENERGY STAR LED products will be reviewed after the official product offering becomes available from ENERGY STAR
Market Barriers	**General** • Lack of understanding about how energy is used in the home • Lack of information about product energy efficiency • Lack of understanding as to which technology is the most effective to reduce energy consumption • Product availability of specialty and dimmable CFLs within the customer shopping area **Owner Occupant** • Ability to self-install • Ability to find appropriate CFLs for fixture or ceiling fan • Disposal concerns • May not pay for electricity cost (condominiums) **Landlords and Property Managers** • No control over the hours used for lighting • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the lighting fixtures • May not pay for electricity

Description & Implementation Strategies	There is a critical need to increase the participation in the CFL program by 50% as the value for the energy savings per CFL was reduced by the PY2009 TRM review from 65 kWh/Lamp to 32.7 kWh/lamp. Since the programs historically had CFLs support 40 to 50% of the savings this is a large hurdle to overcome. The CFL rebates will be offered using instant redeemable coupons which are provided for point of sale purchase reductions. The process includes: • Distributors, retailers and manufacturers complete a Memorandum of Understanding (MOU) cooperative agreement in which they provide funds for the advertising, promotion, and coupons for instant rebates for the CFLs to customers • Retailers signing the MOU agree to display signage showing the rebate has been provided by the Program, provide assistance in ordering and stocking qualifying products, and provide sales staff training • Retailers agree to promote consumer education, undergo staff training and follow proper coupon redemption procedures. • Retailers with the ability to track incentives using sales data are given the option for issuing rebates without the use of coupons, provided they can demonstrate the ability of providing accurate, timely data on point of purchase information by store by SKU **Trade Allies** The program is implemented through strong working relationships between the program, the major CFL manufacturers, and the national retailers. The participating CFL manufacturers are: GE, FEIT, Sylvania, TCPi and Philips. The participating national retailers are: COSTCO, Sam's Club, Home Depot and Walmart who have all utilized their buying power to offer a better blend of quality, affordable CFLs across the State.
Key Changes	• Working with manufacturers to produce a "Hawaii Energy" packaging of CFLs that explains how to select and use CFLs • The new packaging will be sold at retailers as well as given to customers as a "Gift Pack" with education about how to select and use CFLs
Marketing Strategies	• New Hawaii Energy packaging explaining proper CFL applications • Advertisements to explain how to select a CFL • Educational information online and in the media • Leverage allies to share CFL information and increase participation • Encourage an increase in selection of CFLs available • Social media

Program Category	**4.1.3 Residential Energy Efficiency Measures** **High Efficiency Air Conditioning**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers. • HVAC and General Contractors • Architect and Engineers
Impacts	Demand 429 kW Energy 1,720,016 kWh Incentive Budget $237,040
Technologies	• Window AC $50 • Ductless Split Systems $110 • Solar Attic Fans $50 • Whole House Fans $50
Market Barriers	**General** • Lack of understanding of how energy is used in the home • Lack of information about product energy efficiency • Lack of understanding as to which are the most effective ways to reduce energy consumption **Owner Occupant** • Inability to self install • Existing air conditioning opening prevents the proper selection for energy savings • Home owner association rules **Landlords and Property Managers** • No control over the hours used for air condition. • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the HVAC system • May not pay for electricity

Residential Energy Efficiency Measures - High Efficiency Air Conditioning Cont.

Description & Implementation Strategies	The program will continue to provide prescriptive incentives to residential customers who purchase and install energy efficiency measures that meet or exceed ENERGY STAR® standards. The process inclides: • The customer purchases a qualified high efficiency air conditioner. • The customer obtains an application through the program's website, in hard copy from Hawaii Energy, or through point of sale retailer displays. **Trade Allies** We will continue to build relationships with manufactures, distributors and dealers by offering workshop and events to train Allies on Hawaii Energy's offerings and processes while seeking input on how to create additional offerings and refinements to existing programs.
Key Changes	• Elimination of rebates for window air conditioners under one ton to reduce load building • For systems above one ton, require proof that the new unit is replacing an old unit that is being eliminated • Encourage variable speed drive (VFD) inverter split system units • Addition of solar attic fans and whole house fans rebates
Marketing Strategies	• Provide cost of ownership information on rebate application forms Provide more information on the website explaining how to properly use HVAC systems • Advertise to explain how to select a HVAC system • Find organizations to assist with HVAC outreach • Add advertisements to utility bills • Social media

Program Category	**4.1.4 Residential Energy Efficiency Measures** **High Efficiency Appliances**
Target Market	• Homeowners, Landlords, Tenants, and Property Managers • Manufacturers, Distributors, Dealers and Retailers • Wholesalers and General Contractors • Architect and Engineers
Impacts	Demand 1,585 kW Energy 3,739,680 kWh Incentive Budget $1,347,500
Technologies	Ceiling Fans $40 Clothes Washers $50 Dishwashers $50 Refrigerator $50 Refrigerator with recycling $75 Refrigerator/Freezer Surrender $100
Market Barriers	**General** • Lack of understanding of how energy is used in the home • Lack of information about energy efficient products • Lack of understanding as to which are the most effective ways to reduce energy consumption • Lack of understanding of the importance of size and operation for energy savings • Large up-front cost • Ease of receiving a rebate **Owner Occupant** • Ability to self install • Home owner association rules • Availability of product when needed **Landlords and Property Managers** • No control over the hours of use • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the appliances • May not pay for electricity

Residential Energy Efficiency Measures - High Efficiency Appliances

Description & Implementation Strategies	The program will continue to provide prescriptive incentives to residential customers who purchase and install energy efficiency measures that meet or exceed ENERGY STAR® standards. We will explore point of purchase rebates for appliances this year. The process includes: • The customer purchases a qualified high efficiency air conditioner. • The customer obtains an application through the program's website, in hard copy from Hawaii Energy, or through point of sale retailer displays. **Implementation** We will continue to build relationships with manufacturers, distributors and dealers by offering workshop and events to train allies on Hawaii Energy's offerings and processes while seeking input on how to create additional offerings and refinements to existing programs. We will leverage the relationships that were created with retailers across the State through the Trade Up for Cool Cash offering. We will work with Sears and Best Buy to explore point of purchase rebates that enable retailers to deduct the rebate at time of purchase.
Key Changes	• Old refrigerators and freezers surrendered for recycling qualify for a rebate (without a purchase of Energy Star qualified appliance) • Old refrigerators and freezers surrendered for recycling qualify for an increased rebate (with a purchase of Energy Star qualified appliance) • Break out savings and incentive levels by Appliance type and CEE Tier Levels • Potential to count Water Utility energy savings from dishwasher and washing machine installations.
Marketing Strategies	• Provide point of purchase (POP) signage and information • Provide cost of ownership information on rebate application forms • More information on the website explaining good practices on how to use ENERGY STAR appliances • Advertising explaining how to select and use appliances for the best energy savings • Find organizations to assist with appliance outreach

Program Category	**4.1.5 Residential Energy Efficiency Measures** **Energy Awareness, Measurement and Control Systems**
Target Market	**General** • Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers **Residential Energy Awareness and Action Competitions** • 6,000 DHHL Homes • Public-Private Military Housing • Faith-Based Communities • Neighborhood Community Associations
Impacts	Demand 3 kW Energy 174,971 kWh Incentive Budget $251,500
Technologies	(Pilot) Room Occupancy Sensors $5 / unit (Pilot) Whole House Energy Metering $100 / unit (Pilot) Residential Energy Awareness and Action Competitions
Market Barriers	**General** • Awareness of technologies • Understanding of best application • Installation • Proper application of room occupancy sensors

Description & Implementation Strategies	**Room Occupancy Sensors Mail-in Rebate** These sensors control the use of lighting in areas around the home with infrequent use such as laundry, storage, garage or spare areas. They are not intended for high use areas or CFLs. **Whole House Energy Metering Devices Mail-in Rebate** These devices collect energy data by induction and wirelessly transmit the information to a display unit which can be carried anywhere throughout the house. **Residential Energy Awareness and Action Competitions** • Develop process to create baseline usage records and provide peer comparisons. • Hold community meetings in the neighborhoods and educate on energy efficiency measures, where and how to buy and financing options. • Utilize video clips and Hawaii-based audit forms developed by Kanu Hawaii under their EPA grant. • Develop an Energy Hero Prize structure and recognition program to encourage the efforts and celebrate successes. **Implementation** The program will be implemented through strong working relationships between the program and the major manufacturers of occupancy sensors. As well as encourage national retailers to utilize their buying power to offer quality, affordable sensors across the State.
Key Changes	• New Program
Marketing Strategies	• Provide POP signage and information • Provide cost of ownership information on rebate application forms and benefits of ownership on our website

Program Category	**4.2.1 New Residential Programs** **Residential Energy Services & Maintenance**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers. • Mechanical and Solar Service Contractors
Impacts	Demand 176 kW Energy 329,144 kWh Incentive Budget $57,200
Technologies	Home AC Annual Tune-up $50 / unit Solar Water Heater Tune-up $50 / unit
Market Barriers	**General** • Awareness of need for maintenance • Resistance to engage unknown contractors
Description & Implementation Strategies	**Home AC Annual Tune-up and Solar Water Heater Tune-up** • Demonstrate the benefits of tune-ups • Educate customer of potential savings and system longevity • Utilize the participating contractors to contact the customers and have them arrange for the service work • Participating contractors will use the Hawaii Energy Checklist to inspect and record the pre and post conditions • Participating contractor's invoice must show that checklist requirements have been met and signed by the servicing technician • Customers can have two incentives per location annually
Key Changes	• Split Systems addition to central systems for AC tune-up • New solar water heater tune-up
Marketing Strategies	• Direct contact with Mechanical and Solar Contractors • Provide POP signage and information • Distribute educational materials at community events, neighborhood board meetings and homeowners association meetings • Provide cost of ownership information on rebate application forms and benefits of ownership on our website

Program Category	**4.2.2 New Residential Programs** **Residential Design and Audits**
Target Market	• Residential Home Developers
Impacts	Demand 1,203 kW Energy 4,812,500 kWh Incentive Budget $830,000
Technologies	• Building Envelope Measures o Roof o Wall o Windows o Shading • High Efficiency Lighting • High Efficiency Air Conditioning o Right sizing of equipment to envelope improvements • Site Selection and Orientation • Energy Star Equipment • Whole House Fans • Home Energy Management Systems • Occupancy Sensor light switches • Daylighting • Photovoltaic (PV)Systems and Analysis o Show cash positive payback with mortgage amortization • Solar System Status Alarms/Reporting • Switched/Timer outlets for charging stations to eliminate phantom loads.
Market Barriers	**Home Developers** • 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 • Prior prescriptive components such as ceiling fans are not typically developer installed

New Residential Programs - Residential Design and Audits Cont.

Description & Implementation Strategies	• Offer new construction developers $0.08/kWh for the expected annual energy saved and $125/kW for the demand reduction between 5 and 9 p.m. weekdays for designs as compared in an acceptable energy model software to a code-designed home; it may include a minimum reduction level to achieve before incentives take effect; it will include incentive for features that provide utility peak demand savings that may not be able to be determined in an energy model • The program will hold military home developments to the same Code Standards and State Laws as private developers are held to. • Based on the use of computer energy modeling programs to compare a code-built home to the developer's home design offerings • Modeling allows the developer maximum flexibility in designing their homes and dovetail with the existing federal tax credits and Energy Star programs • Encourage interaction with the developer to maximize utilization of incentives through comparing model scenarios • Allow a limited number of developer constructed net-zero homes with PV systems to be considered as an efficiency measure.
Key Changes	• Elimination of prescriptive measure packages in favor of the use of energy models to make comparisons between enhanced and energy code compliant designs
Marketing Strategies	• Direct contact with home developers and the BIA • Promotion of the participating developers in trade-publications such as the BIA, Parade of Homes, and Hawaii Home Remodeling and Design • Recognition of the awardees and description of the changes made to the homes on the Hawaii Energy website • Energy Hero Awards to be placed in the model homes and available for use in the developer's marketing materials

Program Category	**4.3 Residential Low Income** **Residential Low Income Measures**
Target Market	• Low Income Homeowners and Renters (as defined by Hawaii low income guidelines)
Impacts	Demand 751 kW Energy 3,183,240 kWh Incentive Budget $290,750

Technologies	• RLI Solar Inspections (ARRA WAP) $85 / unit
	• RLI Solar Inspections (DHHL) $85 / unit
	• RLI Energy Hero Gift Packs $40 / unit
	  o CFLs
	  o Low-flow shower heads
	  o Smart strips
	• RLI CFL Exchange $1.50 / unit
	• RLI Hawaii Energy Hero Audits $90 / unit

Market Barriers	• Customer lack of access to capital for energy improvements • Lack of understanding of energy efficiency benefits • Renter and Lessee reluctance to invest in property
Description & Implementation Strategies	• Work through state and local agencies serving the needs of low income families to identify qualified customers who will receive energy efficiency goods and services at no cost (“direct install”) • Continue to work with community action organizations to develop and deliver program services for low-income customers to include direct install and delivery of appropriate energy saving technologies • Continue to provide solar hot water inspections for RLI solar grant recipients
Key Changes	• Increased focus and penetration of direct install and educational outreach
Marketing Strategies	• Continue to target low-income and hard-to-reach customers through existing state and local agencies who service the needs of low income families • Develop working relationships with more community action and similar local groups to increase market penetration

5.0 BUSINESS PROGRAM DETAILS FOR PY2010

5.1 Business Energy Efficiency Measures (BEEM)

5.1.1 High Efficiency Lighting

5.1.2 High Efficiency HVAC

5.1.3 High Efficiency Water Heating

5.1.4 High Efficiency Water Pumping

5.1.5 High Efficiency Motors

5.1.6 Building Envelope Improvements

5.1.7 Energy Star Business Equipment

5.1.8 Energy Awareness, Measurement and Control Systems

5.2 Custom Business Energy Efficiency Measures (CBEEM)

5.2.1 Custom Project Measures

5.3 New Business Programs (NEW)

5.3.1 Business Service & Maintenance

5.3.2 Business Direct Installation

5.3.3 Business Design, Audits and Commissioning

5.4 Business Renewable Energy Promotion

5.4.1 Non-Profit & Government PV Review

Program Category	**5.1 Business Energy Efficiency Measures** **High Efficiency Lighting** **High Efficiency HVAC** **High Efficiency Water Heating** **High Efficiency Water Pumping** **High Efficiency Motors** **Building Envelope Improvements** **Energy Star Business Equipment** **Energy Awareness, Measurement and Control Systems**
Target Market	**Competitive Commercial** o Office Buildings o Retail **Governmental** o State o City o Federal **Industrial Sector** o Warehousing o Cold Storage o Water Pumping **Multi-Site** o Convenience Stores o Restaurants **High Load Factor Customers** o Hospitals o Hotels o Super Markets o Data Centers
Impacts	Demand 9,444 kW Energy 46,328,448 kWh Incentive Budget $5,138,670

Business Energy Efficiency Measures Cont.

Technologies	Incentives	Incentive Forecast
	• *High Efficiency Lighting* o CFL, T8, T5. LED, HID, HPS, o Delamping, Reflectors o Occupancy Sensors o Day lighting	$1,850,070
	• *High Efficiency Air Conditioning* o Chillers o VFDs on Chilled Water Pumps o VFDs on Air Handling Units o Package Units o Split Systems	$2,273,000
	• *High Efficiency Water Heating* o Commercial Solar Water Heaters o Heat Pumps	$153,000
	• *High Efficiency Water Pumping* o VFD Domestic Water Booster Packages	$35,000
	• *High Efficiency Motors* o NEMA Premium Efficiency Motors	$350,100
	• *Building Envelope Improvements* o Window Tinting	$205,000
	• *Energy Star Business Equipment* o Energy Star Refrigerators	$12,500
	Under Review & Pilot Process • *Building Envelope Improvements* o Cool Roof Technologies	
	• *Energy Awareness, Measurement, and Control Systems* o Condominium Submetering o Small Business Submetering	$260,000

Business Energy Efficiency Measures Cont.

Market Barriers	**General** • Lack of familiarity with availability of energy efficient technology • Trust and creditability of technology providers • Unaware of business benefits of reducing exposure to cost of energy changes • High initial up-front cost • Life Cycle Cost vs. Simple Payback decision analysis • Need for a cash positive investment • Access to and/or understanding of financial options • Lack of knowledge of operation and maintenance of technologies **Landlords and Property Managers** • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the systems • Renter lease term shorter than simple payback

Program Description & Implementation Strategies

Technology Based Categories

High Efficiency Lighting, HVAC Water Heating Water Pumping Motors Building Envelope Improvements, Energy Star Business Equipment

The technology based incentives are provided for energy efficiency products that provide reliable energy savings for a wide array of customers. These incentives are developed to be based on fixed amounts per technology with performance adjustments to reflect the savings potential to ensure program cost-effectiveness set based on expected savings.

Measures are selected and reviewed to determine that the energy savings can be reliably deemed, or calculated using simple threshold criteria.

The implementation process includes:

- Program performs outreach and promotions to inform customers of incentive opportunities.
- Customer selects and approves purchase and installation of energy efficiency measures
- Customer sends in completed application forms with scheduling and supporting documentation
- Customer provides evidence of installation and/or program will verify the installation
- Hawaii Energy processes the incentive on approved applications on an as-funds available basis

Energy Awareness, Measurement, and Control Systems

- Provide peer groups with Customized Hawaii specific Energy Use Intensity reports. These comparisons show their usage in comparison to their peers currently on an entire facility basis and as the program progresses we will disaggregate the comparisons down to the technologies "categories."
- Provide self-assessment forms that the customer can complete on their own to identify potential savings.
- Increase the use of incentives such as the Condominium Submetering that combine cash incentives with the requirement for educational components and the execution of audits to promote further energy savings activity in the facilities.

Program Description & Implementation Strategies Cont.

Condominium Submetering Pilot

- Association of Apartment Owners (AOAO) ongoing efforts to reduce energy consumption and support the current submetering proposal as one that will insure both fairness in allocating energy costs as well as encouraging energy conservation through direct feedback of personal energy use to the tenants.
- Combining the submetering program with education and audits as proposed will complete developing the tenant's newfound desire for energy conservation with the how to achieve it.
- $150 per unit metered, payable to the AOAO for distribution to owners on a percentage of ownership basis to comply with condo regulations.
- The payment of the incentive will be based on AOAO securing the approval, installing and utilizing the submeters for billing purposes as well as participating in the actions proposed below.
- It is expected there will be at least 10% reduction in energy use, however, there is no minimum reduction in electrical use to be required by AOAO to retain the incentive.
- We do require that the system remain in place and billing to occur for a period of at least five years or a pro-rated portion of the incentive will be recovered by Hawaii Energy.
- A joint educational and monitoring program will be undertaken with AOAO to assist in the verification of savings and development of an ongoing energy incentive offering for other condominiums in Hawaii.
- Components of the Pilot Program:
  - Physical verification review of meters serving the building.
  - AOAO to provide two months of individual data collection after meter installation when providing tenants with mock billing data prior to actual billing.
  - Tenant participation in paper Energy Audit survey.
  - Identification of top and bottom 5 energy users. Hawaii Energy will perform on-site energy audits that may include metering of AC and Appliances.
  - AOAO to host Tenant Energy Education meetings presented by Hawaii Energy (Second month of mock billing).
  - CFL Special Purchase program in second month of mock billings (details to be determined).
  - Smart Strip Special Purchase program in second month of mock billings (details to be determined).
  - Energy Star Appliance Special Purchase program (details to be determined).
  - AOAO to provide building and/or unit domestic water usage information.
  - Building to perform solicitation of Common area lighting audit/proposal with Hawaii energy assistance.
  - Building to perform solicitation of Central Air Conditioning / Condenser water system audit/proposal with Hawaii energy assistance.
  - Building to perform solicitation for Domestic Water Pumping review audit/proposal with Hawaii Energy assistance.
  - Building to perform solicitation for Domestic Water Heating review audit/proposal with Hawaii Energy assistance.

Business Energy Efficiency Measures Cont.

Key Changes	• The format of a single Business Energy Efficiency Measures "BEEM" that provides program technology or activity categories that is easier to understand • Program baseline efficiency thresholds will be adjusted for new IEER AC ratings and review of efficency levels as necessary to coincide with the adoption of IECC 2006 and IECC 2009 energy codes • Modify savings for different CFL sizes with higher incentives for pin-mount CFLs due to the greater persistence • Eliminate the standard 32W T8 in favor of low-wattage 25/28W T8s • Start prescriptive for LED items that achieve ENERGY STAR status. • Move items that were previously handled in a prescriptive manner under the "Customized" program to prescriptive measures
Marketing Strategies	• Web-based application forms will be advertised and made available to customers and their channel allies (lighting, cooling, motors, controls). • Train and recruit program allies from various channels as program partners to enhance sales of their energy efficiency equipment • Maintain direct contact with key market players to understand the markets and decision points and to leverage their marketing resources to inform members • Email informational campaigns • Award and publish success of customer and ally partners to demonstrate highest level leadership in an effort to pull the market.

Program Category	**5.2 Custom Business Energy Efficiency Measures** **Custom Project Measures**
Target Market	**Competitive Commercial** o Office Buildings o Retail **Governmental** o State o City o Federal **Industrial Sector** o Warehousing o Cold Storage o Water Pumping **Multi-Site** o Convenience Stores o Restaurants **High Load Factor Customers** o Hospitals o Hotels o Super Markets o Data Centers
Impacts	Demand 1,296 kW Energy 8,107,710 kWh Incentive Budget $1,115,390
Technologies	This program provides for incentives for all energy-savings actions that are not already covered by the prescribed incentives. Custom incentives will not be limited to a certain list of measures. Common custom technologies include, but are not limited to: **Customized Measures** • Automatic Lighting Controls • LED Lighting Retrofits • System Process Conversions • Waste Heat Recovery • Peak Demand Reduction such as Thermal Storage • Heat Pump Water Heaters • Cooling Tower Forced Draft to Induced Draft replacements. • Compressed Air System Components • Building Automation Components • Guest Room Energy Management • Refrigeration Systems

Custom Business Energy Efficiency Measures Cont.

Market Barriers	• Risk Avoidance • Market acceptance of new technologies • Lack of familiarity with availability of energy efficient technology • High initial up-front cost • Life Cycle Cost vs. Simple Payback decision analysis • Need for a cash positive investment • Access to and/or understanding of financial options • Lack of knowledge of operation and maintenance of technologies
Program Description & Implementation Strategies	**Customized Application Process** This program will provide a custom application and granting process for participants to receive incentives for installing non-standard energy efficiency technologies. The intent of this structure is to enable customers to invest in energy efficiency processes and technology measures that may require calculations of energy savings for specific, unique applications. Incentive awards will be based on calculated savings that ensure program cost-effectiveness. The process includes: • Program performs outreach and promotions to inform customers of incentive opportunities • Customer learns about the program offerings through various channels • Customer may call the program to request assistance. • Customer or his agent must submit a brief proposal that describes the project and includes estimates of energy savings and payback • Engineering calculations are required and may be reviewed either internally or with a third-party engineering firm • Program provide feedback on the project to clairify if needed • Program provides pre-inspection and/or arranges for pre-metering of existing equipment if required • Customers select and approve purchase and installation of energy efficiency measures **Customized Project Criteria** • Payback of greater than one year • Pass the utility benefit-cost test, Total Resource Cost Ratio (TRC) based on the value of the Utility avoided demand (kW) and avoided energy (kWh) that the project produces • Incentive rate will not exceed the 50 percent of incremental cost of the energy efficiency improvement

Custom Business Energy Efficiency Measures Cont.

Program Description & Implementation Strategies	**Customized Worksheet of Decision Criteria** We listened to feedback that the prior customized application process was mysterious and subjective. A customized worksheet was developed and implemented in PY2009 that incorporates all the information required to screen the project: • Base case and enhanced case scenarios • Project savings • Project costs The worksheet calculates and we are able to screen based on the following: • Simple Payback (>1 year) • Incentive Amount (<=50% of incremental cost) • Total Resource Cost Ratio(>=1)
Key Changes	**Tiered Incentives by Payback** • Projects that have longer life measures often have longer paybacks that businesses have a harder time winning approval for. These projects can be pushed into reality by offering increases in the incentive levels in order to enhance feasibility and get them to a point where the customers will implement them. **Day Peak Demand Reduction Incentive** • Office buildings often have the ability to reduce their day time peak demand through energy projects however the existing Customized programs did not recognize the value of this demand reduction. • This day peak demand is often met with the least efficient generational sources and if lowered could result in a higher system load factor and reduced fossil fuel consumption. • We propose that customized projects should be given the ability to claim demand credit during the Utility's day peaks between 12 p.m. and 2 p.m. • Reducing load and energy consumption at this daily peak period reduces the fuel consumption of the least efficient generators "peaker" units.

Custom Business Energy Efficiency Measures Cont.

Key Changes Cont.

Measure Life	*Reduction in Energy use Incentive*	*Evening Peak Demand Incentive*	*Day Peak Demand Incentive*
		5 to 9 p.m.	*12 to 2 p.m.*
<= 5 years	$0.05 /kWh	$125 / kW	$100 / kW
> 5 years	$0.08 /kWh	$125 / kW	$100 / kW

Marketing Strategies

- Offer program ally custom incentive training and workshops to ensure program allies are comfortable with utilizing all aspects of the custom incentive program to sell more energy-efficient options to their respective customers
- Maintain direct contact with key market players to understand the markets and decision points and to leverage their marketing resources to inform members
- Email informational campaigns
- Award and publish success of customer and ally partners to demonstrate highest level leadership in an effort to pull the market

Program Category	**5.3 New Business Programs** **5.3.1 Business Service & Maintenance**
Target Market	**Central Plant Optimization Competition** • Facilities with Central Cooling and Heating Plants • Mechanical Service Companies • Facilities Engineers • Equipment Manufacturers, Distributors, Dealers and Retailers • Architect and Engineers **Package & Split System Annual Tune-up** • Mechanical Service Companies • Property Management Companies
Impacts	Demand 150 kW Energy 600,000 kWh Incentive Budget $66,000
Technologies	• Central Plant Maintenance Competition • Package & Split System Annual Tune-up $100 / unit
Market Barriers	**Central Plant Performance Competition** • Few central plant operators know their kW/ton and/or track their performance/operations to optimize complete plant efficiency • Lack of metering and instrumentation to provide complete picture of the central plant performance • Need for local documented examples of the value of maintenance, service and optimization of existing equipment • Shortage of skill sets required to be a high performance central plant operator **Package & Split System Annual Tune-Up** • Need for local documented examples of the value of maintenance, service and optimization of existing equipment • Systems are often out of site and thus out of mind • Systems may not be owned by lessees

Description & Implementation Strategies	**Central Plant Optimization Competition**

- Develop criteria for plant efficiency measurement to determine Top 10 Central Plants in Hawaii Competition based on:
  - Requirement for permanent monitoring equipment installed and recorded.
  - Points for Retro-Commissioning Report in Hawaii Energy Format
  - Points for Lowest kW/Ton Chilled Water delivered.
  - Points for allowing Hawaii Energy access to EMCS data.
  - Points for allowing Public Web Access to Central Plant EMCS data.
  - Completeness and equipment level detail of Input Data (Flows, approach temperatures, pump curve etc.)
- Work with ASHRAE and PAMCA Hawaii to develop training seminars and promote program with their members
- Determine cost of critical performance metering such as plant BTU, Delta T across AHUs, air and water distribution pressures, power metering
- Develop worksheets for the typical costs to install
- Work with mechanical contractors to provide package deals to participants
- Customized incentives to get metering and other equipment installed.
- Incentive payments will be made actual savings resulting from the on the pre and post actions.
- Provide peer groups with Customized Hawaii specific Energy Use Intensity reports based on the data collected; these comparisons show their usage in comparison to their peers currently on an entire facility basis, Central Plant and as the program progresses we will disaggregate the comparisons down to the individual technologies
- Big Prizes for encouragement (Big screen ENERGY STAR TVs)
- Promotion of Property Management Companies, Chief Engineers, Consultants, and Service Contractors.

New Business Programs Cont.

Description & Implementation Strategies Cont.	**Package & Split System Annual Tune-up** • Demonstrate the benefits of tune-ups • Educate customer on savings potential • Utilize the Participating Contractors to contact the customers and have them arrange for the service work. • Participating Contractors will use the Hawaii Energy PTAC / Split AC Maintenance Checklist to inspect and perform the pre and post conditions of their maintenance work • Participating Contractor's invoice must show that checklist requirements have been met and signed by the servicing technician • Customers can have 2 incentives per location annually
Key Changes	New
Marketing Strategies	• Direct contact with Mechanical Services companies, chief engineers, property managers and manufacturers representatives, • Collaborate with Service and Industry Trade Organizations • Award and publish success of customer and ally partners to demonstrate highest level leadership

Program Category

5.3 New Business Programs

5.3.2 Business Direct Installation

Target Market

Small Business Customers receiving electric power under a Schedule “G” rate are eligible under this program. Small customers similar to Schedule “G” customers that are under master-metered accounts would also be eligible.

The program will target the 50,000 customers within the small business market that have limited time and expertise within their organizations to research lighting technology options, obtain financing and contract with lighting contractors to replace their older less efficient lighting tehnologies.

Schedule "G" Customers	
Oahu	29,117
Big Island	12,614
Maui	8,503
Lanai	194
Molokai	498
Totals	50,926

Impacts

Demand	580	kW
Energy	6,164,000	kWh
Incentive Budget	$691,000	

Technologies

- Small Business Lighting Retrofit providing a “Turnkey” program consisting of audits, fixed pricing, installation by participating contractors and 4 month financing of lighting retrofits.
- The following lighting technology changes will be allowed under this measure.

Existing Technology		New Technology	
8 foot	1 lamp F96	4 foot	2 lamp F25/28 N
8 foot	2 lamp F96	4 foot	2 lamp F25/28 H
8 foot	2 lamp F96 HO	4 foot	2 lamp F25/28 N, Reflct.
8 foot	2 lamp F96 HO	4 foot	4 lamp F25/28 N
4 foot	4 lamp F40 / F32	4 foot	2 lamp F25/28 N, Reflct.
4 foot	3 lamp F40 / F32	4 foot	2 lamp F25/28 N, Reflct.
4 foot	2 lamp F40 / F32	4 foot	2 lamp F25/28 N
4 foot	1 lamp F40 / F32	4 foot	1 lamp F25/28 N
4 foot U-Bend	2 lamp FB40	2 foot	2 lamp F17 N
4 foot U-Bend	2 lamp FB40	2 foot	2 lamp F17 L, Reflector
100 Watt Incandescent		23 Watt	CFL
75 Watt Incandescent		19 Watt	CFL
60 Watt Incandescent		13 Watt	CFL
MR16		10 Watt	LED
40W Incandescent Exit Signs		2 Watt	LED Exit Signs
4 foot	1 F40 lamp	4 foot	LED

New Business Programs Cont.

Market Barriers	• Lack of familiarity with energy efficient lighting technologies • Inability to obtain project financing • Lack of time and expertise to seek and select lighting contractors • Life Cycle Cost vs. Simple Payback decision analysis
Program Description & Implementation Strategies	• Provide complete process to provide direct installation of lighting retrofits for small business customers. • Participating contractors will offer four month payment plans for the lighting retrofits • Use of workforce development groups and grass roots volunteer organizations to generate leads and perform initial audits to lower cost of sales for Lighting Contractors • Quick Inventory worksheet to ID potential targeting for future mechanical measures (AC/Water heating) • Incentive measures included: o 4 foot T12 to Low Wattage T8 o 4 foot T12 delamping o 8 foot T12 to 4 foot Low Wattage T8 o LED Case Lighting o CFLs o Exit Signs • 25% bonus over standard lighting incentives.
Key Changes	• Implemented measure in late PY2009, no changes for PY2010
Marketing Strategies	• Direct contact with participating lighting contractors • Direct contact with Small Business Administration • Direct contact and printed materials to Property Management groups • Door-to-Door contact through Grassroots Action Groups • Utility Bill Newsletter Article • Website listing of participating lighting contractors

Program Category	**5.3 New Business Programs** **5.3.3 Business Design, Audits & Commissioning**
Target Market	• Manufacturers, Distributors, Dealers and Retailers • Wholesalers and General Contractors • Architect and Engineers
Impacts	Demand 50 kW Energy 200,000 kWh Incentive Budget $550,000
Technologies	• Energy Study Assistance $200,000 • Energy Project Catalyst $300,000 • Design Assistance $50,000
Market Barriers	• None Identified

Description & Implementation Strategies	

Energy Study Assistance

- 50% match up to $10,000
- Load / Existing Performance Measurements
- Modeling new systems
- Actionable recommendations

Energy Project Catalyst

The objective of the catalyst program is to accelerate stalled high impact energy efficiency projects from an idea to reality as follows:

- *Full Cost Incentives* - Provide a 100% cost incentive to proposals that fulfill program needs
- *Commitment to Implement* - Recipients must commit to implementing all projects with less than a 1 year payback including incentives.
- *Desired Project Profiles*
    - High potential for energy savings (>30% reduction in consumption).
    - Commitment and high probability of owner taking action on Site Audit / Commissioning / Energy Study report
    - Typical site that can be repeated, such as chain convenience stores
    - Sites with Energy Usage Density over 2.5 kWh/Sq. ft./month
    - Site with Peak Demand Density over 6.0 kW/ Sq. ft.
    - Control System Recommissioning - Sequence of operation documentation, review, testing.
    - Demonstrate usefulness of the addition of critical system efficiency metering such as total central plant kW/ton.

	• *Encouraged technology categories* o Fresh Water Pumping o Waste Water Pumping o Data Centers - Airflow Optimization o Data Centers - Server Virtualization and Related Technologies o Parking Garages - Perimeter Dimming o Parking Ventilation Control o Demand Control Ventilation (CO2 Sensors in return airstream) o LED Refrigeration Case Lighting o LED Interior Lights o LED Traffic Lights and Exterior Lighting o Advanced Energy Management Controls o Variable Volume Refrigerant Air Conditioning o High Performance Commercial Lighting o Bi-Level Stairwell and Parking Garage Lighting EC Motors and Controllers
Description & Implementation Strategies Cont.	**Design Assistance** • 50% matching up to $10,000 for projects exceeding code requirements • Meet targeted energy efficiency levels • Actionable recommendations
Key Changes	• New measures that encourage creativity and promote energy audits, recommissioning, and energy audits
Marketing Strategies	• Direct interaction with potential customers, mechanical engineers and contractors • Promote measure information on the website • Promote successful projects in the media and events

Program Category	**5.4 Business Renewable Energy Promotion** **5.4.1 Non-Profit & Government PV Review**
Target Market	Market conditions are poor for • Lower income residential customers lacking tax liabilities and lacking capital • Rental property owners lacking tax liabilities and lacking capital • Non profit and governmental customers It is recommended that a new incentive program target 1 kW to 10 kW systems owned by nonprofit organizations and governmental entities. Given that the average size of net metering systems is 8.7 kW this should include the majority of the market.
Impacts	Demand n/a kW Energy n/a kWh Incentive Budget n/a
Technologies	• Photovoltaic Power Generation Systems
Market Barriers	• Customer lack of access to capital for energy improvements • Lack of understanding of PV economics • Renter and Lessee reluctance to invest in non-owned property
Description & Implementation Strategies	An assessment was made for a Ratepayer Funded Solar Electric Program for Hawaii. The summary points from the report are as follows: • Based on the avoided utility cost used for the EE program the TRC ratio of the PV systems is about 0.80. It should be noted that the avoided utility costs are being studied by HCEI and results of this study may increase the TRC significantly. The description of implementation strategies included for the program to: • Educate business owners, including single-family rental owners, regarding the economics of solar electric system ownership o Provide an un-biased expert to assist prospective solar electric system owners through their decision and installation process

Business Renewable Energy Promotion Cont.

Description & Implementation Strategies Cont.	• Support residential solar-electric leasing firms to enter the Hawaiian market by: o Targeted outreach to the firms o Developing a business case for residential leasing o Supporting lease company's marketing efforts o Offering incentives for systems at lower income customer's homes o Cooperating as a true ally • Provide financing with an interest-rate buy down to lower-income home owners • Offer a first-cost incentive to non-tax paying system owners (Non-Profits and Government) • Encourage the state legislature to remove the $350/unit state tax credit cap for solar electric systems at multifamily residential property
Key Changes	• The current program budget and impact goals does not allow this measure to be implemented as it cannot be supported with the current budget as the program does not have enough other measures to offset the low cost effectiveness of this measure.
Marketing Strategies	• n/a

6.0 CONCLUSIONS

During PY2010, the Program will continue to place significant reliance on traditional energy efficiency measures to meet performance incentive goals.

At the same time, HECEP will be actively exploring new and more effective efficiency measures, individual behavior change and energy awareness strategies, and better ways to measure, track and report actual Program demand and energy savings.

Furthermore, HECEP will continue to work collaboratively with the PUC team to push the envelope on expanding its program efforts and contributions to the entire HCEI.

7.0 APPENDIX

Appendix A – Program Budget

Appendix B – Program Organization Transition Plan

Appendix C – Summary Presentation of Programs

Appendix D – Summary Presentation of Program Feedback

Appendix E – TRB Calculations

Appendix A – Program Budget

Hawaii Energy Efficiency Program Annual Budget Progression - October 4, 2010
July 1, 2010 through June 30, 2011

		PY10 Contract	PY10 Revision 1 (R1)	Variance (Contract to R1)	PY10 Revision R1 New Format (R1a)	Variance (R1 to R1a)	PY10 Revision 2 PY10 Annual Plan (R2)	Variance (R1a to R2)	PY10 Revision 2 Tax at Bottom (R2a)	Variance (R2 to R2a)
	Residential Programs									
1	Residential Program Ops and Management									
2	REEM	-	1,173,521	1,173,521	2,133,674	960,153	1,744,085	(389,589)	1,665,602	(78,483)
2	~~RNC~~	-	-	-	-	-	-	-		-
2	~~ESH~~	-	960,153	960,153	-	(960,153)	-	-		-
	RLI	-	10,411	10,411	10,411	-	60,000	49,589	57,300	(2,700)
3	New	-	-	-	-	-	340,000	340,000	324,700	(15,300)
	Total Residential Programs	1,369,381	2,144,085	774,704	2,144,085	-	2,144,085	-	2,047,602	(96,483)
4	~~Education & Training (E&T)~~	67,837	67,837	-	-	(67,837)	-	-		-
	Market Evaluation	101,755	101,755	-	101,755	-	101,755	-	97,176	(4,579)
4	~~Advertising/Marketing~~	211,990	81,761	(130,229)	-	(81,761)	-	-		-
4	Outreach			-	149,598	149,598	149,598	-	142,866	(6,732)
	Total Residential Non-Incentive	1,750,963	2,395,438	644,475	2,395,438	-	2,395,438	-	2,287,644	(107,794)
9	Less Performance Incentives			-		-	(350,000)	(350,000)		350,000
	Subtotal Residential Non-Incentive Less P I		2,395,438	2,395,438	2,395,438	-	2,045,438	(350,000)	NA	
9	Residential Customer Incentives					-				
2	REEM	-	3,458,832	3,458,832	5,933,360	2,474,528	5,008,370	(924,990)	5,008,370	-
2	~~RNC~~	-	-	-	-	-	-	-	0	-
2	~~ESH~~	-	2,474,528	2,474,528	-	(2,474,528)	-	-	0	-
	RLI	-	252,960	252,960	252,960	-	290,750	37,790	290,750	-
3	New	-				-	887,200	887,200	887,200	-
	Total Residential Customer Incentives	*6,186,320*	*6,186,320*	-	*6,186,320*	-	6,186,320	-	6,186,320	-
9	Performance Pool Award			-	-	-	350,000	350,000	0	(350,000)
	Total Residential Programs	**7,937,283**	**8,581,758**	**644,475**	**8,581,758**	**-**	**8,581,758**	**-**	**8,473,964**	**(107,794)**
	Business (C&I) Programs									
1	Business Programs Ops and Management									
5	BEEM	-	272,439	272,439	513,341	240,902	504,021	(9,320)	481,340	(22,681)
5	~~CINC~~	-	240,902	240,902	-	(240,902)	-	-	0	-
6	CBEEM	-	349,459	349,459	349,459	-	197,182	(152,277)	188,309	(8,873)
	~~PV~~	-	36,183	36,183	36,183	-	-	(36,183)	0	-
	New	-	-	-	-	-	197,780	197,780	188,880	(8,900)
	Total Business Programs	1,673,687	898,983	(774,704)	898,983	-	898,983	-	858,529	(40,454)
4	~~Education & Training (E&T)~~	82,911	82,911	-	-	(82,911)		-		-
	Market Evaluation	124,367	124,367	-	124,367	-	124,367	-	118,771	(5,596)
4	~~Advertising/Marketing~~	259,098	99,929	(159,169)	-	(99,929)		-		-
4	Outreach			-	182,840	182,840	182,840	-	174,612	(8,228)
	Total Business Non-Incentive	2,140,063	1,206,190	(933,873)	1,206,190	-	1,206,190	-	1,151,912	(54,278)
9	Less Performance Incentives	-	-	-	-	-	(350,000)	(350,000)	0	350,000
	Subtotal Business Non-Incentive Less P I	-	1,206,190	1,206,190	1,206,190	-	856,190	(350,000)	NA	
	Business Customer Incentives									
5	BEEM	-	2,022,841	2,022,841	3,811,514	1,788,673	5,138,670	1,327,156	5,138,670	-
5	~~CINC~~	-	1,788,673	1,788,673		(1,788,673)	-	-	0	-
6	CBEEM	-	2,594,710	2,594,710	2,594,710	-	1,115,390	(1,479,320)	1,115,390	-
	~~PV~~	-	-	-	-	-		-	0	-
7	New	-	1,154,836	1,154,836	1,154,836	-	1,307,000	152,164	1,307,000	-
	Total Business Customer Incentives	*7,561,060*	*7,561,060*	-	*7,561,060*	-	7,561,060	-	7,561,060	-
9	Performance Pool Award			-	-	-	350,000	350,000	0	(350,000)
	Total Business Programs	**9,701,123**	**8,767,250**	**(933,873)**	**8,767,250**	**-**	**8,767,250**	**-**	**8,712,972**	**(54,278)**
	Ramp Up Program Costs	-	-	-	-	-	-	-	0	-
	Total Services and Initiatives	**17,638,406**	**17,349,008**	**(289,398)**	**17,349,008**	**-**	**17,349,008**	**-**	**17,186,936**	**(162,072)**
	Supporting Services									
8	~~GA~~	1,131,088	1,131,088	-	-	(1,131,088)	-	-	0	-
8	~~IT~~	74,038	74,038	-	-	(74,038)	-	-	0	-
8	Supporting Services	-	-	-	1,205,126	1,205,126	1,205,126	-	1,150,896	(54,230)
	Ramp up GA	-	-	-	-	-	-	-	0	-
	Ramp Up IT	-	-	-	-	-	-	-	0	-
	Less Contractor Contribution	-	-	-	-	-	-	-	0	-
	Total Supporting Services	**1,205,126**	**1,205,126**	**-**	**1,205,126**	**-**	**1,205,126**	**-**	**1,150,896**	**(54,230)**
	Subtotal Non-Incentive (Prior to Tax)	-	**4,806,754**	-	4,806,754	-	4,806,754	-	4,590,452	(216,302)
9	Less Performance Incentives (Prior to Tax)	-	-	-	-	-	(700,000)	(700,000)	(700,000)	0
	Subtotal Non-Incentive Less PI					-	4,106,754	NA	3,890,452	(216,302)
10	Tax on Non-Incentive w/o performance incentives	-	-	-	-	-		-	216,302	216,302
9	Performance Incentive Award (Inclusive of Tax)	-	-	-	-	-	700,000	700,000	700,000	0
	Subtotal Non-Incentive Billed	-	*4,806,754*	-	*4,806,754*	-	*4,806,754*	-	*4,806,754*	0
	Subtotal Residential and Business Customer Incentives	-	*13,747,380*	-	*13,747,380*	-	*13,747,380*	-	*13,747,380*	0
	Sub-Total Estimated Contractor Costs	*18,843,532*	*18,554,134*	*(289,398)*	*18,554,134*	-	*18,554,134*	-	*18,554,134*	-
	Performance Awards in Excess of Target Levels	133,000	133,000	-	133,000	-	133,000	-	133,000	-
	Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels	**18,976,532**	**18,687,134**	**(289,398)**	**18,687,134**	**-**	**18,687,134**	**-**	**18,687,134**	**-**

NOTES FOR R1

Streamlined to create Program Ops and Management which includes Program Management, Program Operations, Call Center, and Data Tracking; Program Management will consume approximately 30%; Divided Program Ops and Management into the individual programs for residential and business.

NOTES FOR R1a

Shows how the allocations from Revision 1 would be reallocated based on the new program design proposed in the PY2010 Annual Plan, without shifting any funds for increased or decreased resource needs.

NOTES FOR R1a to R2

1 Program Ops and Management includes Program Management, Program Operations, Call Center, and Data Tracking; Program Management will consume approximately 30%.
2 REEM budget includes the new improved REWH and ESH programs; RNC is now included as a part of the REWH program.
3 New Residential Programs include RSAM and RDA.
4 Education & Training and Advertising & Marketing will now be tracked to one budget called "Outreach."
5 BEEM is the new improved CIEE and CINC programs.
6 CBEEM is the new improved CICR.
7 New Business Programs include BSAM, BDI, and BDA.
8 GA and IT will now be tracked as one budget called "Supporting Services."
Reallocation of funds based on experience from PY2009 as well as changes in initiatives for PY2010 (reallocations are in the variance column)

NOTES FOR R2a

9 Moved Performance Incentive Deductions and Awards to the bottom to increase accuracy in reporting in comparison to invoices.
10 Removed tax from each line item at a rate of 4.712% and made into one line item at the bottom of the budget. This is to increase accuracy when comparing reporting to invoices.
11 Tax on Performance Incentives will not be seen on invoices due to tax being applied after deductions and therefore we have set aside a line item to make sure it does not get spent inadvertently. Award will be tax inclusive, not to exceed $700,000 although it may appear that only $668,500.27 was withheld, this is only the effort due to tax cannot be applied until effort is billed.

Appendix B – Program Organization Transition Plan

Hawaii Energy - PY2010 ANNUAL PLAN - Program Organization Transition Plan

This proposed program organization plan makes a transition from the PY2009 program organization, through a PY2010 Transition year that condenses the budget categories and then to a final PY2011 organization that would provide an organization that is clear with categories of measures that clearly reflects to the public the activities and offerings within each progam.

RESIDENTIAL PROGRAMS		
PY2009	Program	
	ESH	Energy Solutions for the Home
	REWH	Residential Efficient Water Heating
	RNC	Residential New Construction
	NEW	New
	RLI	*Residential Low Income*

RESIDENTIAL PROGRAMS		
PY2010	Program	Category
	REEM	***Residential Energy Efficiency Measures***
		High Efficiency Water Heating
		High Efficiency Lighting
		High Efficiency Air Conditioning
		High Efficiency Appliances
		Energy Awareness, Measurement and Control Systems
	NEW	***New Residential Programs Incubator***
		Residential Service & Maintenance
		Residential Design & Audits
	RLI	***Residential Low Income***

RESIDENTIAL PROGRAMS		
PY2011	Program	Category
	ESH	***Energy Solutions for the Home***
		High Efficiency Water Heating
		High Efficiency Lighting
		High Efficiency Air Conditioning
		High Efficiency Appliances
		Energy Awareness, Measurement and Control Systems
	CESH	***Custom Energy Solutions for the Home***
	RESAM	***Residential Energy Services & Maintenance***
		Residential Direct Installation
		Residential Design & Audits
	NEW	***New Residential Programs Incubator***
	RLI	***Residential Low Income***
	RREP	***Residential Renewable Energy Promotion***
		Financial Analysis
		Renewable Energy Curtailment Avoidance
		Technology Education
		Standards & Specifications

BUSINESS PROGRAMS		
PY2009	Program	Category
	CIEE	Commercial & Industrial Energy Efficiency
	CINC	Commercial & Industrial New Construction
	CICR	Commercial & Industrial Custom Rebate
	NEW	New
	PV	Photo-Voltaic

BUSINESS PROGRAMS		
PY2010	Program	Category
	BEEM	***Business Energy Efficiency Measures***
		High Efficiency Lighting
		High Efficiency Air Conditioning
		High Efficiency Water Heating
		High Efficiency Water Pumping
		High Efficiency Motors
		Building Envelope Improvements
		Energy Star Business Equipment
		Energy Awareness, Measurement and Control Systems
	CBEEM	***Custom Business Energy Efficiency Measures***
	NEW	***New Programs***
		Business Service & Maintenance
		Business Direct Installation
		Business Design, Audits & Commissioning
	BREP	***Business Renewable Energy Promotion***
		Non-Profit & Government PV

BUSINESS PROGRAMS		
PY2011	Program	Category
	BEEM	***Business Energy Efficiency Measures***
		High Efficiency Lighting
		High Efficiency Air Conditioning
		High Efficiency Water Heating
		High Efficiency Water Pumping
		High Efficiency Motors
		Building Envelope Improvements
		Energy Star Business Equipment
		Energy Awareness, Measurement and Control Systems
	CBEEM	***Custom Business Energy Efficiency Measures***
	BESAM	***Business Energy Services & Maintenance***
		Business Service & Maintenance
		Business Direct Installation
		Business Design, Audits & Commissioning
	BREP	***Business Renewable Energy Promotion***
		Financial Analysis
		Non-Profit & Government PV Incentives
		Renewable Energy Curtailment Avoidance
		Technology Education
		Standards & Specifications
	NEW	***New Business Programs Incubator***

Appendix C – Summary Presentation of Programs - Part 1 of 4

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS

Combined Programs	Estimated Budget	kW	kWh	$/kWh	TRB
Targets	$ 13,747,380	23,126	132,615,000	$ 0.104	$ 155,592,610
Plan Goals	$ 13,747,380	22,703	119,181,826	$ 0.115	$ 144,583,492

Residential Programs

Residential Target	$ 6,186,320		71,245,000	$ 0.087	
Difference	$ -		(13,463,332)		
Residential Plan	$ 6,186,320	11,184	57,781,668	$ 0.107	$ 58,856,745

Program	Category	Measures	Units	Incentive	Estimated Budget	% Total Program	kW	% Total Program	kWh	% Total Program	TRB	% Total Program
REEM	**Residential Energy Efficiency Measures**				$ 5,008,370	36%	9,222	41%	50,239,184	42%	$ 47,037,920	33%
	High Efficiency Water Heating				**$ 1,590,100**	**12%**	**1,004**	**4%**	**3,610,051**	**3%**	**$ 6,295,037**	**4%**
		Solar Water Heater (SWH) Incentive	1,400	$ 750	$ 1,050,000	8%	571	3%	2,520,000	2%	$ 4,981,744	3%
		Solar Water Heater Interest Buydown	1,355	$ 250	$ 338,750	2%	35	0%	152,438	0%	$ 301,351	0%
		Solar Water Heater (SWH) Incentive ARRA SEP Leveraged	1,355									
		Solar Water Heater Energy Hero Gift Packs	4,110	$ 35	$ 143,850	1%	265	1%	689,494	1%	$ 703,160	0%
		Heat Pumps	250	$ 125	$ 31,250	0%	37	0%	123,000	0%	$ 110,525	0%
		High Efficiency Water Heaters	650	$ 25	$ 16,250	0%	18	0%	83,200	0%	$ 64,796	0%
	(pilot)	High Efficiency Water Heaters w/Timer	200	$ 50	$ 10,000	0%	78	0%	41,920	0%	$ 133,462	0%
	(pilot)	Instantaneous Water Heaters				0%		0%		0%	$ -	0%
	High Efficiency Lighting				$ 1,582,230	12%	6,244	28%	40,566,948	34%	$ 28,271,342	20%
		CFLs	1,500,000	$ 0.92	$ 1,379,022	10%	6,000	26%	39,240,000	33%	$ 26,788,643	19%
	(pilot)	LED	25,401	$ 8	$ 203,208	1%	244	1%	1,326,948	1%	$ 1,482,699	1%
	High Efficiency Air Conditioning				$ 237,040	2%	429	2%	1,720,016	1%	$ 2,882,473	2%
		Window AC	1,100	$ 50	$ 55,000	0%	163	1%	573,760	0%	$ 1,070,556	1%
		Split System AC	600	$ 110	$ 66,000	0%	91	0%	179,040	0%	$ 517,700	0%
		Ceiling Fans	2,276	$ 40	$ 91,040	1%	18	0%	719,216	1%	$ 653,566	0%
	(new)	Solar Attic and Whole House Fans	500	$ 50	$ 25,000	0%	157	1%	248,000	0%	$ 640,652	0%
	High Efficiency Appliances				$ 1,347,500	10%	1,542	7%	4,167,197	3%	$ 9,419,944	7%
		Refrigerator	6,400	$ 50	$ 320,000	2%	205	1%	675,840	1%	$ 1,457,446	1%
		Refrigerator with Recycling	2,001	$ 125	$ 250,125	2%	192	1%	633,917	1%	$ 1,367,038	1%
	(pilot)	Garage Refrigerator / Freezer Bounty	1,665	$ 75	$ 124,875	1%	53	0%	1,598,400	1%	$ 1,911,410	1%
		Clothes Washer	6,200	$ 75	$ 465,000	3%	992	4%	1,111,040	1%	$ 4,223,575	3%
		Dishwasher	2,500	$ 75	$ 187,500	1%	100	0%	148,000	0%	$ 460,475	0%
	Energy Awareness, Measurement and Control Systems				$ 251,500	2%	3	0%	174,971	0%	$ 169,124	0%
	(pilot)	Room Occupancy Sensors	300	$ 5	$ 1,500	0%	2	0%	10,800	0%	$ 13,013	0%
	(pilot)	Residential Energy Awareness and Action	5	$ 20,000	$ 100,000	1%	1	0%	28,571	0%	$ 2,986	0%
	(pilot)	Whole House Energy Metering	1,500	$ 100	$ 150,000	1%	-	0%	135,600	0%	$ 153,126	0%

Appendix C – Summary Presentation of Programs Cont. - Part 2 of 4

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS

Residential Programs Cont.

Program	Category	Measures			Estimated Budget	% Total Program	kW	% Total Program	kWh	% Total Program	TRB	% Total Program
NEW	**New Residential Programs Incubator**			$	887,200	6%	1,379	6%	5,141,644	4%	$ 10,066,310	7%
	Residential Energy Services & Maintenance			$	57,200	0%	176	1%	329,144	0%	$ 132,641	0%
		AC Annual Tune Up	500 $ 50	$	25,000	0%	157	1%	248,000	0%	$ 68,509	0%
	(pilot)	Solar Water Heater Tune Up	644 $ 50	$	32,200	0%	18	0%	81,144	0%	$ 64,132	0%
	Residential Design and Audits			$	830,000	6%	1,203	5%	4,812,500	4%	$ 9,933,669	7%
	(new)	Efficiency Inside Home Design	1,100 $ 700	$	770,000	6%	1,203	5%	4,812,500	4%	$ 9,933,669	7%
	(new)	Hawaii Energy Hero Audits	600 $ 100	$	60,000	0%	-	0%	-	0%	$ -	0%
RLI	**Residential Low Income**			$	290,750	2%	583	3%	2,400,840	2%	$ 1,752,514	1%
		RLI Solar Inspections (ARRA WAP)	450 $ 85	$	38,250	0%	138	1%	607,500	1%	$ 480,137	0%
		RLI Solar Inspections (DHHL)				0%		0%		0%	$ -	0%
		RLI Energy Hero Gift Packs	4,000 $ 35	$	140,000	1%	258	1%	671,040	1%	$ 684,341	0%
		RLI CFL Exchange	30,000 $ 1.50	$	45,000	0%	120	1%	784,800	1%	$ 535,773	0%
	(new)	RLI Hawaii Energy Hero Audits	750 $ 90	$	67,500	0%	68	0%	337,500	0%	$ 52,263	0%

Appendix C – Summary Presentation of Programs Cont. - Part 3 of 4

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS

Business Programs													
		Business Target		$ 7,561,060				61,370,000	$ 0.123				
		Difference		$ -				30,158					
		Business Plan		$ 7,561,060		11,520		61,400,158	$ 0.123	$ 85,726,748			
Program	Category	Measures	Applications	Incentive	Estimated Budget	% Total Program	kW	% Total Program	kWh	% Total Program	TRB	% Total Program	
BEEM		**Business Energy Efficiency Measures**			$ 5,138,670	37%	9,444	42%	46,328,448	39%	$ 70,240,485	49%	
		High Efficiency Lighting			$ 1,850,070	13%	5,433	24%	29,927,932	25%	$ 34,898,084	24%	
		CFL	135	$ 1,090	$ 147,150	1%	1,653	7%	8,506,121	7%	$ 6,320,950	4%	
		T8	330	$ 3,500	$ 1,155,000	8%	2,143	9%	12,642,877	11%	$ 16,504,443	11%	
		T5	50	$ 2,130	$ 106,500	1%	986	4%	5,060,692	4%	$ 6,959,700	5%	
		Delamp	25	$ 1,160	$ 29,000	0%	115	1%	758,799	1%	$ 954,092	1%	
		Delamp/Reflector	30	$ 4,900	$ 147,000	1%	353	2%	1,526,687	1%	$ 2,251,688	2%	
	(new)	LED	150	$ 460	$ 69,000	1%	68	0%	594,019	0%	$ 684,766	0%	
		HID	8	$ 740	$ 5,920	0%	15	0%	80,952	0%	$ 147,717	0%	
		HPS	1	$ 46,000	$ 46,000	0%	22	0%	465,195	0%	$ 607,001	0%	
		Induction	10	$ 1,700	$ 17,000	0%	6	0%	27,016	0%	$ 63,172	0%	
		Sensors	100	$ 1,200	$ 120,000	1%	55	0%	197,393	0%	$ 263,817	0%	
	(new)	Daylighting	5	$ 1,500	$ 7,500	0%	17	0%	68,182	0%	$ 140,737	0%	
		High Efficiency HVAC			$ 2,273,000	17%	3,024	13%	10,746,771	9%	$ 25,328,103	18%	
		Chillers	20	$ 19,000	$ 380,000	3%	1,267	6%	3,966,792	3%	$ 11,100,401	8%	
		VFD - Chilled Water	10	$ 2,400	$ 24,000	0%	65	0%	241,204	0%	$ 517,189	0%	
		VFD - AHU	45	$ 1,500	$ 67,500	0%	249	1%	949,029	1%	$ 2,004,520	1%	
		Package Units	205	$ 4,300	$ 881,500	6%	802	4%	2,837,746	2%	$ 6,204,981	4%	
		Split Systems	200	$ 4,600	$ 920,000	7%	640	3%	2,752,000	2%	$ 5,501,011	4%	
		High Efficiency Water Heating			$ 153,000	1%	185	1%	740,909	1%	$ 1,529,339	1%	
	(new)	Commercial Solar Water Heating	6	$ 18,000	$ 108,000	1%	123	1%	490,909	0%	$ 1,013,305	1%	
	(new)	Heat Pump	3	$ 15,000	$ 45,000	0%	63	0%	250,000	0%	$ 516,035	0%	
		High Efficiency Water Pumping			$ 35,000	0%	53	0%	479,665	0%	$ 738,757	1%	
	(new)	VFD Domestic Water Booster Packages	10	$ 3,500	$ 35,000	0%	53	0%	479,665	0%	$ 738,757	1%	
		High Efficiency Motors			$ 350,100	3%	25	0%	141,579	0%	$ 252,300	0%	
		NEMA Premium Efficiency Motors	100	$ 3,501	$ 350,100	3%	25	0%	141,579	0%	$ 252,300	0%	
		Building Envelope Improvements			$ 205,000	1%	296	1%	2,586,591	2%	$ 4,843,754	3%	
		Window Tinting	45	$ 4,000	$ 180,000	1%	278	1%	2,447,703	2%	$ 4,576,923	3%	
		Cool Roof Technologies	5	$ 5,000	$ 25,000	0%	17	0%	138,889	0%	$ 266,831	0%	
		Energy Star Business Equipment			$ 12,500	0%	23	0%	80,000	0%	$ 168,806	0%	
	(new)	Refridgerators	250	$ 50	$ 12,500	0%	23	0%	80,000	0%	$ 168,806	0%	
		Energy Awareness, Measurement and Control Systems			$ 260,000	2%	406	2%	1,625,000	1%	$ 2,481,342	2%	
	(pilot)	Condominum Submetering Pilot	3	$ 70,000	$ 210,000	2%	328	1%	1,312,500	1%	$ 2,004,160	1%	
	(pilot)	Small Business Submetering Pilot	2	$ 25,000	$ 50,000	0%	78	0%	312,500	0%	$ 477,181	0%	

Appendix C – Summary Presentation of Programs Cont. - Part 4 of 4

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS

Business Programs Cont.

Program	Category	Measures	Applications	Incentive	Estimated Budget	% Total Program	kW	% Total Program	kWh	% Total Program	TRB	% Total Program
CBEEM	**Custom Business Energy Efficiency Measures**				$ 1,115,390	8%	1,296	6%	8,107,710	7%	$ 8,617,029	6%
	Customized Project Measures				$ 1,115,390		1,296		8,107,710		$ 8,617,029	
		Customized Project Measures	40	$ 27,885	$ 1,115,390	8%	1,296	6%	8,107,710	7%	$ 8,617,029	6%
NEW	**New Business Programs Incubator**				$ 1,307,000	10%	780	3%	6,964,000	6%	$ 6,869,233	5%
	Business Service and Maintenance				$ 66,000	0%	150	1%	600,000	1%	$ 101,306	0%
	(new)	Central Plant Performance Competition	6	$ 10,000	$ 60,000	0%	136	1%	545,455	0%	$ 92,097	0%
	(new)	Package & Split Annual tune-up	30	$ 200	$ 6,000	0%	14	0%	54,545	0%	$ 9,210	0%
	Business Direct Installation				$ 691,000	5%	580	3%	6,164,000	5%	$ 6,767,927	5%
	(new)	Small Business Direct Lighting Retrofits	1,000	$ 691	$ 691,000	5%	580	3%	6,164,000	5%	$ 6,767,927	5%
	Business Design, Audits and Commissioning				$ 550,000	4%	50	0%	200,000	0%	$ -	0%
		Energy Study Assistance	20	$ 10,000	$ 200,000	1%		0%		0%	$ -	0%
	(pilot)	Energy Project Catalyst	15	$ 20,000	$ 300,000	2%	50	0%	200,000	0%	$ -	0%
		Design Assistance	5	$ 10,000	$ 50,000	0%		0%		0%	$ -	0%
BREP	**Business Renewable Energy Promotion**				$ -	0%	-	0%	-	0%	$ -	0%
	(TBD)	Non-Profit & Government PV Incentive				0%		0%		0%	$ -	0%

Appendix D – Summary Presentation of Program Feedback - Part 1 of 6

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Residential Programs

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
REEM	**Residential Energy Efficiency Measures**				
	High Efficiency Water Heating				
		Solar Water Heater (SWH) Incentive	- Contractor Incentives - First Cost - Standard & Specs - Inspections provides confidence in quality installation - Consumer Awareness - discussion of Benefits / Show participating Contractors	- Budget for all units install - 45% Rental Market (would be addressed greatly by PACE program) - Request for program media presence - Solar power pumps (mixed reliability comments)	- Sample & Simplify Inspections - Provide Gift Pack - Home Energy Educational Materials - Develop tier for energy only on shaded homes - Utility bill stuffer by islands
		Solar Water Heater Interest Buydown			- Leverage ARRA SEP Funding - 6% up to $1,000 (1/4 PBF Contribution) - Provide Gift Pack
		Solar Water Heater (SWH) Incentive ARRA SEP Leveraged			- Leverage ARRA SEP Funding - In inspection sample pool - Provide Gift Pack - Home Energy Educational Materials
		Solar Water Heater Energy Hero Gift Packs	- Education - Positive feedback of appreciation		- Energy Hero Gift Pack - 3 CFLs - Branded w Hawaii Energy - 1 Smart Strip - 1 Shower head - Educational Material
		Heat Pumps	- Incentives	- Savings could be higher then SWH - May be more cost effective - Longer recovery rates - Maintenance needs	- New integrated tanks in market - Add-on units being promoted - Modify savings amounts
		High Efficiency Water Heaters		- Good ENERGY STAR market saturation - Retrofit - Replace on burnout - New - Developer participation / low first cost	- Modify incentive ($50 - $25)
(pilot)		High Efficiency Water Heaters w/Timer			- Investigate Tank Timer Incentive (w/load control?)
(pilot)		Instantaneous Water Heaters	- Education of Technology - Benefits/Shortfalls	- New - Instantaneous water heaters (gas/electric) increasingly choosen	- Investigate market - load characteristics

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Residential Programs Cont.

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
	High Efficiency Lighting				
		CFLs	- Offer point-of-purchase rebates - Work with manufacturers and retailers to: - learn about CFL technology - Product use - product placements in store - Media Placement - Radio, Print, TV, Social Media - Limited time "promotions" for neighbor islands and end-of-year push to match media	- Public concerns about Mercury content - Limited ways to properly dispose - Do not last as long as advertised	- Educate on proper locations - Improve Point-of-Purchase education
		LED	- Offer point-of-purchase rebates - Work with manufacturers and retailers to: - learn about LED technology - Product use - product placements in store - Media Placement - Social Media	- More education about benefits - Product quality concerns - Fake UL listings	- Prescriptive for ENERGY STAR labeled
	High Efficiency Air Conditioning				
		Window AC	- Mail-In Rebate	- Majority of small AC units are under $100 lending them to become impulse purchases where they would not be bought if over $100. - 12.0 EER in enhanced case may be high for actual units sold that are in the 10.8 EER range for small units.	- Eliminate < 12,000 BTU incentives - Reduce Incentive ($75 to $50)
		Split System AC		- Inverter drive systems can save from 25% to 35% over single and two speed units	- Use IEER Ratings versus EER/SEER - Add Inverter Drive category with new savings value if IEER does not address.
		Ceiling Fans	- Mail-In Rebate		
		Solar Attic and Whole House Fans	- Mail-In Rebate	- No rebates	- Implement Point-of-Purchase in capable stores
	(new)		- Contractor Direct Incentives	- Need to bring awareness and credibility to technologies	- Add Prescriptive Incentives - Develop Savings Values (using $0.10/kWh proxy)

Appendix D – Summary Presentation of Program Feedback - Part 3 of 6

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Residential Programs Cont.

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
	High Efficiency Appliances				
		Refrigerator	- Mail-In Rebate - Media Placement - Radio PSAs	- Extra cost for recycling haul away - Often old unit is turned put on curb for City pickup or put in garage	- Implement Point-of-Purchase in capable stores - Unbundle savings from Dishwasher/Clotheswasher incentives
		Refrigerator with Recycling	- Mail-In Rebate - Media Placement - Radio PSAs	- Extra cost for recycling haul away - Often old unit is turned put on curb for City pickup or put in garage	- Implement Point-of-Purchase in capable stores - Bonus for recycling - Unbundle savings from Dishwasher/Clotheswasher incentives - Modify savings for recycled unit - Modify incentive ($50 to $125)
	(pilot)	Garage Refrigerator / Freezer Bounty	- Mail-In Rebate - Media Placement - Radio PSAs		- Direct Uninstall Program for removal of working Refrigerator/Freezer - Work with Recycler to pick up at home. -"Green for Garage Fridge"
	(pilot)	Residential Energy Awareness and Action Competitions			
		Clothes Washer	- Mail Rebate		- Implement Point-of-Purchase in capable stores - Unbundle savings / incentives from Refrigerator / Dishwashers
		Dishwasher	- Mail Rebate		- Implement Point-of-Purchase in capable stores Unbundle savings / incentives from Refrigerator / Clotheswashers
	Energy Awareness, Measurement and Control Systems				
	(pilot)	Room Occupancy Sensors	- Mail Rebate - Point-of-Purchase in capable stores	- Incentive asked for by customers - Promoted as low-cost tips in many audit tools	- Implement Point-of-Purchase in capable stores - Add Prescriptive Incentives - Develop Savings Values (using $0.14/kWh proxy)
	(pilot)	Whole House Energy Metering			
NEW	**New Residential Programs Incubator**				
	Residential Energy Services & Maintenance				
		AC Annual Tune Up	- Direct offer through Mechanical Contractors - Worksheet for before and after measurement - Payment directly to Mechanical Contractors	- Not much promotion by Contractors	- Add Split Systems
	(pilot)	Solar Water Heater Tune Up	- Direct offer through Solar Contractors - Worksheet for before and after measurement - Payment directly to Solar Contractors	- 7% of 3-year old systems may not be functioning properly due to timer settings or system controllers issues. - Few customers perform 5 year anode rod maintenance, tank blow down, leak inspections, mixing valve checks, tank setpoint adjustments.	- Add incentive for Customers, Solar Contractors to have systems inspected and maintained.
	Residential Design and Audits				
	(new)	Efficiency Inside Home Design	- Direct to Home Developers	- Prescriptive program was never partcipated in due to restrictive bundling of measures. - Developers may make equipment changes to homes midstream - Some items are customer driven options and it is cumbersome to participate on a piecemeal basis	- Replace Existing prescriptive program with energy model based program
	(new)	Hawaii Energy Hero Audits	- Workforce Development Classes (MCC/WCC etc.) - Grass Roots Organizations - Kanu Hawaii, Blue Planet, etc. - Direct customer contact	- Need for residential education.	- Use Kanu Hawaii/ EPA Customized Home Audit - Incentive paid to third-party service provider

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Residential Programs Cont.

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
RLI	**Residential Low Income**				
		RLI Solar Inspections (ARRA WAP)	- Direct contract with customers through Office Community Services (OCS) and their subcontractors Honolulu Community Action Program (HCAP), Maui Economic Opportunity (MEO), Hawaii County Economic Opportunity Council (HCEOC) '- Give away Showerheads and Smart Strips	- Customers did not want to give much information about themselves or homes. Provided simplified forms.	- Change to Energy Hero Gift Packs
		RLI Solar Inspections (DHHL)	- Direct contract with Council for Native Hawaiian Advancement (CNHA) - Will start implementation PY10 - RLI Energy Hero Gift Packs		
		RLI Energy Hero Gift Packs	- Direct contract with customers through Office Community Services (OCS) and their subcontractors Honolulu Community Action Program (HCAP), Maui Economic Opportunity (MEO), Hawaii County Economic Opportunity Council (HCEOC)		- Energy Hero Gift Pack - Add 3 CFLs - Branded w Hawaii Energy - 1 Smart Strip - 1 Shower head - Educational Material
		RLI CFL Exchange	- Blue Planet exchange program to perform community group bulb exchanges.	- Blue Planet has proven effective in the distribution of energy savings devices through their grass root volunteer network.	- Provide CFL lamps to Blue Planet
	(new)	RLI Hawaii Energy Hero Audits	- Kanu Hawaii volunteer network	- Kanu Hawaii is performing a study for the EPA to develop Hawaii-home based energy audits forms with educational materials with low-no cost measures.	- Develop delivery network and processes - Develop database to capture/analyse data

Appendix D – Summary Presentation of Program Feedback Cont. - Part 5 of 6

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Business Programs

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
BEEM	**Business Energy Efficiency Measures**				
	High Efficiency Lighting				
		CFL	- Incentives and Education - Direct give aways to small business	- Pin based CFL fixture should be given a higher rebate compared to screw-in CFL. - Resorts are moving to install CCFL because of the greater dimming performance.	- Modify Incentive levels for the lamp size as single incentive and savings is currently provided to all sizes. - Higher incentives for pin-mount CFLs.
		T8	"		- Eliminate 32W T8 Incentive
		T5	"		
		Delamp	"		
		Delamp/Reflector	"		
	(new)	LED	"	- Performance/longevity issues	- Prescriptive for ENERGY STAR labled
		HID	"	- Ceramic Metal Halide under 400 watts applications for high bay lighting provide good options for consumers.	- Review project feasibilities and revise incentive levels.
		HPS	"	- Industry is moving away from this lamps color rendition issues for security camera reasons	
		Induction	"	- Poor equipment life by some manufacturers	
		Sensors	"		- Tier incentives by load controlled
	(new)	Daylighting	"		
	High Efficiency HVAC				
		Chillers	- Incentives and Education - Reviews for weather coorelation to customers usage patterns to help make buying decisions or review savings from this weather sensitive technology.	- Review use of IPLV value for savings preditions as many machine do not operate in part load conditions. - Use of VFD chillers needs to come with education on the need to provide condenser water relief to allow energy savings to occur.	- Energy Competition
		VFD - Chilled Water	"		
		VFD - AHU	"		
		Package Units	"		- Adjust for IEER values
	High Efficiency A	Split Systems	- Incentives and Education '- Case-studies with pre-measurement of future inverter drive retrofits.		- Adjust for IEER values - Review additional promotion of Inverter drive VRF machines as they are showing 20-30% savings potential.
	High Efficiency Water Heating				
	(new)	Commercial Solar Water Heating			- Prescriptive from Customized
	(new)	Heat Pump			- Create Prescriptive Measures
	High Efficiency Water Pumping				
	(new)	VFD Domestic Water Booster Packages			- Prescriptive from Customized
	High Efficiency Motors				
		NEMA Premium Efficiency Motors			
	Building Envelope Improvements				
		Window Tinting			
		Cool Roof Technologies			
	Energy Star Business Equipment				
	(new)	Refridgerators			- Allow same as Residential ESH - Must pickup/recycle
	Energy Awareness, Measurement and Control Systems				
	(pilot)	Condominum Submetering Pilot	- Provide awareness of energy use and use compared to similar users - Education on ways to reduce energy use - Impact behavior		- Incentives per unit installed - Educational Meetings - Unit Audits top 5 / bottom 5 - ENERGY STAR Appliance deals
	(pilot)	Small Business Submetering Pilot			

Appendix D – Summary Presentation of Program Feedback Cont. - Part 6 of 6

Hawaii Energy - PY2010 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAM FEEDBACK

Business Programs Cont.

Program	Category	Measures	Market Intervention	Feedback/Lessons	Changes
CBEEM	**Custom Business Energy Efficiency Measures**				
	Customized Project Measures				
		Customized Project Measures	- Direct contact with consulting and construction firms.	- Need to get in earlier in decision process and be flexible as to project financials to get incentives effective in moving projects that are stuck	- Tiered incentives by payback - Kicker incentive for project sizes - Daypeak demand reduction incentive - Renewable curtailment avoidance incentive
NEW	**New Business Programs Incubator**				
	Business Service and Maintenance				
	(new)	Central Plant Performance Competition		- Few central plant operators know their kW/ton and track their performance/operations to optimize complete plant efficiency.	- Develop critera for plant efficency measurement. - Work with ASHRAE and PAMCAH to develop training seminars and promote program with their members.
	(new)	Package & Split Annual tune-up	- Demonstrate the benefits of tune-ups - Educate customer on savings		
	Business Direct Installation				
	(new)	Small Business Direct Lighting Retrofits	- Direct installation with no cost to customer - Overcome time, risk and cost barriers - Serve underserved market		- 4 month repayments - Bonus Incentives - Self Audit Tool - Grass Roots / Workforce Allies
	Business Design, Audits and Commissioning				
		Energy Study Assistance	- Project indentification - System opportunity energy assessment - Savings estimates		- change to $/sq. ft. Incentive - tiered incentive to technologies to be reviewed
	(pilot)	Energy Project Catalyst			- Full cost reimbursment - Must implement projects with <2 yr. paybacks
		Design Assistance	- Awareness - Project clarification for decision - Firm up savings estimates		
BREP	**Business Renewable Energy Promotion**				
		Non-Profit & Government PV Incentive	- Education - Financial Analysis - Incentive for businesses that do not get tax credits		
	(TBD)				

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Appendix E – TRB Calculations

Hawaii Energy - PY2010 ANNUAL PLAN - TRB Calculations

The Total Resource Benefit (TRB) is a projection of the Utility cost savings as a result of demand (kW) and energy (kWh) reductions provided by the Hawaii Energy Conservation and Efficiency Programs.

The avoided cost for future years is discounted to a Net Present Value (NPV) and accumulated for each year that the energy or demand measure is projected to produce savings.

		Discount Rate						
		6%	HECO IRP4 Avoided Cost		NPV for each Year		NPV Cumulative from Final Year	
Year	Period	NPV Multiplier	$/kW/yr.	$/kWh/yr.	$/kW/yr.	$/kWh/yr.	$/kW/yr.	$/kWh/yr.
2010	1	1.00	$ 280	$ 0.099	$ 280	$ 0.0989	$ 280	$ 0.0989
2011	2	0.94	$ 306	$ 0.100	$ 288	$ 0.0947	$ 568	$ 0.1936
2012	3	0.89	$ 339	$ 0.104	$ 301	$ 0.0926	$ 870	$ 0.2862
2013	4	0.84	$ 353	$ 0.104	$ 297	$ 0.0871	$ 1,166	$ 0.3733
2014	5	0.79	$ 371	$ 0.109	$ 294	$ 0.0862	$ 1,460	$ 0.4595
2015	6	0.75	$ 383	$ 0.112	$ 286	$ 0.0840	$ 1,745	$ 0.5435
2016	7	0.70	$ 386	$ 0.113	$ 272	$ 0.0800	$ 2,018	$ 0.6235
2017	8	0.67	$ 388	$ 0.114	$ 258	$ 0.0757	$ 2,276	$ 0.6992
2018	9	0.63	$ 389	$ 0.114	$ 244	$ 0.0717	$ 2,520	$ 0.7709
2019	10	0.59	$ 392	$ 0.115	$ 232	$ 0.0681	$ 2,752	$ 0.8391
2020	11	0.56	$ 391	$ 0.115	$ 218	$ 0.0641	$ 2,970	$ 0.9031
2021	12	0.53	$ 395	$ 0.116	$ 208	$ 0.0611	$ 3,178	$ 0.9642
2022	13	0.50	$ 398	$ 0.117	$ 198	$ 0.0582	$ 3,376	$ 1.0224
2023	14	0.47	$ 397	$ 0.117	$ 186	$ 0.0547	$ 3,562	$ 1.0771
2024	15	0.44	$ 401	$ 0.118	$ 178	$ 0.0522	$ 3,740	$ 1.1292
2025	16	0.42	$ 406	$ 0.119	$ 169	$ 0.0497	$ 3,909	$ 1.1790
2026	17	0.39	$ 409	$ 0.120	$ 161	$ 0.0473	$ 4,070	$ 1.2263
2027	18	0.37	$ 416	$ 0.122	$ 154	$ 0.0454	$ 4,224	$ 1.2717
2028	19	0.35	$ 423	$ 0.124	$ 148	$ 0.0436	$ 4,373	$ 1.3152
2029	20	0.33	$ 429	$ 0.126	$ 142	$ 0.0416	$ 4,514	$ 1.3569

Measure		Demand			Energy		Totals
							Plan TRB
Plan TRB		$ 63,101,916			$ 93,678,775		$ 156,780,692
Plan Forecast Impacts	÷	26,560	kW	÷	132,652,010	kWh	
TRB $ / Impact		$ 2,375.87	/kW		$ 0.71	/kWh	
Program Targets		23,126	kW		132,615,000	kWh	
TRB $ / Impact	x	$ 2,375.87	/kW	x	$ 0.71	/kWh	Program Target TRB
Program Target TRB		$ 54,944,315			$ 93,652,639		$ 148,596,954
Average Life		8 to 9 years					