Hawaii Energy

Your Conservation and Efficiency Program

Program Year 2012
Annual Plan 07.12.12

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

SAIC

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Preface

On May 7, 2012, SAIC, Energy Environment, & Infrastructure, LLC ("SAIC") submitted its Program Year 2012 Annual Plan Proposal ("Proposal') to the Hawaii Public Utilities Commission (PUC) for review and approval. The PUC subsequently submitted the Proposal to various public stakeholders for comment and received substantive written comments from Blue Planet Foundation ("BPF") and the Division of Consumer Advocacy ("CA"). The written comments of BPF and CA, as well as input from the PUC staff and the PBFA Contract Manager resulted in the modifications made herein from the original Proposal.

1.0 INTRODUCTION

In 2009, the Hawaii Public Utilities Commission selected ***Science Applications International Corporation*** as Hawaii's first independent Public Benefits Fee Administrator (PBFA), with duties and expectations set out in a four year contract which ends on December 31, 2013. Operating as Hawaii Energy Conservation and Efficiency Program ("Hawaii Energy"), SAIC has developed a diverse and progressive PBFA portfolio and become a key player in the state's successful clean energy efforts to date.

The First Three Years – Since its creation in 2009 through Program Year (PY) 2011 (ended June 30, 2012), Hawaii Energy has delivered $45.5 million (M) in ratepayer funds through cash incentives and services, supporting private investment that will have yielded customer energy savings of 425.5 gigawatt-hours (GWh), with a first year bill savings of $124.2M. Over the lifetime of these investments in energy efficiency, customer energy savings will be 3,907 GWh with a bill savings of over $1.1 Billion. With the recent escalation and subsequent stabilization of energy prices, this figure will actually be higher.

Year 1 – During PY09 (ended June 30, 2010), the PBFA delivered $11.9M in ratepayer funds directly to commercial and residential customers in the form of cash incentives and services. Ratepayers receiving these incentives invested $29.9M of their own money to implement these rebated measures. The total customer energy savings from these rebated measures were 139.8 GWh, with yearly bill savings of $29.2M. Over the lifetime of these investments, customer energy savings will be 1,222 GWh, with a bill savings of $255.4M.

Year 2 – During PY10 (ended June 30, 2011), the PBFA delivered $13.7M in ratepayer funds directly to commercial and residential customers in the form of cash incentives and services. Ratepayers receiving these incentives invested $99.7M of their own money to implement these rebated measures. The first-year customer energy savings from these rebated measures were 142.2 GWh, with a bill savings of $48.1M. Over the lifetime of these investments, customer energy savings will be 1,417 GWh with a bill savings of $473.2M.

Year 3 – For PY11 (ended June 30, 2012), the PBFA budgeted $19.9M in ratepayer funds, which were delivered in the form of commercial and residential cash incentives and services to target a total customer energy savings of 143.5 GWh, with a total bill savings of $46.9M. Over the life of these investments, customer energy savings will be 1,268 GWh with a bill savings of $414.7M.[1]

Year 4 – For PY12, the PBFA proposes to deliver $21.6M in ratepayer funds directly to commercial and residential customers in the form of cash incentives and services with a target customer energy savings of 145.0 GWh, with a total bill savings of approximately $46.0M. Over the life of these anticipated investments, customer energy savings would be 1,285 GWh with a bill savings of $405.9M.

Hawaii Energy's plan is to shift emphasis towards investments with longer term savings rather than reliance on one-year or short-term savings. While preliminary plans have targeted an average measure life of 8 years, PY11's detailed plan yielded an average measure life of 8.8 years.

The portfolio design for PY12 yields an average measure life of 9.1 years across the overall portfolio and would result in the cost of lifetime program energy savings of $0.02 per kWh.

[1] Based on $0.327/kWh

On behalf of **SAIC, Energy Environment, & Infrastructure , LLC ("SAIC")** as the Hawaii Public Benefits Fee Administrator (PBFA), the PBFA's Annual Plan for Program Year 2012 (PY12), July 1, 2012 – June 30, 2013, is presented below.

1.1 Vision for PY12 Annual Plan and Beyond

During PY12, Hawaii Energy will continue to lean forward in expanding its long-term vision of making energy conservation and efficiency the most cost-effective, sustainable and utilized of any energy options available. The key elements of this vision include:

- *Minimize free-ridership and eliminate underperforming incentive offerings*
- *Focus incentives on high and persistent savings measures*
- *Ensure hard-to-reach consumers are served well on all islands*
- *Maximize direct customer benefit from each Public Benefits Fee (PBF) dollar collected*
- *Make customers aware that Program incentives offer a great return on their PBF investment*
- *Focus attention and budget on cultural behavior and other transformational energy changes*
- *Use technology to increase consumer awareness of their own real-time energy use*
- *Make energy conservation and efficiency the go-to first choice for every energy consumer*
- *Use all available data to target best opportunities, identify outliers and track performance*
- *Constantly review, modify and diversify portfolio offerings to ensure maximum performance*
- *Explore best practices and new outside-the-box opportunities to keep strong momentum*
- *Educate broader base of customers/decision-makers as to energy conservation and efficiency*
- *Provide critical leadership in EEPS, IRP, HCEI and other clean energy efforts*
- *Give decision-makers better tools to monitor and understand their own energy performance*
- *Reach deeper into consumer energy planning, operations, maintenance and energy use tracking*

This PY12 Annual Plan ("Plan") provides new strategies and a roadmap for administration and delivery of the Hawaii Energy *Conservation and Efficiency Program* ("Program"). This Plan serves the fourth year of the Program and, therefore, will build upon the successes and lessons learned during the first three years. With this new Plan, the PBFA 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. As with last year, the PBFA will also continue to promote the Program's focus on individual behavior change, personal energy awareness and group cultural change regarding energy use and sustainability in Hawaii.

1.2 Key Factors Impacting Annual Plan for PY12

The following are some of the key factors that have impacted the Annual Plan developed for PY12. As the Program continues to adapt to the increased budget, many factors remain the same as PY11. As the Program Year evolves and these and other factors reveal their true impacts on the Program, the PBFA will revise efforts for the benefit of the overall Program goals, with the concurrence of the Contract Manager.

1.2.1 *Diminishing Returns on Program Incentives* – Countering the increased PBF funding, the Program's experience to date suggests that for many reasons, efficiency programs in Hawaii and elsewhere are seeing diminished energy savings returns for each incentive dollar spent compared with previous years. While the future Program offerings will still be cost-effective (Total Resource Benefit/Total Resource Cost > 1), some of the offerings proposed herein will be less cost-effective than before, costing more Program dollars for each kWh and kW saved. In any case the total cost of saved energy is far below the cost of running fossil based generation as well as renewable sources.

1.2.2 *Expanded Roles & Training* – Within the budget for PY12, the Program has created a few new positions and will look to enhance the effectiveness of its staff through mentoring and training opportunities. The Program will also continue to realign its subcontract requirements to ensure maximum cost-effectiveness of all Program activities.

1.2.3 *Compact Florescent Lights (CFL) Impacts on Program Savings* – CFLs have historically accounted for approximately 50% of total Program first-year savings. However, for PY12 the Program will continue to reduce its reliance on CFLs. In order to continue seeing total Program savings numbers at levels experienced in the past, less cost-effective savings measures will have to be employed, requiring increased incentives. Fortunately, these measures tend to have longer lives and will have a greater impact on long range energy efficiency goals.

1.2.4 *Increased Transformational Non-Resource Infrastructure Development* – During PY11, the Program demonstrated the value of Transformational Non-Resource Infrastructure Development activities. The Program will continue to expand on these efforts as proposed in this Plan. These activities include education, training and other similar transformational activities that may not result in immediate quantifiable energy savings, but are likely to contribute to energy savings over time. Guidelines, as provided in the February 10, 2011 letter from James Flanagan Associates (JFA) regarding the Renewal Proposal ("JFA Letter"), allow the Program to spend budgeted incentive funds to engage in such activities and receive credit towards the Program Performance Incentive Goals

that may not show any specific energy savings for the current program year.

1.2.5 *Ongoing PBFA Responsibilities* – Over the first three program years, the PBFA responsibilities have expanded dramatically over what had originally been defined. Government support will continue with Commission support, including Integrated Resource Planning (IRP), the EEPS Technical Working Group (TWG) and other Commission activities. Additionally, the State Legislature and the State Energy Office have engaged PBFA technical support regularly for potential legislation and energy issue analysis, participation in state energy programs, the Hawaii Clean Energy Initiative (HCEI), Rebuild Hawaii, the Asia-Pacific Clean Energy Summit (APCES) and others.

1.2.6 *Commercial Sector Reluctance to Invest* –Post-2008 commercial investment saw a rapid decrease in Program participation by businesses. Experience in using the American Recovery and Reinvestment Act (ARRA) 25% project cost incentive in PY11 has demonstrated that it is now taking a significant level of incentives to drive projects off-the-shelf and into reality. Program experience shows that the level of incentive necessary can be from $0.18/kWh to upwards of $0.50 per kWh and more. In addition, the small business sector appears to be particularly reluctant to invest in energy saving measures without substantially higher incentives. In PY12, the Program will continue to expand efforts with enhanced incentive packages, to reach small businesses and other hard-to-reach customers, resulting in decreased cost effectiveness.

1.2.7 *Wavering Consumer Confidence* – Generally, consumer confidence has been down considerably since the 2008 economic recession, the worst in 80 years and has reflected in reduced customer participation in the Program. Recently, consumer confidence is beginning to show an increase and the Program will strive to capitalize on this growth by increased efforts to educate the business community of the benefits of investing in energy efficiency measures. With the increased budget, the Program will offer higher percentage incentives to ensure it captures these potential participants who will be very careful with their investments considering the vulnerability of the economy.

1.2.8 *Equity Among Rate Classes and Among Islands* – In PY12, the Program will continue and expand its efforts to bring Program benefits to small businesses, landlord-tenant situations and other hard-to-reach (HTR) customers. Additionally, the Program will review available mechanisms that promote Island Equity and implement pilot programs where feasible to test for the best equity enhancers for each island's particular circumstances.

1.2.9 *Expand Energy Usage Evaluation & Customer Targeted Offerings* – The Program has found that the use of evaluated and peer compared monthly energy data is a good tool to target and engage interest and participation in energy

conservation and efficiency efforts. This provides customers with valuable information about their energy usage, and feedback on prior actions taken that can be used to justify projects to owners and get approval of energy efficiency actions. The Program will expand the effort to automate and make the program more widely available as well as use the peer comparisons and benchmarking to promote the best-of-the-best operational awards. The Program will also utilize time-of-use data, energy use benchmarking, and opportunity screening for in depth review of energy usage patterns to identify savings opportunities.

1.2.10 *Additional Facilitation Activities Included in Program Costs* – The Program will continue to explore energy savings facilitation activities designed to remove barriers to energy savings and encourage energy savings through other eco-friendly means including:

Recycling and Disposal Programs for:

- Residential CFL
- Commercial lamps
- Refrigerant recovery and disposal

Water and Wastewater Department Programs to provide:

- Low flow devices
- Conservation program development

1.2.11 *Turn-Key and Direct Install Programs*– For a second year, the Program demonstrated success in procuring turn-key programs and services from specialty vendors, including OPOWER peer comparison in PY11 (piloted in PY10 through ARRA funding) and NEED.org teaching modules (new to PY11). These turn-key programs have proven to be cost effective methods to securing highly skilled, top-notch services that the Program will continue into PY12. The following are examples of programs under consideration for PY12:

- Educational and Training – Building Operator Certification training
- Small Business and Residential Direct Install Measures – Direct install and audit services from small local energy firms and community-based service organizations to provide energy audit and retrofits will expand beyond lighting.
- Restaurant Exhaust Fan Demand Ventilation Control – Direct install of exhaust fan demand ventilation control for small restaurants
- Air Conditioning & Refrigeration System Tune-Ups – Direct install and retrofit of refrigeration systems.
- Central Plant Metering – Installation of plant kW per ton metering to assist in developing peer group comparison of plant efficiencies as well as to aid

customer commissioning efforts and the evaluation of the sea water air conditioning development.

1.2.12 *Island Equity - Big Island* - The County of Hawaii is concerned that its ratepayers paying into the Public Benefits Fund have not historically gotten their fair share of the Program's incentives. Under the PBFA contract over the past two years, the PBFA has greatly expanded the benefits provided by the Program to the County of Hawaii and all neighbor islands, compared with benefits received prior to Hawaii Energy taking over the Program. But more needs to be done. In PY12, Hawaii Energy will continue to expand the effort to significantly enhance the Big Island's benefits from the Program. Besides dedicating Program Specialists to each neighbor island, including a full-time resident Specialists on the Big Island and Maui, the Program will expand its outreach, education and training for the Big Island, continue with direct install efforts for all neighbor island small businesses and residents, continue with enhanced Energy Star appliance rebates and recycling services, continue working with local neighbor island community groups and continue to provide enhanced solar and other special rebates initiatives targeted to neighbor islands.

1.2.13 *Increasing Program Name Recognition* – As the Program settles into its fourth year, even greater emphasis will be placed on advertising, marketing and public relations to increase the brand name recognition. Advertising can be costly but has shown to increase the Program exposure and recognition. Increased brand recognition will help the Program attract all potential customers and avoid any potential losses due to consumer confusion as to what entity to contact for incentives. In conjunction with this, the Program will continue to expand and upgrade the Program website to increase ease of use and encourage greater participation. The Program will explore methods to measure the effectiveness of advertising where possible to ensure funds are used efficiently.

2.0 PROGRAM STRATEIGES & INITIATIVES for PY12

2.1 Program Strategy – Residential & Business Portfolio

In the second year of a significant budget increase, the Program's overarching strategy will be to continue to accelerate its efforts to educate and motivate ratepayers to implement more aggressive energy conservation and efficiency measures in their personal and business lives.

Besides continuing most of the operational initiatives employed in the first three Program Years, the Program will investigate and test new strategies of engaging broader customer participation in energy conservation and efficiency. This will include getting deeper into customer operations regarding energy conservation and efficiency.

As required by the State, the business program will continue to be allocated 55% of the overall budget in PY12. This continued budget increase will be directed to special new programs and enhanced incentive for existing programs in order to achieve greater energy savings for businesses, particularly small businesses. Specific areas influencing PY12's strategy include the following:

Hard-to-Reach

Throughout this Annual Plan, the term Hard-to-Reach ("HTR") is used to refer to any customer or customer class who is underserved by the Hawaii Energy Conservation and Efficiency Program. That can mean any customer or class that has not had a realistic opportunity to participate in Program offerings as evidenced by the fact that the customer or class has not received back its fair share of the Public Benefits Fees (PBF) paid through its electric utility bills, relative to other customers/classes. Typical HTR customers and customer classes under current Program practice include (but are not limited to): low income, renters, small business and neighbor islanders. HTR customers and classes will be targeted by the Program for special enhanced incentives up to and including no cost direct install efficiency measures so long as they are considered HTR. This appears to be the only effective way to ensure an equitable return of Program benefits to all utility customers who pay into the Public Benefits Fund.

Codes and Standards

The PBFA will explore opportunities to help the State achieve long term goals through new construction codes and standards. Through educational offerings, the PBFA will look to augment existing, but limited training sessions already offered to State and local government employees responsible for codes and standards development, adoption and enforcement. Particular attention will be focused on areas that will yield material energy savings. This may range from specific classes or highly qualified speakers to sponsoring individuals to work within the state or local code departments. In addition to educational offerings, the PBFA will continue to build the Efficiency Inside Home Design offer to

demonstrate contemporary designs already being built above code at a competitive price. Leading by example, this empirical evidence can be used to facilitate and guide a conversation across Honolulu, Hawaii and Maui counties to enhance to state of codes in Hawaii.

Home Energy Rating System (Green MLS)

Through both Transformational and Residential programs, the PBFA will explore opportunities to enhance available Multiple Listing Service (MLS) data to include Home Energy Ratings for the residential real estate market. How to best approach the acquisition and presentation of a home's green features and attributes will be determined through collaboration with builders, realtors, bankers, and appraisers along with MLS provider(s) in Hawaii.

Military Communities and Facilities

With regard to the large military sector in the State, the PBFA will take specific steps to reposition its relationship and support of the military sector within its jurisdiction such that the military's participation in the Program is more in line with its contribution to the PBF. This effort would begin by disaggregating military residential energy efficiency initiatives from those targeting military facility operations and then reviewing all known executive orders and Department of Defense mandates requiring the adoption of energy efficiency measures. From this analysis, the PBFA would review program incentives and services and adjust them to ensure any offers target savings above and beyond the military's current directives in a cost-effective manner. Beyond incentives and services, the PBFA recognizes that the military has a significant focus on new technologies albeit renewable. In any event, the PBFA will monitor such activities with an eye on identifying opportunities to transfer lessons learned from the military to the programs targeting the residential and business sectors. While not technology driven, a residential ambassador program being developed for a military community will be considered for non-military communities in PY12.

Sea Water Air Conditioning (SWAC)

The PBFA is responding to this evolving project, while enabling existing program offers. Throughout PY12, the PBFA will be funding the installation of kW/ton metering. This will enable buildings to assess their cooling loads and subsequent evaluation of proposals relating to the Seawater Project. This metering will provide empirical data to enable PBFA facilitated peer group comparisons that will further raise awareness to building owners and operators as to potential energy savings opportunities. If inclined, this metering will also provide a critical stepping stone to participating in programs targeting central plant operations. The Program will support SWAC incentives at the rate directed by the Commission in earlier proceedings and upon installation and startup of the proposed system.

2.2 Program Strategy – Transformational Portfolio

Transformational initiatives emerged with a fast start across several areas in PY11. For a synopsis of PY11 Transformational initiatives and successes, please refer to Appendix D.

2.2.1 Introduction

Due to budgeting requirements, the Transformation Programs will be split into Business and Residential based on the primary customers the initiatives serve, although both residential and business funding sources may be expended to support any one program. Note the following section titles as they will reference the predominant source of funding as [*Residential*] or [*Business*], respectively.

New campaigns are targeted for areas where the community can make significant progress in kWh reduction, or where large, promising market segments need more attention. In cases where existing organizations are serving the need, Hawaii Energy may choose to collaborate if priorities match and funding is sufficient. Hawaii Energy will work to avoid duplicating services.

New Initiatives planned for PY12 expand the offerings in the four focus areas:

- Government
- Business & Industry
- Education
- Residential

These areas aim to fill needs that exist but are not already met by other organizations in the state. Government and Business & Industry programs will be primarily funded by the Business funds, while Education and Residential will largely funded by the Residential funds. Campaigns under consideration follow.

- **Government [*Business*]** – Government Buildings offer great potential as prime candidates for energy audits as well as the opportunity to teach energy reduction behaviors to the employees who work in them. In addition, the Statewide Clean Energy Goals require these buildings to improve their energy efficiency. As stated in HB 1464 enacted in June 2009, by the end of 2010, State agencies must evaluate the energy efficiency of all existing public buildings that are larger than 5,000 square feet or use more than 8,000 kilowatt-hours (kWh) annually, so there is opportunity to leverage this mandate. Hawaii Energy proposes to provide support for the development of strategies and pursuit of initiatives that are needed to accelerate energy efficiency behaviors. These include:

Proposed Offerings	**Comments**
Continue EEPS Support	Continue Support of Department of Hawaiian Homelands and other hard-to- reach individuals on Oahu and neighbor islands.
Continue Energy Efficiency Subject Matter Expert -Legislature	Continue to respond to requests for information or data on energy use, while providing feedback on the effectiveness on current laws or issues.
Continue Energy Efficiency language inclusion in County and State Master Plans	Respond to requests for assistance as appropriate.
Expand HCEI Collaboration and Support	Support for internships if funds available (DBEDT)
NEW - Rebuild Hawaii	Support meetings and overall process funding.
NEW - Education for State and county employees	Hire vendor/ally to teach how to save energy in the workplace.
NEW - Energy Audit and efficiency support for State Government Buildings	Hire vendor/ally or collaborate with organizations to teach and implement energy audits.

- **Business & Industry [*Business*]** – Improving energy efficiency in selected industries as well as small businesses are a priority. Food service (restaurants) and accommodations are target groups, as they are the largest private employer industry at 15.3% of all jobs in Hawaii. These businesses have demonstrated interest in energy efficiency, with 69% using energy efficient lighting and 51% reducing energy usage. The goal is to capture a greater percentage of these markets.

  Additionally, small businesses are a priority. The DLIR Baseline 2010 sampled 4,000 businesses for their energy jobs and practices. Of the over 120,000 private businesses in Hawaii, more than two-thirds have less than 50 employees. For these businesses, every energy dollar matters not only to the bottom line, but also the consumers who are typically charged higher prices for products when operational costs increase.

  Expanding support of green job development and training is a priority which will be in collaboration with University of Hawaii (UH) Community Colleges. The Green Jobs Projection: DLIR Baseline also reported that more than 70% of the businesses responding to the Qualifications and Training section of the survey reported some form of minimum education or training required. This suggests that specialized training is preferred for many green jobs at the community college or vocational level.

  Hawaii Energy's Transformation Program will increase and further support projects that achieve energy reductions, demonstrate energy reduction capabilities, and/or provide on the job training for individuals within energy efficiency and energy conservation fields. Hawaii Energy supports the goal of growing the industry training programs in tandem with the market growth in demand for those jobs. The goal is to expand both in a balanced manner.

Proposed Offerings	**Comments**
Expand Education for Energy Professionals	Expand education for business professionals on the financial and other benefits of energy cost reductions through improved equipment functioning, integration and behavior change. Expand Energy Efficiency Funding Group (EEFG), Certified Energy Manager (CEM), Building Operator Certification (BOC) and Integrated Building Offerings.
NEW - Energy Resource Center(s)	Use interest survey data to create pilot center at one Community College, test results and evaluate expansion or changes. Will lend energy efficiency–related books, videos, and testing equipment to the general public.
NEW - University of Hawaii Community Colleges (UHCC) Green Mechanical Council	Intended to build certification in the energy efficiency building trades. Will begin as pilot at one location, as it shows itself successful, will be expanded to others.

Proposed Offerings (Continued)	Comments
NEW - Energy Audits and Education in Food Service and Accommodations Industry (Restaurants)	Support energy cost reduction efforts within this industry, which is second largest private industry in state.
NEW - Energy Efficiency Education for Private Business Employees	Contract with vendor/ally to establish workplace conservation training programs. Possibly collaborate with Chamber of Commerce or other trade organization with significant reach, using curriculum on energy efficiency in the workplace and train-the trainer model.

- **Education [*Residential*]** – Since dormitories and other Department of Education buildings are some of the biggest users of energy in the State, expansion of the successful PY11 programs to new schools and complexes will be a focus for PY12.

  Educational programs in Middle School through University institutions will work to teach students and teachers about sustainability, renewable energy resources and energy efficiency measures. National Energy Education Development (NEED) Project training will be continued and expanded to additional schools. Energy Audit programs through Student Energy Ambassador Development (SEAD) and Rewarding Internships for Sustainable Employment (RISE) will be expanded, with a focus on energy savings within the school and energy savings within homes from the surrounding neighborhood. Proposed offerings include:

Proposed Offerings	**Comments**
Continue NEED Training	Expand to new complexes, schools, keep at similar funding level.
Continue RISE	Continue funding for interns within schools to assist in implementing energy efficiency projects. Includes current schools Pahoa, Keaau, University of Hawaii.
Expand Kukui Cup	Support repetition of the Kukui Cup at UH Manoa, and expand to Hawaii Pacific University.
Expand Energy Audits in Schools	Fund programs to teach students to conduct energy audits of buildings on school campuses and estimate as well as implement energy savings. (SEAD)

- **Residential [*Residential*]** – Landlord/Tenant initiatives are a priority because approximately 41% of the people in Hawaii are renters, according to the US Census Community Survey, 2011. Establishing cost effective methods for renters and landlords to benefit from energy efficiency, including incentives, policies, and behaviors, will be pursued.

Proposed Offerings	Comments
Expand – Financial Literacy and Energy Efficiency	Continue to serve hard-to-reach and Native Hawaiian communities, and expand to other demographic groups such as condo owners and apartment dwellers.
NEW - Landlord/Tenant Incentives and Solutions	Intended to provide methods for landlords and tenants (>40% of Hawaii residents) with feasible methods to reduce energy consumption in units.
NEW – Energy Efficiency Local Resident Experts	Create pilot effort to find ways to help residents influence each other within neighborhood community centers to learn about energy efficiency and compare notes (model after Energy Ambassador).
NEW - Documentary about Energy Efficient Homes	Pilot with O'lelo Community Television and/or other group to demonstrate net zero or energy efficient homes.

2.2.2 Synergies through Linking Hawaii Energy Initiatives

In addition to these proposed initiatives, synergies will be pursued between Transformation and other Hawaii Energy programs based on cross-reach, or support (e.g. follow-on education after CFL exchanges or other incentives).

As was reported in the 2011 Update on "Who should Deliver Ratepayer-Funded Energy Efficiency," such linking is the trend in Transformation across the country:

> *A word about scope: as the practice of consumer funded energy efficiency matures, it prompts more intricate questions. How can these ratepayer-funded energy efficiency programs support and connect with mandatory policies, like building energy codes and appliance and equipment efficiency standards? How can overall building and system efficiency across all energy forms, regulated and unregulated, and all natural resources, like water, be better accomplished?*[2]

Hawaii Energy seeks to maximize the return on investment from ratepayer funding. Now that there are established Transformation offerings, as well as a clearer picture of the need for

[2] "Who Should Deliver Ratepayer-Funded Energy Efficiency? A 2011 Update Based on work for the Colorado Public Utilities Commission," updating a 2003 report by RAP, Author Richard Sedano

demographic groups in which to expand, it is proposed to seek program and offering synergies within Hawaii Energy.

> *An Example of Synergy: An existing program at Pahoa High School teaches students about energy (content similar to the NEED program). At the same school an Energy Audit is undertaken by the Green Club, provided by RISE interns. Family Night at the school teaches the parents of the children in an educational setting, about actions that can be taken in the home. The family exists in a neighborhood where Energy Heroes and other outreach activities can be expanded.*

In PY12, potential synergies between initiatives will be reviewed for opportunities to extend reach. Based on the theory that most individuals do not change their energy habits based on one experience but on several linked experiences, participants in one offering could be encouraged to participate in another, while not negatively impacting the ability to draw in new participants. The potential strength of these linked experiences to achieve behavior change (i.e. kWh reduction) through reducing barriers and increasing enablers is based on social science research that delineates the difficulty in changing habits and the positive role of reinforcing messages and attraction strategies. Possible integration with video, pictures and media from the outreach initiatives of Hawaii Energy could provide increased reinforcement, inspiration and illustration of offerings in a lively, attractive way.

2.2.3 Attracting the Best for Hawaii Energy Participants: Vendor/Ally Process for PY12

In PY11, Hawaii Energy selected exceptional turnkey vendor/allies for its first year of Transformational offerings. These vendor/allies, such as EEFG and NEED.org have set the bar high for performance, transparency, and effectiveness. Building on the lessons learned from PY11, Hawaii Energy is developing a standard proposal process to expand its turnkey vendor/allies in PY12. Specific offerings that are deemed as strategically important to accelerate education and behavior change in large segments of the Hawaii population will be identified for proposal submission. Hawaii Energy will release a Request for Proposal (RFP) and upon evaluation of received proposals, award those which demonstrate:

- Specialized knowledge or connections with the target audiences, to include vendor/allies who are already functioning at a high level and whose expertise is considered trust.
- Project impact expressed in the projected number of participants reached and knowledge imparted;
- Clear scope of work with time and materials clearly specified;
- Scalability of project, so that efforts can be phased in, if needed;
- Explicit deliverables including metrics to evaluate follow-on interest by participants;
- How the vendor/ally may provide in-kind support (e.g. branding, marketing, or resources such as staffing and equipment, without full funding from Hawaii Energy).
- Any sole source selection of vendor/allies will be justified and documented as appropriate based on the above criteria.

By standardizing Hawaii Energy's solicitation of proposals and subsequent award of projects to vendor/allies, the Program seeks to ensure that local vendors vying to deliver services to the Program are made aware of how to successfully bid for Program funding and understands the collaborative aspect of the relationship. Approaching the selection of vendors in this manner will enhance the Program's ability to attract vendor/allies that are respected in the community that is cost effective and transparent.

The collaborative nature of the vendor/ally relationship will enable Hawaii Energy to integrate program offerings with vendor/ally-provided services. A number of current offers present this opportunity. For example, the EEFG training would lead to more skilled sales professionals that could successfully sell better and bigger projects that would further benefit through Program incentives. Within schools, opportunities exist to engage children with CFL Exchanges and subsequently tap audiences of parents to further educate them in energy efficiency and financial literacy class.

2.3 Outreach & Marketing Initiatives

Hawaii Energy plans to expand its Outreach & Marketing initiatives in PY12 to develop proactive support from every citizen in Hawaii, Honolulu and Maui counties. This includes:

- Partnering with new and existing initiatives and allies in energy conservation and efficiency to achieve HCEI goals.
- Increasing efforts to reiterate and explain conservation messages and information through the creation of supporting documents, helpful videos and other tools.
- Expanding the brand awareness of Hawaii Energy through multiple approaches blending traditional media, grassroots and creative delivery methods.

Hawaii Energy's outreach and marketing initiatives will support the Residential, Business and Transformational activities to achieve the maximum impact in communicating the mission and offerings of the Program. The Program will strive to create reliable methods to measure the effectiveness of outreach and marketing efforts in PY12.

2.3.1 Outreach

The Program will continue to expand the outreach activities to communicate and engage with the decision makers both in the business and residential sectors as well as educate vendors to encourage them to market our incentives. A few highlights of our outreach program will include:

- **Traditional Outreach** – Hawaii Energy will seek out or establish events, meetings and other opportunities to promote the Program goals to trade organizations, clubs, professional organizations, community boards, retirement groups, military groups, and labor unions. The Program will seek to sponsor or participate in as many ally and trade expo events as reasonably possible that demonstrate a reasonable return on program investment in time, resources and funding (i.e. likely participants reached). In addition, Program personnel will join and participate in professional organizations as an active member that can be justified as important for the Program to support (there can be no question of conflict of interest, if so, the Program will not proceed).

- **Outreach Through Community Allies** – The Program will continue to seek and partner with organizations that share a common or similar objective to help the community. The Program has had success partnering with various "green" and sustainably minded organizations as well as community organizations. Faith-based organizations are a large segment that the Program will approach in PY12 to develop a relationship that will enhance the public to learn about and participate in energy efficiency and conservation activities.

- **Collaborate with Hawaii Businesses and Organizations** – Hawaii Energy will increase collaboration with private businesses and non-profit organizations to help participants receive and understand information about energy efficiency and conservation. Ideas include, but are not limited to: (1) partnering with businesses to distribute messages containing easy office conservation tips, (2) creating joint advertising and/or messaging with energy-saving tips, and (3) soliciting business to support Transformational programs offered in their areas with prizes and/or sponsorships. These measures will include references to our website, and although focused on conservation, are intended to promote and lead to interest in our efficiency offerings.

2.3.2 Marketing

To encourage greater participation and awareness of the Program, we will focus on the larger mission of sustainability and the positive effects of energy conservation and efficiency in reducing oil consumed within the state. An emphasis will be placed on the hard-to-reach demographics that may not follow the "trendy" media that typically are based on expensive technologies. In addition to increasing general program awareness, campaigns to promote individual offerings and program enhancements will be launched as well. Highlights of elements of our marketing will include:

- **Mass & Survey Emails** – The Energy Program Management Information System (EPMIS) has been enhanced to track mass emails announcing new offerings and Program information. This provides the capability to report and take action based on targeted information to and from our customers. The Program plans to define a process, policy and method to track the effectiveness of this medium. In addition, Hawaii Energy will be enhancing the functionality of our customer tracking system by adding a survey feature that will send a targeted survey to approved rebate participants. Surveys will include questions as to the effectiveness of our marketing campaigns as well as questions about the rebate process. It will enable instantaneous feedback from customers as to their opinions on energy and the Program.

- **Hawaii Energy Website** – For PY12, the Program will refine the usability of the website, adding interactive functionally, as well as additional energy related widgets. An emphasis will be placed on refinements that will broadly appeal to the many segments of potential participants in Hawaii, while also expanding support for the technical community. Supporting the technical community (e.g. plumbers and electricians) will support the Program's "door to door" outreach initiatives which can be very effective in engaging the hard-to-reach, less computer and technology literate segments. In addition, videos explaining how and where to find energy savings in residences and business and a "how to buy" section will be added to the site. Objectives include:

    - Create a section especially for engineers, architects, trade allies and others who already understand the benefit of implementing energy-saving measures to help them to engage with their customers as a champion of Hawaii Energy.

- Establish a listing of "Trade Allies" for both residential and commercial markets, where people can find help to implement energy efficiency and conservation measures.
- Develop a "clearinghouse" of no-cost energy-saving behaviors and actions for both residential and commercial use buildings, where people can share their success.
- Produce video(s) about no-cost energy-saving tips filmed by students or others.
- Develop a resource listing of common household Hawaii items with kWh, CO2 and dollar savings. This information will be derived from on-going Transformational endeavors.
- Enhance the Event Calendar with filtering.
- Improve reporting metrics on the effectiveness of the Website in general.

- **Social Media** – As part of our integrated marketing plan, the Program will develop and implement a social media strategy. Objectives include a stronger online presence to better penetrate the business sector by exploring business based media (i.e. LinkedIn®) and to explore the rapidly expanding landscape of social media platforms available to the broader residential market (i.e. OPower, C# Energy, etc.).

- **Collateral Material** – The Program will create and smartly distribute collateral to audiences that respond to or simply have better success with hardcopy materials rather than digital (e.g. the computer illiterate or those lacking easy online access, as well as those who do not respond to other forms of media). All collateral will include the website address and call center phone numbers to encourage further exploration online or in person. Collateral will be targeted to the following markets:

  - Residential
  - Business (Non-technical)
  - Business (Technical)
  - Government (elected officials, politicians and policymakers)

  Brief, attractive information cards will be created with targeted information using language the audience will understand and will create a positive response towards the Program.

2.3.3 Advertising

The core marketing messages of the Program will be crafted to increase public awareness of energy efficiency and conservation in the State, emphasizing behavior change. The Program recognizes the great value of repetition to foster the adoption of new ideas and change in behavior. Therefore, the majority of the Program's advertising will be in paid television, print and radio. Other more targeted advertising and marketing tools will be employed to reach

smaller, niche markets. Paid television, radio and print media spots are instrumental in reaching the hard-to-reach segment and will serve impart a new way of thinking about energy efficiency and conservation and if successfully executed, drive action (e.g. replace an incandescent light bulb with a CFL or LED). Each of these media has varying success rates dependent on numerous geographic and socio-economic demographics and factors which will be further considered as media buys are executed. The Program will utilize a unique mix of media that best aligns with the consumption of television, print and radio on each particular island or targeted community. The program plans to develop metrics to gauge and track advertising and marketing efficacy.

2.3.4 Public Relations

Hawaii Energy will increase its public relations efforts in conjunction with HCEI's efforts to achieve greater impact. Public relations will coordinate with advertising and marketing to ensure effective, cohesive messaging to exponentially increase Program awareness for the residents and businesses of Hawaii. The Program will seek feedback from the community as to effectiveness of this approach. The Program plans to showcase a project to demonstrate the benefits of working with Hawaii Energy from concept to completion in PY12.

3.0 RESIDENTIAL PROGRAM STRATEGY & DETAILS FOR PY12

3.1 Overview

For PY12, Hawaii Energy will maintain programmatic changes adopted in PY11, specifically the incentive categories:

- **Residential Energy Efficiency Measures (REEM)** – This incentive category is the core of Hawaii Energy's residential portfolio and undergoes incremental developments responding to market conditions (i.e. retail pricing) and consumer need.

- **Custom Energy Solutions for the Home (CESH)** – This incentive category provides a measure of flexibility within the prescriptive portfolio to accommodate unforeseen market opportunities. The budget and unit cost targets provide financial efficacy guidance to the Program and allies who champion these opportunities.

- **Residential Energy Services & Maintenance (RESM)** - This incentive category targets ally-driven service offerings to enhance energy savings persistence and bootstrap fledgling energy services businesses trying to secure a toehold in Hawaii.

- **Residential Hard-to-Reach (RHTR)** – This incentive category will seek to secure various projects among geographies and demographics that have been traditionally underserved. Efforts in PY11 to pierce the landlord/tenant barrier of installing SWH systems were unsuccessful despite enhanced incentive offers. However, geographic barriers are seen as an opportunity for PY12.

A summary listing of the new Residential Program offerings can be found in the table below followed by a brief summary of additions and changes. A detailed description of the Residential Program offerings follows in section 3.1 through 3.4. Appendix B contains a projection of potential energy savings for the planned programs.

Residential Programs		
Program	Category	Measures
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	
CESH	***Custom Energy Solutions for the Home***	
	Target Cost Request for Proposals	
RESM	***Residential Energy Services & Maintenance***	
	Residential Direct Installation	
	Residential Design and Audits	
	Residential System Tune-Ups	
RHTR	***Residential Hard to Reach***	
	Energy Efficiency Equipment Grants	
	Landlord, Tenant, AOAO Measures	

3.1.1 New Program Offerings of Residential Energy Efficiency Measures (REEM)

High Efficiency Lighting

- LED Lighting – While not new to the residential portfolio, Hawaii Energy anticipates the availability of EnergyStar® compliant products to surge, particularly for popular A19 bulbs, while retail prices fall, providing an attractive energy savings option to residential consumers. The Program will closely follow availability (rising) and pricing (decreasing) in order to maintain adequate incentive levels.

High Efficiency Air Conditioning

- Hawaii Energy plans to discontinue the $110 incentive for Split System AC (created prior to Hawaii Energy) in favor of bringing focus to the existing $200 incentive for VRF Split System AC (introduced in PY11). While these systems are expensive and therefore an option to a limited residential population in Hawaii, retaining this rebate will provide an incentive to those who can afford this kind of technology to install the most efficient product available.

- Hawaii Energy plans to continue all other offers from PY11, while strengthening ally relationships and pre-post verification.

High Efficiency Appliances

- High Efficiency Pool Filtration Pump Systems – This is an incentive for residential pool pumping techonolgies which offer 40% to 60% savings when using newer pump technology including variable speed/flow controls, improved motors and pump designs.

- Freezer Trade-In – In particular areas of Hawaii, it has come to Hawaii Energy's attention that many families have dedicated freezers to accommodate their lifestyle. Hawaii Energy will explore a Freezer Trade-In offer, modeled after the successful Refrigerator Trade-In offer believing it may meet a specific need of Hawaii families, particularly in rural areas.

- Clothes Washer (Tier II/III) – Enhanced for PY11 from any EnergyStar® washing machine to a more efficient EnergyStar model, the Program increased the rebate from $50 to $75 in order to reflect the increased purchase price. For PY12, the Program will maintain the Tier II/III requirement, but return to the $50 incentive level. Close attention to the offer will be dedicated to assess the true value of this offer among the many drivers leading consumers to purchase these high efficiency models.

- Hawaii Energy plans to continue all of PY11's offers, while improving retail merchandising.

Energy Awareness, Measurement and Control Systems

- Peer Comparison – Hawaii Energy plans to continue the OPOWER Home Energy Report peer comparison program, which was expanded to the Neighbor Islands in PY11. The market for peer comparison initiatives is rapidly evolving to include social media and consumer-based rewards programs. Hawaii Energy's strategy will look for ways to affect measurable energy savings through behavior change in both residential and transformational portfolios by evaluating the evolving options arising in this market.

> ***The latest results for OPOWER Home Energy Report program…***
>
> In May 2012, the most recent results available, homes in Oahu's Ewa region receiving the Home Energy Report consumed 1.9% less energy than their peers not receiving the report. This translates to savings of 163,250kWh for the month of May.

While not new to the residential portfolio, the market approach to promoting the following offers will evolve, specifically:

- Room Occupancy Sensors – Hawaii Energy will explore the Energy Hero Audit as the primary means of residences leveraging this technology, which may include motion sensors for garages.

- Whole House Energy Metering – Hawaii Energy will explore targeting specific high-use households to consider this measure. This measure will undergo a review of qualifications.

3.1.2 New Program Offerings of Custom Energy Solutions for the Home (CESH)

Target Cost per KWh Request for Proposals

- Custom Packaged Proposals – This program will target and encourage contractors, home auditors, and energy vendors to develop cost-effective projects that focus on high energy consumption homes. The program will be a call for projects that meet a total dollar per kWh savings target and allow the market to be creative in the actions and measures that achieve the targeted cost per kWh energy savings. The projects will use utility metered data and be sub-metered if required to ensure savings performance.

Residential Design and Audits

- Hawaii Energy Hero Audits – Hawaii Energy will explore incentivizing home audits based on the progress of collaboration with the Kupu YEAH assessment program and interest in developing a Green Multiple Listing Service (MLS). Hawaii Energy will consider a limited market-based incentive as well as a grant-based home audit (see Residential Hard-to-Reach).

Residential System Tune-Ups

- SWH System Tune-Up – Hawaii Energy will craft a seasonal offer based on the results of the Solar Tune-Up Pilot conducted in PY11.

- Central AC Maintenance – Hawaii Energy will continue its current offer and collaborate with allies to explore the viability of AC tune-ups, specifically with regard to split systems. The cost effectiveness of this activity is in question; therefore the basis to incentivize this measure is under consideration.

3.1.3 New Program Offerings of Residential Hard-to-Reach (RHTR)

Energy Efficiency Equipment Grants

- CFL Exchange – While not new to the Program, budgeting has been doubled to accommodate the market appetite to participate in this high energy-saving program. Funding will also enable more opportunities to integrate with Transformational initiatives, which are particularly focused on residential hard-to-reach participants as well.

- Hawaii Energy Hero Audits – See Custom Energy Solutions for the Home (CESH).

- Energy Hero Landlord Program – This program will be targeted at landlords who own affordable rental units. The program will offer such landlords a comprehensive audit, RFP and other support to help with projects that will drive the energy cost of their renters down. The program will work with local lenders to provide project financing support in conjunction with the program.

3.1.4 Additional Residential Program Initiatives

- Residential Financing – A common request that Hawaii Energy receives from customers and vendors is that we provide financing or relief from the significant up front capital costs of major conservation and efficiency measures such as residential solar water heating. Hawaii Energy will continue to work with local financing institutions to develop ways to provide affordable financing through the PBFA, notably through the "Hot Water, Cool Rate" solar interest buy-down program and other opportunities should they arise. The result of these efforts will be used to develop a permanent plan for financing energy efficiency measures in the future.

- Program Promotion of Professional Recycling and Disposal – Hawaii Energy is continuing to expand program offerings that incentivize recycling and disposal to take less efficient appliances off the grid. Through these initiatives, we are also supporting local small businesses to handle the recycling or appropriate disposal. As LED lighting options continue to increase, Hawaii Energy will explore opportunities to expand CFL recycling options, particularly on the Neighbor Islands.

- Point of Purchase (POP) Rebates – During PY10 and PY11, Hawaii Energy expanded the highly successful POP rebates of CFLs to other incentivized products. Hawaii Energy will continue to explore viable options to continue this offering that makes it easier for the customer to obtain their rebate and lead to greater penetration of consumers.

3.1.5 Residential Program Details Table of Contents

To follow, in Sections 3.2 through 3. 5, is an overview summary of Residential Program Offerings followed by detailed descriptions and energy savings. The Overall Program Details are provided on the following page, preceding the individual Program summaries.

Program Category	**3.2 All Residential Programs Overview** **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 10,007 kW Energy 71,819,271 kWh Incentive Budget $9,736,673 Cost per kWh $0.136 /kWh TRB $72,451,707
Technologies	**Incentivized Measures** — **Incentive Forecast** **Residential Energy Efficiency Measures** $7,718,682 **Custom Energy Solutions for the Home** $10,500 **Residential Energy Services & Maintenance** $847,500 **Residential Hard-to-Reach** $1,159,990 $9,736,673 • Solar Water Heating Systems $750 • Solar Water Heater Interest Buy Down $1,000 • Solar Water Heater Hero Giftpacks $35-$40 • Heat Pumps $200 • CFLs $ 0.98 • LED $7 • VRF Split System AC $200 • Ceiling Fans $40 • Solar Attic Fans $50 • Whole House Fans $75 • Refrigerator (<$600) $50 • Refrigerator with Recycling $125 • Chest Freezer with Recycling* $125 • Garage Refrigerator/Freezer Bounty* $75 • Clothes Washers (Tier II / III) $50 • Pool VFD Controller Pumps $150 • Room Occupancy Sensors $5 • Peer Group Comparison $11.84/HH • Whole House Energy Metering $100

Program Category	3.2 All Residential Programs Overview Overview of All Categories	
	• Efficiency Inside Home Design	$1,000
	• Hawaii Energy Hero Audits	$100-$250
	• Central AC Maintenance	$50
	• Solar Water Heater Tune Up	$100
	• Solar Inspections (WAP)	$95
	• CFL Exchange(s)	$2.49/bulb
	*New or expanded measures	

Program Category	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.1 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 1,594 kW Energy 7,304,272 kWh Incentive Budget $3,166,500 (15%) Cost per kWh $0.434 /kWh TRB $17,153,970
Technologies	**Incentivized** — **Incentive** — **Units** • Solar Water Heater (SWH) Incentive — $750 — 3,750 • Solar Water Heater Interest Buydown — $1,000 — 250 • Solar Water Heater Energy Hero Gift Packs — $35 — 400 • Heat Pumps — $200 — 450 **Under Review for Potential Incentives** • Peak demand reduction timers for water heaters • New manufacturers including select evacuated tubes (The following Solar Water Heater Systems budgets are included in the plan under the Landlord/Tenant, AOAO Measures. See section 4.6.2) • Custom SWH Proposals — $0.65 / kWh — 1,000,000 kWh *(equivalent to 484 systems) ***Total Solar Water Heating Systems*** — ***$3,712,500*** — ***4,000+*** 38% of Residential Budget
Market Barriers	**General** • Large up-front cost • Strong demand for PV / Low awareness of cost-effective SWH • Trust and credibility of technology providers • Quality of system design, equipment and installation • Knowledge operation and maintenances of technologies **Owner Occupant** • Access to and/or understanding of financial options • Time between purchase and tax refunds (carrying cost)

Program Category	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.1 High Efficiency Water Heating**
Market Barriers (continued)	**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

Program Category	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.1 High Efficiency Water Heating**
Description & Implementation Strategies	**Solar Water Heating** *Solar Water Heater (SWH) Incentive* The program will provide a $750 rebate for solar hot water systems installed by qualified participating 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 hot water usage then provides a written proposal for a 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 sample post-installation inspections (25% on Oahu, 100% on Maui and Hawaii Counties) to make sure the systems have been installed properly • Upon successful inspection, Hawaii Energy will rebate the contractor $750 *Solar Water Heater Interest Buydown* The program provides an incentive to 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 participating contractors. This incentive will cover the first 6 points of the loan interest up to a total maximum of $1,000. 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. • The customer executes the "Standard" installation process

Program Category	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.1 High Efficiency Water Heating**
Description & Implementation Strategies (continued)	**Heat Pumps** Residential heat pump rebates are available at $200. 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
Key Changes	• Contractor or customers may request the inspection if one is not selected to be done • Continual solicitation of new participating lenders to offer 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 • Comprehensive marketing initiative • Listing of participating contractors on our website • Integration with Home Energy Report (Peer Group Comparison)

Program Category	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.2 High Efficiency Lighting**
Target Market	• Homeowners, Landlords, Tenants, and Property Managers • Manufacturers, Distributors, Dealers, and Retailers
Impacts	Demand 5,862 kW Energy 42,527,335 kWh Incentive Budget $2,082,682 (10%) Cost per kWh $0.049 /kWh TRB $35,405,286
Technologies	**Incentive** **Units** CFLs $0.98 1,410,900 LED $7.00 100,000
Market Barriers	**General** • Lack of understanding about how energy is used in the home • Disposal concerns • Lack of understanding as to which technology is the most effective to reduce energy consumption • Product availability of specialty and dimmable LEDs 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

Program Category	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.2 High Efficiency Lighting**
Description & Implementation Strategies	The CFL and LED rebates are offered through manufacture direct incentives which are provided as point of sale cost 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 for instant rebates for the CFL and LEDs 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 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/LED manufacturers and the national retailers. The participating CFL manufacturers are: GE, FEIT, Sylvania, TCP and Philips. Participating retailers include: Ace Hardware, City Mill, Costco, Don Quijote, Foodland, Home Depot, Longs Drugs/CVS, Lowes, Safeway, Sam's Club, Times and Wal-Mart who have all utilized their buying power to offer a better blend of quality, affordable CFLs across the State.
Key Changes	• Development and introduction of a custom lighting rebate offer targeting customers who engage with lighting designers and specialty shops. With a growing selection of EnergyStar® qualified specialty LED products, Hawaii Energy has a small but growing number of small businesses serving this clientele, with no option to benefit from lighting incentives. • Reducing incentive levels for LEDs particularly for new lower cost / higher lumen A19s. • Provide for increased recycling options for CFLs.
Marketing Strategies	• Significant focus on merchandising, including more requirements for in-store signage featuring Hawaii Energy brand and incentive amounts • 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	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.3 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 200 kW Energy 964,398 kWh Incentive Budget $162,500 (1%) Cost per kWh $0.168 /kWh TRB $1,705,580
Technologies	**Units** / **Incentive** VRF Split System AC 200 $200 Ceiling Fans 2,500 $40 Solar Attic Fans 150 $50 Whole House 200 $75
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 tenant/units use of air conditioning. • 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

Program Category	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.3 High Efficiency Air Conditioning**
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 includes: • The customer purchases a qualified high efficiency air conditioner, ceiling fan, solar attic fan or whole house fan. • 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	• Discontinue incentives for split AC without VRF technology. • Continue to encourage variable refrigerant flow (VRF) inverter split system units only.
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 an HVAC system • Find organizations to assist with HVAC outreach • Integration with Home Energy Reports (Peer Group Comparison) • Social media

Program Category	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.4 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 359 kW Energy 6,834,218 kWh Incentive Budget $1,342,500 (6%) Cost per kWh $0.196 /kWh TRB $8,646,154
Technologies	Refrigerator (<$600) — Units: 750 — Incentive: $50 Refrigerator with Recycling — 6,000 — $125 Chest Freezer with Recycling* — 1,000 — $125 Garage Refrigerator/Freezer Bounty — 1,500 — $75 Clothes Washer (Tier II / III) — 5,000 — $50 Pool VFD Controller Pumps — 450 — $150
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 **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

Program Category	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.4 High Efficiency Appliances**
Market Barriers (continued)	**Renters and Lessees** • Do not have the authority or responsibility for the appliances • May not pay for electricity
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. Hawaii Energy will explore point of purchase rebates for appliances this year. The process includes: • The customer purchases a qualified high efficiency appliance. • 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 through store visits where we 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	• Expand Bounty offer to include Lanai (achieved May 2012) and Molokai • Pilot an Energy Star® Chest Freezer Trade-In offer for the neighbor islands • Reduce incentive amount for Washing Machines from $75 to $50 • Formerly launch Pool VFD Controller Pump offer • Continue to improve quality control and reporting of recyclers • Potential to count Water Utility energy savings from washing machine installations.
Marketing Strategies	• Provide point of purchase (POP) signage and information supported by quality control (merchandising) • 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	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.5 Energy Awareness, Measurement and Control Systems**
Target Market	**General** • Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers
Impacts	Demand 838 kW Energy 7,431,808 kWh Incentive Budget $964,500 (4%) Cost per kWh $0.130 /kWh TRB $1,104,588
Technologies	**Incentive** **Units** Room Occupancy Sensor $5 300 Units Peer Group Comparisons $11.84 75,000 Homes Whole House Energy Metering $100 750 Units
Market Barriers	**General** • Awareness of technologies • Understanding of best application • Installation • Proper application of room occupancy sensors
Description & Implementation Strategies	**Room Occupancy Sensors** 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. **Peer Group Comparison** Hawaii Energy plans to continue the Home Energy Report offered through OPOWER in the Ewa region on Oahu (which was formerly funded with ARRA) and across the neighbor islands (Hawaii, Maui, Lanai and Molokai). Our strategy will look for ways to affect measurable energy savings through behavior change. **Whole House Energy Metering Devices Mail-in Rebate** These devices collect energy data by induction and transmit the information to a display unit which can be carried anywhere throughout the house or viewed via the internet.

Program Category	**3.3 Residential Energy Efficiency Measures (REEM)** **3.3.5 Energy Awareness, Measurement and Control Systems**
Description & Implementation Strategies (continued)	**Implementation** The placement of Room Occupancy Sensors will be reliant on the Hawaii Energy Hero Audits, where a certified auditor will make specific recommendations. The rebate will enhance the likelihood of adoption for this measure. The Home Energy Report will be renewed with subtle refinements on participant selection, tips provided in the reports and specific promotions coordinated with our marketing and outreach initiatives. Particular attention will be given to customers who take the time to contact Hawaii Energy with concerns of the report's validity and/or desperate for help. It is foreseen that the Hawaii Energy Hero Audit will be of particular value to these customers. The Whole House Energy Metering offer will benefit from marketing to high use households, where visibility of how electricity is being used will lead to subsequent investments in energy efficiency.
Key Changes	• Integration of Hawaii Energy Hero Audit to drive adoption of Room Occupancy Sensors • Specific marketing of Whole House Energy Metering
Marketing Strategies	• Public relations and media opportunities stemming from Home Energy Reports.

Program Category	**3.4 Custom Energy Solutions for the Home (CESH)** **3.4.1 Target Cost Request for Proposals**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers. • Mechanical and Solar Service Contractors
Impacts	Demand 28 kW Energy 28,284 kWh Incentive Budget $10,500 (<1%) Cost per kWh $0.371 /kWh TRB $59,727
Technologies	**Incentive** / **Units** Custom Packaged Proposals $0.30 35,000 kWh
Market Barriers	There were previously no mechanisms to accept "customized" residential energy efficiency proposals.
Description & Implementation Strategies	**Custom Packaged Proposals** This program that will target the contractor / home auditors / energy vendors and encourage them to develop cost-effective projects that focus on high energy consumption homes. The program will be a call for projects that meet a total dollar per kWh savings target and allow the market to be creative in the actions and measures that achieve the targeted cost per kWh energy savings. The projects will use utility metered data and submetered if required to insure savings performance.
Key Changes	• New
Marketing Strategies	• Direct contact with participating energy professionals • Direct contact with Property Managers and AOAOs

Program Category	**3.5 Residential Energy Services & Maintenance (RESM)** **3.5.1 Residential Direct Installation**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers. • Mechanical and Solar Service Contractors
Impacts	Demand 20 kW Energy 20,203 kWh Incentive Budget $12,500 (<1%) Cost per kWh $0.619 /kWh TRB $57,405
Technologies	TBD — Incentive: $0.50 — Units: 25,000 kWh
Market Barriers	There are energy efficiency measures that are not supported by current industry and/or are new or unfamiliar with the public.
Description & Implementation Strategies	The use of a direct installation process can achieve energy savings at a higher than average program cost initially to evaluate the energy savings and program implementation results in order to develop either cost-effective direct install programs or to promote the successes and then transfer to the private sector for implementation. **TBD** Hawaii Energy will pursue additional residential direct install programs targeted at $0.50 per kWh.
Key Changes	• New
Marketing Strategies	• Direct contact with participating energy professionals • Direct contact with Property Managers and AOAOs

Program Category	**3.5 Residential Energy Services & Maintenance (RESM)** **3.5.2 Residential Design and Audits**
Target Market	• Residential Home Developers
Impacts	Demand 251 kW Energy 1,406,111 kWh Incentive Budget $780,000 (2%) Cost per kWh $0.555 /kWh TRB $2,511,414
Technologies	**Incentive** / **Units** Efficiency Inside Home Design $1,000 750 Homes Hawaii Energy Hero Audits $100 300 Audits
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 not designed with A/C • Prior prescriptive components were not typically developer installed. **Home Audits** • Nascent market for home audits; number of certified professionals growing, limited market awareness of availability
Description & Implementation Strategies	**Efficiency Inside Home Design** • 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 to 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. • Demonstrate to the home building industry the value of building above code leading to a more energy efficient and cost-effective home **Home Audit** • Collaborate with the few qualified Home Energy Raters in the state of Hawaii and recent graduates of green training programs.
Key Changes	• Implementation of an incentivized home audit is new.

Program Category	**3.5 Residential Energy Services & Maintenance (RESM)** **3.5.2 Residential Design and Audits**
Marketing Strategies	**Efficiency Inside Home Design** • 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 **Home Audits** • Leverage customer inquiries primarily through the Home Energy Reports to drive incentivized home audits. These customers typically have very high electric bills, but do not qualify for a utility-provided investigation.

Program Category	**3.5 Residential Energy Services & Maintenance (RESM)** **3.5.3 Residential System Tune-Ups**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers • Mechanical and Solar Service Contractors
Impacts	Demand 18 kW Energy 126,712 kWh Incentive Budget $55,000 (<1%) Cost per kWh $0.434 /kWh TRB $72,416
Technologies	**Incentive** **Units** Central AC Maintenance $50 100 Tune-Ups Solar Water Heater Tune-Up $100 500 Tune-Ups
Market Barriers	**General** • Lack of 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	• None
Marketing Strategies	• Direct contact with Mechanical and Solar Contractors • Provide collateral to Trade Allies offering this service • 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	**3.6 Residential Hard-to-Reach (RHTR)** **3.6.1 Energy Efficiency Equipment Grants**
Target Market	• Low income, physically isolated and traditionally underserved Residential Markets
Impacts	Demand 609 kW Energy 4,363,608 kWh Incentive Budget $508,688 (2%) Cost per kWh $0.117 /kWh TRB $3,533,116
Technologies	**Incentive** / **Units** Solar Inspections (WAP) $95 450 Inspections Energy Hero Gift Packs $40 2,000 Packs CFL Exchange $2.49/Lamp 125,000 Lamps Hawaii Energy Hero Audits $250 300 Audits
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 • Provide up to $250 per home audit (anticipated to be provided as a no cost service) for those hard-to-reach segments in the most need
Key Changes	• Increased focus and penetration of direct install and educational outreach • Implementation of an incentivized home audit is new.
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

Program Category	**3.6 Residential Hard-to-Reach (RHTR)** **3.6.2 Landlord/Tenant, AOAO Measures**
Target Market	• Associations of Apartment Owners • Landlord/Tenants
Impacts	Demand 227 kW Energy 812,322 kWh Incentive Budget $651,303 (3%) Cost per kWh $0.802 /kWh TRB $2,202,051
Technologies	**Incentive** **Units** Hawaii Energy Hero Landlord $0.25 5,212 kWh Custom SWH Proposals $0.65/kWh 1,000,000 kWh
Market Barriers	• Lack of understanding of energy efficiency benefits • Renter and Lessee reluctance to invest in property
Description & Implementation Strategies	• Energy Hero Landlord Program – This program will be targeted at landlords who own affordable rental units. The program will offer such landlords comprehensive audit, RFP and other support to help with projects that will drive the energy cost of their renters down. The program will work with local lenders to provide project financing support in conjunction with the program. • Custom SWH Proposals – With a lack of projects generated from solicitation through a tiered or split incentive, the plan to offer more flexibility within a custom proposal framework was favored for PY12. This offer is budgeted for the equivalent of 484 SWH systems.
Key Changes	• New • Will pursue implementation of pilot projects for heat pump water heaters to test cost effectiveness and market acceptance.
Marketing Strategies	• Direct contact with participating solar contractors • Community event promotion of High Efficiency Water Heating • Listing of participating contractors on our website • Print advertising and Social media

4.0 BUSINESS PROGRAM STRATEGY & DETAILS FOR PY12

4.1 Overview

For PY12, Hawaii Energy will maintain programmatic changes adopted in PY11, specifically the incentive categories:

- Business Energy Efficiency Measures (BEEM) – This category offers incentives for standard, known energy efficiency technologies in the form of prescriptive incentives in a streamlined application and grant award process.

- Custom Business Energy Efficiency Measures (CBEEM) – This category offers incentive for non-standard energy efficiency technologies often needed for commercial and industrial customers who need to invest in energy efficiency opportunities specific to unique project specific processes and designs, for example. Incentive award amounts are determined via calculations performed to quantify specific energy savings related to unique applications.

- Business Energy Service and Maintenance (BESM) – This incentive category focuses on developing viable projects through collaboration, competition and direct support in the form of expertise and/or equipment (i.e. metering).

- Business Hard-to-Reach (BHTR) - This incentive category aims to secure various projects among geographies and demographics that have been traditionally underserved such as retail, restaurants and other small businesses.

A summary listing of the new Business Program offerings can be found in the table below followed by a brief summary of additions and changes. A detailed description of the Business Program follows in sections 5.2 through 5.5. Appendix B contains a projection of potential energy savings for the planned programs.

Business Programs

Program	Category	Measures
BEEM	**Business Energy Efficiency Measures**	
	High Efficiency Lighting	
	High Efficiency HVAC	
	High Efficiency Water Heating	
	High Efficiency Water Pumping	
	High Efficiency Motors	
	Commercial Industrial Processes	
	Building Envelope Improvements	
	Energy Star Business Equipment	
	Energy Awareness, Measurement and Control Systems	
CBEEM	**Custom Business Energy Efficiency Measures**	
	Customized Project Measures	
BESM	**Business Service and Maintenance**	
	Business Direct Installation	
	Business Design, Audits and Commissioning	
BHTR	**Business Hard to Reach**	
	Energy Efficiency Equipment Grants	
	Landlord, Tenant, AOAO Measures	

4.1.1 New Program Offerings of Business Energy Efficiency Measures (BEEM)

High Efficiency HVAC

- High Efficiency Chillers – The savings produced by high efficiency chillers is very specific for the location and the dependence of the "balance of system," pumps, controls etc. These incentives will be modified to encourage a methodical selection method and the savings calculated using modeling or spreadsheet analysis with appropriate system conditions (condenser water, flow rates etc.). This offer will require kW/ton metering.

Commercial Industrial Process

- Waste Water – Wastewater facilities are 24/7 facilities that have specific technical requirements, high capital costs and long procurement process. This targeted program will target the two highest energy consumers in the plants, Air Systems & UV Lighting through process improvements. A list of private waste water facilities will be leveraged in targeting opportunities in PY12. This measure will be in the $0.25/kWh range.

- Compressed Air – This program is to encourage the newer VFD rotary and screw air compressor systems that provide 25% to 30% savings. The program will be vendor driven to provide them direct incentives and the support of Hawaii Energy technology papers and sales call assistance. This measure will be in the $0.25/kWh range

Energy Star Business Equipment

- Energy Star® Kitchen Equipment – This program will focus on raising awareness of energy efficiency options when replacing equipment at end of life. This measure will be in the $0.18/kWh range.

Energy Awareness, Measurement and Control Systems

- PY11 will end with a backlog of condo and small business projects heading into PY12. The long AOAO approval process has caused this delay.

Sea Water Cooling

- Hawaii Energy will continue to support this evolving project in PY12 through metering and providing ad hoc resources as needed. The Program will pay incentives as directed in earlier proceedings upon installation and start up of the SWAC system.

4.1.2 New Program Offerings of Customized Business Energy Efficiency Measures (CBEEM)

Customized Project Measures

- Target Cost per KWh Request for Proposals - This program will provide an open opportunity for achieving energy efficiency by developing cost-effective projects that focus on high energy consumption businesses. The program will be a formal call for projects that meet a total dollar per kWh savings target and allow the market to be creative in how it is achieved. The projects will use utility metered data and if needed, will be sub-metered to ensure savings performance. This offer will be in $0.15 to $0.22/kWh program cost range.

4.1.3 New Program Offerings of Building Energy Services and Maintenance (BESM)

Business Design, Audit and Commissioning

- Building Engineer Challenge - This is an extension of the Central Plant Optimization program. The program will provide a challenge for building engineers to provide proposed projects that meet cost per kWh cost criteria and the PBFA will provide incentives if approved. The intention is to identify projects that the building engineers are confident will work but cannot receive funding through traditional processes within their systems or organizations.

Business Design, Audits and Commissioning

- Energy Study Project Implementation - This program will provide full cost of an energy study provided the customer commits to implementing projects with a dollar value of at least 50% of the total study, within a one year time frame. The specific measures implemented will be eligible for qualifying incentive offers. If customers do not follow through with their commitment, the energy study incentive money will have to be repaid to the Program.

  This is “skin in the game” and demonstrates an owner’s commitment to following through on the study recommendations. This approach demonstrated an effectiveness to move projects forward, specifically with the High Technology Development Corporation (HTDC) and Hawaii Energy’s effort in PY11 to drive manufacturing businesses to perform Energy Studies and implement projects in a very short time frame.

- Cooling Tower Optimization - This program combines the water and energy savings potential of cooling towers. The water treatment processes drive both water consumption and the persistence of energy savings by keeping the heat exchange processes in the chillers and in the tower itself at optimum levels. The program will work with the local water departments, water treatment companies and mechanical service contractors to drive the program.

- Decision Maker: Real-Time Submeters – There are individuals within business organizations who have influence over a large number of employees whose behavior within the work environment drive unnecessary energy consumption (e.g. leaving on lights, additional electronic equipment, etc.). This offer is the direct installation of a web-based electrical metering device. This metering will be monitored by the decision maker(s) within the organization to identify usage patterns and be the basis of peer group competitions within the organization.

- Technology & Project Assistance – This program will bring financial resources and technical due diligence to demonstration projects that demonstrate the efficacy of technology, its application and benefits. The Program will continue to engage with several solar thermal air conditioning technology providers and their prospective customers in PY12. Another prospective project involves a LED street lighting technology.

4.1.4 New Program Offerings of Business Hard-to-Reach (BHTR)

Energy Efficiency Equipment Grants

- Small Business Direct Install – This program will identify small businesses that are considered "hard-to-reach" due to their geographic location or economic condition. Hawaii Energy will work with trade organizations and complementary institutions (i.e. Board of Water Supply) to address mechanical and water systems. This initiative is an expansion of PY11's Small Business Direct Install Lighting offer. The program will also introduce kitchen exhaust hood controls and ECM motors which are often found in point of sale refrigeration units and small hotel room/apartment air conditioning fan coil units. Hawaii Energy's experience has been similar to other programs across the United States, in that such retrofits would not otherwise happen without this direct installation grant approach.

4.1.5 Business Program Details Table of Contents

To follow, in Sections 4.2 through 4. 5, is an overview summary of Residential Program Offerings followed by detailed descriptions and energy savings. The Overall Business Program Details are provided on the following page, preceding the individual Program summaries.

Program Category	**4.2 All Business Programs Overview** **Overview of All Business Programs**
Target Markets	**Competitive Commercial** o Office Buildings o Retail **Governmental** o City o State o Federal **Industrial Sector** o Warehousing o Cold Storage o Water Pumping o Manufacturing **Multi-Site** o Convenience Stores o Restaurants **High Load Factor Customers** o Hospitals o Hotels o Super Markets o Data Centers **Multi-Family Commercial Rate** o AOAO o AOAO - Mixed Use
Projected Impacts	Demand 6,889 kW Energy 46,163,535 kWh Incentive Budget $ 11,900,377 Cost per kWh $0.258 /kWh TRB $62,581,908
Incentives	**Measure Categories** — **Incentives** 5.3 Business Energy Efficiency Measures $ 6,222,730 5.4 Custom Business Energy Efficiency Measures $ 974,000 5.5 Business Service and Maintenance $ 3,513,647 5.6 Business Hard-to-Reach $ 1,190,000 $ 11,900,377

Program Category	**4.2 All Business Programs Overview** **Overview of All Business Programs**
Market Barriers	**General** • Lack of familiarity with availability of energy efficient technology and the vendors offering these services and products • 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 • Property is a short term investment **Renters and Lessees** • Do not have the authority or responsibility for the systems • Renter lease term shorter than simple payback for a measure
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.

Program Category	**4.2 All Business Programs Overview** **Overview of All Business Programs**
Description & Implementation Strategies (continued)	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.
Key Changes	• Program baseline efficiency thresholds will be adjusted for new IEER AC ratings and review of efficiency levels as necessary to coincide with the adoption of IECC 2006 and IECC 2009 energy codes • Expand prescriptive selections for LED lamps that achieve ENERGY STAR status. • Chiller incentives based on kWh savings, Chiller selection model and kW/ton BTU metering. • Kitchen Exhaust Hood Incentive • Electronically Commutated Motors (ECM) for fan coil and evaporative fans. • Provide budget to match cofounded energy projects. This was developed with Hawaii Energy's work with HTDC (High Technology Development Corporation) to move projects in targeted industries. • ENERGY STAR Commercial Kitchen Equipment.

Program Category	4.2 All Business Programs Overview Overview of All Business Programs
Marketing Strategies	• Web-based application forms will be advertised and made available to customers and their channel allies (lighting, cooling, motors, and 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	**4.3 Business Energy Efficiency Measures (BEEM)** **BEEM Programs Overview**
Projected Impacts	Demand 5,916 kW Energy 36,399,205 kWh Incentive Budget $ 6,222,730 (29%) Cost per kWh $0.17 /kWh TRB $ 51,226,632
Incentives	**Incentives** High Efficiency Lighting $3,371,900 High Efficiency HVAC $1,731,000 High Efficiency Water Heating $113,500 High Efficiency Water Pumping $213,200 High Efficiency Motors $33,300 Commercial Industrial Processes $450,000 Building Envelope Improvements $84,830 Energy Star Business Equipment $93,750 Energy Awareness, Measurement and Control Systems $131,250

Program Category	4.3 Business Energy Efficiency Measures (BEEM) 4.3.1 High Efficiency Lighting

Projected Impacts

Demand	4,009	kW
Energy	26,571,559	kWh
Incentive Budget	$ 3,371,900	(16%)
Cost per kWh	$0.126	/kWh
TRB	$34,271,070	

Incentives

	Incentive	Units
CFL	$2.00	16,100 Lamps
CFL – Military Homes	$1.00	32,900 Lamps
T12 to T8 (2&3 foot lamps)	$6.00	5,000 Lamps
T12 to T8 Low Wattage	$15.00	30,000 Lamps
T8 to T8 Low Wattage	$7.50	115,200 Lamps
Delamp	$7.50	5,000 Lamps Removed
Delamp/Reflector	$15.00	2,500 Lamps Removed
LED Refrigerated Case Light	$75.00	2,000 Lamps
ENERGY STAR LED		
-non-dimmable existing	$15.00	40,000 Lamps
-dimmable w/controls existing	$20.00	26,090 Lamps
-non-dimmable new	$10.00	12,000 Lamps
-dimmable w/controls new	$15.00	10,000 Lamps
-non-dimmable A19 existing	$10.00	5,000 Lamps
-dimmable A19 new	$10.00	3,000 Lamps
LED Exit Signs	$25.00	1,000 Signs
HID Pulse Start	$60.00	600 Lamps
Sensors	$20.00	4,000 Sensors
Stairwell bi-level dimming fluorescent	$50.00	1,000 Fixtures
Daylighting w/active Controls	$0.150	500,000 kWh

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.2 High Efficiency HVAC**
Projected Impacts	Demand 1,197 kW Energy 6,272,307 kWh Incentive Budget $ 1,731,000 (8%) Cost per kWh $0.276 /kWh TRB $10,803,708
Incentives	

	Incentive	Units
Chillers – kW/ton meter and Chiller Curve Optimization	$0.25	1,500,000 kWh
VFD – HVAC Chilled Water / Condenser Water	$80	500 hp
VFD – HVAC AHU	$50	1,200 hp
Garage Active Ventilation Control	$0.14	3,400,000 kWh
Package Units	$200	900 Tons
VFR Split Systems - Existing	$300	1,500 Tons
VFR Split Systems – New Construction	$250	600 Tons

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.2 High Efficiency HVAC** **4.3.2.1 Chillers**
Projected Impacts	Demand 242 kW Energy 1,212,165 kWh Incentive Budget $ 375,000 (2%) Cost per kWh $0.31 /kWh TRB $2,837,767
Incentives	**Incentive** **Units** Chillers $0.25 1,500,000 kWh
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY The use of variable speed drives, oil-free magnetic bearings, large heat exchangers, lower condenser water and other modern design features, new chillers are 20-40% more efficient than older machines. Much of the savings is at part-load conditions where chillers operate the majority of the time. The chiller selection process is an important element prior to chiller purchase and the BTU metering will allow the optimization and maintenance of savings over time. TARGET AUDIENCE Who – Property Managers, Facilities Directors, Chief Engineers and Governmental Facilities Departments What – Large Commercial facilities INCENTIVE & TARGETED ECONOMICS The incentive directly rewards the expected energy reduction produced through careful selection and procurement of the machine. It is the intention that the incentive provide 100% of the cost premium to achieve these high efficiency levels. CUSTOMER QUALIFICATIONS Eligible chillers include centrifugal, screw, scroll and reciprocating compressors at 15% improvement over IECC 2006. APPLICATION PROCESS The following will be completed and submitted for review • Rebate Application , AC Chiller Rebate Worksheet • Chiller Equipment type (centrifugal, screw, reciprocating) • Retrofit or burnout • Integrated Part Load Value (IPLV) • Manufacturer and Model Number COMPLEMENTARY PROGRAMS: • Customized Project Measures • Central Plant Optimization

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.2 High Efficiency HVAC** **4.3.2.2 VFD – Chilled Water / Condenser Water** **4.3.2.3 VFD – AHU**
Projected Impacts	Demand 293 kW Energy 822,066 kWh Incentive Budget $ 100,000 (<1%) Cost per kWh $0.12 /kWh TRB $2,106,479
Incentives	**Incentive** / **Units** VFD – Chilled Water / Condenser Water $80 500 hp VFD – AHU $50 1,200 hp
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY The use of variable frequency drives to vary motor speeds to control flow in response to changes to loads provides significant savings in HVAC applications of supply, return and exhaust fans as well as chilled water and condenser water pumps. TARGET AUDIENCE Who – Property Managers, Facilities Directors, Chief Engineers and Governmental Facilities Departments, Mechanical Engineers and Contractors. What – All Commercial Facilities INCENTIVE & TARGETED ECONOMICS HVAC Fans (VFD): The offering of a prescribed $50 per fan HP controlled (3-100 HP for existing facilities and 3-25 HP for new facilities) incentive. HVAC Pumps (VFD): The offering of a prescribed $80 per pump HP controlled (3-100 HP and 3-50 HP for new facilities) incentive for both existing and new construction facilities. CUSTOMER QUALIFICATIONS The application must have a load and system design and controls (two way valves, VAV boxes etc.) that respond to varying loads.

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.2 High Efficiency HVAC** **4.3.2.2 VFD – Chilled Water / Condenser Water** **4.3.2.3 VFD – AHU**
Description & Implementation Strategies (continued)	APPLICATION PROCESS A HVAC Fan or Pump VFD rebate worksheet will be completed and submitted for review. • Require pre-notification before projects begin. • Existing equipment must not have a VFD. • The VFDs must actively control and vary the fan or pump speed. • Motor HP • Motor quantity

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.2 High Efficiency HVAC** **4.3.2.4 Garage Active Ventilation Control**
Projected Impacts	Demand 314 kW Energy 2,747,574 kWh Incentive Budget $ 476,000 (2%) Cost per kWh $0.17 /kWh TRB $2,762,122
Incentives	**Incentive** **Units** Garage Active Ventilation Control $0.14 3,400,000 kWh
Description & Implementation **Strategies**	ENERGY REDUCTION OPPORTUNITY Enclosed parking garages that are mechanically ventilated 24/7 in order to remove the carbon monoxide (CO) created by gasoline powered vehicles. The ventilation systems are designed for maximum capacity conditions and there are opportunities to reduce both operating speed and fan runtimes during times of lower traffic periods to achieve fan energy savings of 60% to 90% with active CO monitoring systems control. The addition of Variable Speed Drives (VFDs) can also be incorporated if not already present. TARGET AUDIENCE Who - Property Managers & Private and Public Facilities Directors. Air Conditioning/Mechanical Contractors Facilities Maintenance Companies What – Office/Retail Buildings with mechanically ventilated parking garages. INCENTIVE & TARGETED ECONOMICS The $0.14/kWh incentive is directly provided to the metered savings resulting from the retrofit. APPLICATION PROCESS 1. A garage fan savings worksheet will be competed and submitted for review • Exhaust Fan/Motor Inventory • Map of Locations • Motor Horsepower & Runtimes • Sample set of fans must be spot metered to determine operating power consumption. 2. A pre/post inspection will be performed for systems totaling over 75 hp. This inspection may include metering of current fan horsepower. COMPLEMENTARY PROGRAMS: • High Efficiency Lighting – Induction / T8 / T5 / Occupancy Sensors /Timers

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.2 High Efficiency HVAC** **4.3.2.5 Package Units**
Projected Impacts	Demand 68 kW Energy 401,615 kWh Incentive Budget $ 180,000 (<1%) Cost per kWh $0.45 /kWh TRB $732,137
Incentives	**Incentive** **Units** Package Units $200 900 Tons
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY The air-cooled package units are most often found in small commercial facilities as they are least first-cost and maintenance intensive of HVAC options to this market. The units are often roof-top mounted and feed constant volume distribution systems. The most cost effective opportunity to reduce energy consumption in these units are to replace them with the highest efficiency unit available and potentially convert at the same time to a VAV distribution system to increase both comfort and reduce cooling loads. A higher cost option is to convert to VRF split systems. TARGET AUDIENCE Who – Property Managers & Private and Public Facilities Directors. Air Conditioning/Mechanical Contractors, Mechanical Engineers What – Small Commercial facilities. INCENTIVE & TARGETED ECONOMICS The offering of prescriptive incentives based on the EER of the units starting at a 15% higher than IECC 2006 / ASHRAE 2004 standards. The incentives increase with higher efficiency levels. This level of incentive should eliminate the incremental difference between a standard efficiency unit. APPLICATION PROCESS 1. A prescriptive worksheet will be competed and submitted for review • Unit size, model, efficiency rating, operational hours • Map of Locations 2. A sample of sites have pre/post inspections COMPLEMENTARY PROGRAMS • Window Tinting • Package and Split AC Tune-Up • VRF Split Systems

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.2 High Efficiency HVAC** **4.3.2.6 VRF Split Systems - Existing Systems** **4.3.2.7 VRF Split Systems - New Construction**
Projected Impacts	Demand 280 kW Energy 1,088,888 kWh Incentive Budget $ 600,000 (<1%) Cost per kWh $0.55 /kWh TRB $2,365,203
Incentives	**Incentive** **Units** VFR Split Systems – Existing Systems $300 1,500 Tons VFR Split Systems – New Construction $250 600 Tons
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY Inverter driven variable refrigerant flow (VRF) air conditioning systems are direct expansion AC systems that utilize variable speed evaporator/condenser fans, and a combination of fixed and variable speed compressors along with most often multiple individual zone evaporators to provide the ability to more closely match the AC system's output with the building's cooling requirements. A potential of 20 to 35% energy savings come from: • *Part Load Efficiencies*: Increased part-load efficiency operation • *High Efficiency Motors*: Many systems use ECM motors • *Higher Room Temperatures*: The capacity matching allows for better humidity control through longer cooling operation. • *Reduction of Distribution Losses*: Duct losses are reduced with DX systems. This may be offset by dedicated outside air distribution systems when needed. TARGET AUDIENCE Who – Property Managers & Private and Public Facilities Directors. Air Conditioning/Mechanical Contractors, Mechanical Engineers What – Commercial facilities. INCENTIVE & TARGETED ECONOMICS The offering of prescriptive incentives based on the tonnage of the VRF system. This level of incentive should reduce 25% of the incremental difference between a VRF and an alternative single or two-speed standard efficiency unit.

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.2 High Efficiency HVAC** **4.3.2.6 VRF Split Systems - Existing Systems** **4.3.2.7 VRF Split Systems - New Construction**
Description & Implementation Strategies (continued)	APPLICATION PROCESS 1. A prescriptive worksheet will be completed and submitted for review • Unit size, model, efficiency rating, operational hours • Map of Locations 2. A sample of sites have pre/post inspections COMPLEMENTARY PROGRAMS • Window Tinting, Package and Split AC Tune-Up

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.3 High Efficiency Water Heating**
Projected Impacts	Demand 235 kW Energy 377,913 kWh Incentive Budget $ 113,500 (<1%) Cost per kWh $0.30 /kWh TRB $1,300,437
Incentives	**Incentive** / **Units** Commercial Solar Water Heaters -Electric Resistance $250 250 Tons -Heat Pump $100 75 Tons Heat Pumps -Conversion – Electric Resistance $120 200 Tons -Upgrade $65 300 Tons

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.3 High Efficiency Water Heating** **4.3.3.1 Commercial Solar Water Heaters Electric Resistance** **4.3.3.2 Commercial Solar Water Heaters Heat Pump**
Projected Impacts	Demand 225 kW Energy 197,219 kWh Incentive Budget $70,000 (<1%) Cost per kWh $0.355 /kWh TRB $1,114,369
Incentives	**Incentive** **Units** Commercial Solar Water Heaters -Electric Resistance $250 250 Tons -Heat Pump $100 75 Tons
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY Commercial solar water heaters can provide a renewable energy source of water heating. The systems can reduce electrical consumption for water heating by providing supplemental pre-heating all the way to 100% of the water heating needs limited by the hot water demand characteristic and the site's physical constraints on storage tank and panel locations. TARGET AUDIENCE Who – AOAOs, Property Managers, Private and Public Facilities Directors. Mechanical Contractors, Mechanical Engineers. What – Hotel, Condominium and Apartments & Government housing. INCENTIVE & TARGETED ECONOMICS The offering of a $250 / 12,000 BTU prescriptive incentive based on the derated installed capacity of the solar water heating system. The base system must have been electric resistance, heat pump or heat recovery off an electric chiller. Conversion to a gas backup system is permitted to eliminate any potential electrical demand from the system and allow quick peak recovery. The economic impact of this incentive will depend on the ability for the customer to take advantage of tax credits and the site specific system costs. The level will achieve a $0.33/kWh savings for the program. It is the desire to adjust the incentive to a point where it will lower the payback for the system to 5 years.

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.3 High Efficiency Water Heating** **4.3.3.1 Commercial Solar Water Heaters Electric Resistance** **4.3.3.2 Commercial Solar Water Heaters Heat Pump**
Description & Implementation Strategies (continued)	APPLICATION PROCESS 1. A prescriptive worksheet/saving calculator will be competed and submitted for review • Unit sizes, model, derating rating, operational hours • System diagram 2. A sample of sites will have pre/post inspections COMPLEMENTARY PROGRAMS • Water saving showerheads, spray-rinse valves, and fixtures.

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.3 High Efficiency Water Heating** **4.3.3.3 Heat Pump – Conversion – Electric Resistance** **4.3.3.4 Heat Pump Upgrade**
Projected Impacts	Demand 10 kW Energy 180,693 kWh Incentive Budget $ 43,500 (<1%) Cost per kWh $0.241 /kWh TRB $186,067
Incentives	**Incentive** **Units** Heat Pumps -Electric Resistance $120 200 Tons -Upgrade $65 300 Tons
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY Heat pump water heaters can provide a highly efficient source of water heating. Water-Source Heat pumps are the most efficient when used to supplement the heat rejection from chilled water return loops and condenser water systems to heat a facilities' domestic water needs or swimming pools. Heat pumps can also be air-source and provide heat mitigation in areas such a commercial kitchen and serve pools as a stand-alone water heater. The systems can reduce electrical consumption for water heating by providing supplemental pre-heating all the way to 100% of the water heating needs limited by the hot water demand characteristic and the site's physical constraints on heat pump storage tanks. TARGET AUDIENCE Who – AOAOs, Property Managers, Private and Public Facilities Directors. Mechanical Contractors, Mechanical Engineers. What – Commercial Pools, Hotel, Condominium and Apartments & Government housing. INCENTIVE & TARGETED ECONOMICS The offering of a $120 or 65 per ton prescriptive incentive based on the installed capacity of the heat pump. The base system must have been electric resistance, failing heat pump (10 year or older) or heat recovery off an electric chiller. Conversion/remaining on a gas backup system are permitted to eliminate any potential electrical demand from the system and allow quick peak recovery.

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.4 High Efficiency Water Pumping - Summary of Programs**
Projected Impacts	Demand 91 kW Energy 985,215 kWh Incentive Budget $ 213,200 (1%) Cost per kWh $0.216 /kWh TRB $1,502,462
Incentives	**Incentive** / **Units** VFD Dom. Water Booster Packages – VFD $700 100 hp VFD Dom. Water Booster Packages – added HP Reduction $80 40 hp reduced VFD Pool Pump Packages $350 400 hp

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.4 High Efficiency Water Pumping** **4.3.4.1 VFD Dom. Water Booster Packages – VFD** **4.3.4.2 VFD Dom. Water Booster Packages – added HP Reduction**
Projected Impacts	Demand 46 kW Energy 444,105 kWh Incentive Budget $ 73,200 (<1%) Cost per kWh $0.165 /kWh TRB $696,542
Incentives	**Incentive** / **Units** VFD Dom. Water Booster Packages – VFD $700 100 hp VFD Dom. Water Booster Packages – Added HP Reduction $80 40 hp reduced
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY The replacement of single speed staged domestic water booster pumps can provide up to 70% energy savings by: • providing constant pressure regardless of flow • reducing pump speed during low use periods increases system efficiency TARGET AUDIENCE Who – Property Managers, Facilities Directors, Chief Engineers and Governmental Facilities Departments, Mechanical Contractors and VFD Pump Package suppliers. What – Apartments, Office Buildings, Hotels, Hospitals INCENTIVE & TARGETED ECONOMICS The offering of a prescribed $80 per HP reduction and for booster pump system with VFD, add $700 per HP. The incentive is targeted to achieve a 10 to 15% reduction in the system cost. All pump motors must meet CEE Premium Efficiency standards. CUSTOMER QUALIFICATIONS Booster Pump applications require pre-notification before equipment is purchased and installed. • The new booster pump system's total horsepower must be equal to or less than that of the existing system. • The system horsepower reduction must be between 0 to 129 hp. For projects with greater than 129hp, please contact the program • Booster Pump applications do not apply to New Constructions.

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.4 High Efficiency Water Pumping** **4.3.4.1 VFD Dom. Water Booster Packages – VFD** **4.3.4.2 VFD Dom. Water Booster Packages – added HP Reduction**
Description & Implementation Strategies (continued)	APPLICATION PROCESS The following will be completed and submitted for review • Rebate Application • Booster Pump Rebate Worksheet • Manufacturer's specification sheets or Name Plate Information including: • Manufacturer • Model Number • Serial Number • Motor Size (nominal hp) – All pump motors must meet CEE Premium Efficiency standards • Pump Type • Identify Pump with VFD or without VFD • Existing System hp minus New System hp COMPLEMENTARY PROGRAMS • Customized Project Measures • Central Plant Optimization Competition • CEE Listed Premium Efficiency Motors

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.4 High Efficiency Water Pumping** **4.3.4.3 VFD Pool Pump Packages**
Projected Impacts	Demand 45 kW Energy 541,110 kWh Incentive Budget $ 140,000 (1%) Cost per kWh $0.26 /kWh TRB $805,920
Incentives	VFD Pool Pump Packages — Incentive: $350 — Units: 400 hp
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY Pool pumps often run much longer than necessary. A variable speed commercial pool pump motor in place of a standard single speed motor can save energy and maintain a comfortable swimming pool temperature and chemical circulation by using a smaller, higher efficiency pump and by operating it less. TARGET AUDIENCE Who – Property Managers, Facilities Directors, Chief Engineers and Governmental Facilities Departments What – Commercial facilities with swimming pool. INCENTIVE & TARGETED ECONOMICS The offering of a prescribed $350 per HP installed. CUSTOMER QUALIFICATIONS Existing single speed pool pump APPLICATION PROCESS The following will be completed and submitted for review • Rebate Application • VFD Pool Pump Rebate Worksheet • Manufacturer's specification sheets • Name Plate - Manufacturer, Model Number, Serial Number • Motor Size–pump motors must meet NEMA Premium Efficiency • Pump Type • Proof of installation and purchase COMPLEMENTARY PROGRAMS • Customized Project Measures • Central Plant Optimization Competition

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.5 High Efficiency Motors** **4.3.5.1 CEE Premium Efficiency Motors** **4.3.5.2 ECM w/ Controller- Evaporator Fan Motors** **4.3.5.3 ECM- Fan Coil Fans**
Projected Impacts	Demand 78 kW Energy 391,141 kWh Incentive Budget $ 33,300 (<1%) Cost per kWh $0.085 /kWh TRB $758,903
Incentives	**Incentive** / **Unit** CEE Tier 1+ Premium Efficiency Motors $6/hp 1,800 hp ECM w/ Controller- Evaporator Fan Motors $85/motor 200 Motor ECM- Fan Coil Fans $55/motor 100 Motor
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY CEE LISTED MOTORS There is an opportunity to save energy with motors designed to utilize less power for the same horsepower of work. Motors in many applications (Water pumping and air handing) have long operational hours and are often out of sight and mind until they fail. The CEE Premium Efficiency Specification will be the qualification level for motors. This is driven by the December 2010 implementation of the Energy Independence and Security Act of 2007 (EISA) requiring the vast majority of new electric motors to meet NEMA Premium Efficiency standards. ECM There is an opportunity to save energy with ECM motors that have higher electrical efficiency (Electronically Commutated Motor, 70 percent efficient) than PSC (Permanent split capacitor, 49 percent efficient) or shaded-pole (32 percent efficient). In addition, “cooler” motor operation creates less heat load on the conditioned space. When motors fail there is often an operational urgency to replace them at the lowest first-cost as the replacement was not budgeted. TARGET AUDIENCE Who – Property Managers, Mechanical & Electrical Contractors, Motor Repair/Rewind Shops, Motor Distributor and Supply houses What – All Refrigeration and PTAC units

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.5 High Efficiency Motors** **4.3.5.1 CEE Premium Efficiency Motors** **4.3.5.2 ECM w/ Controller- Evaporator Fan Motors** **4.3.5.3 ECM- Fan Coil Fans**
Description & Implementation Strategies (continued)	INCENTIVE & TARGETED ECONOMICS The current $6/hp incentive will be transformed with the intention to eliminate the cost premium for the listed CEE Premium efficiency motors up to 200 hp. The $85 and $55/motor incentives are aimed at 20% of installed cost. APPLICATION PROCESS 1. A contractor or customer submitted application and savings worksheet. • Unit size, model, • Unit location description • Operational hours 2. A sample of sites will have post inspections COMPLEMENTARY PROGRAMS • High Efficiency HVAC • Central Plant Optimization • Target Cost per kWh Request for Proposals

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.6 Commercial Industrial Processes – Summary of Programs**
Projected Impacts	Demand 154 kW Energy 789,342 kWh Incentive Budget $ 450,000 (2%) Cost per kWh $0.570 /kWh TRB $1,180,009
Incentives	Waste Water $0.50 /kWh 100,000 kWh Compressed Air $0.25 /kWh 100,000 kWh Kitchen Exhaust Hood Demand Ventilation $300 500 hp ENERGY STAR Commercial Kitchen Equipment $0.30 /kWh 750,000 kWh

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.6 Commercial Industrial Processes** **4.3.6.1 - Waste Water Process Improvements**
Projected Impacts	Demand 16 kW Energy 80,811 kWh Incentive Budget $ 50,000 (<1%) Cost per kWh $0.62 /kWh TRB $157,359
Incentives	**Incentive** **Unit** Waste Water Process Improvements $0.50 /kWh 100,000 kWh
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY Wastewater facilities are 24/7 facilities that have specific technical requirements, high capital costs and long procurement process. This targeted program will hit the two highest energy consumers in the plants. Air Systems & UV Lighting through process improvements TARGET AUDIENCE Who – Waste Water Treatment Plant Operators What – Private and Public Wastewater Treatment Plants INCENTIVE & TARGETED ECONOMICS TBD APPLICATION PROCESS This program process will be developed by direct discussions with the effected customers. COMPLEMENTARY PROGRAMS • Target Cost per kWh Request for Proposals • Air Compressor Technologies and Operations

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.6 Commercial Industrial Processes** **4.3.6.2 Air Compressor Technologies and Operations**
Projected Impacts	Demand 16 kW Energy 80,811 kWh Incentive Budget $ 25,000 (<1%) Cost per kWh $0.31 /kWh TRB $117,358
Incentives	**Air Compressor Tech. and Ops.** — **Incentive** $0.25 /kWh — **Unit** 100,000 kWh
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY There are newer VFD rotary and screw air compressor systems that provide 25% to 30% savings. TARGET AUDIENCE Who – Industrial and Commercial facilities operators, Suppliers of Air Compressor technologies, mechanical contractors, mechanical engineers What – Process Air Compressor systems INCENTIVE & TARGETED ECONOMICS TBD APPLICATION PROCESS The program will develop a vendor driven program that will provide them direct incentives and the support of Hawaii Energy technology papers and sales call assistance. COMPLEMENTARY PROGRAMS • Target Cost per kWh Request for Proposals

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.6 Commercial Industrial Processes** **4.3.6.3 - ENERGY STAR Commercial Kitchen Equipment**
Projected Impacts	Demand 121 kW Energy 606,083 kWh Incentive Budget $ 225,000 (1%) Cost per kWh $0.37 /kWh TRB $880,186
Incentives	**Incentive** **Unit** Commercial Kitchen Equipment $0.30 /kWh 750,000 kWh
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY This program will start with direct installation of variable exhaust ventilation systems that adjust to the cooking exhaust loads. TARGET AUDIENCE Who – Restaurants and commercial kitchens What – Commercial Kitchen Equipment INCENTIVE & TARGETED ECONOMICS This program will have a variety of incentives for dozens of equipment types. It is expected that the average cost per kWh will be $0.30 /kWh. We will work with Fishnick and CEE to develop equipment types and incentive levels. APPLICATION PROCESS. This program will be implemented through specialty contractors on a dollar per kWh capture basis. The program will also develop vendor driven program that will provide them direct incentives and the support of Hawaii Energy technology papers and sales call assistance. COMPLEMENTARY PROGRAMS • Target Cost per kWh Request for Proposals

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.7 Building Envelope Improvements**
Projected Impacts	Demand 86 kW Energy 308,429 kWh Incentive Budget $ 84,830 (1%) Cost per kWh $0.275 /kWh TRB $520,058
Incentives	**Incentive** / **Unit** Window Tinting $1/sq.ft. 74,830 sq.ft. Cool Roof Technologies $0.20/sq.ft 50,000 sq.ft.

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.7 Building Envelope Improvements** **4.3.7.1 Window Tinting**
Projected Impacts	Demand 79 kW Energy 296,307 kWh Incentive Budget $ 74,830 (<1%) Cost per kWh $0.25 /kWh TRB $487,053
Incentives	**Incentive** **Unit** Window Tinting $1/sq.ft. 74,830 sq.ft.
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY Window tinting can save energy by reducing the heat gain through windows as well as preventing lowering of temperature set points by occupants near the windows. Modern tints can provide the rejection of infrared energy while not blocking visible light. This expands the tinting opportunities in view sensitive locations such as hotel and office buildings. TARGET AUDIENCE Who – AOAOs, Property Managers, Private and Public Facilities Directors. Window Tinting Companies What – Hotel, Office, Condominium and Apartments & Government housing. INCENTIVE & TARGETED ECONOMICS The offering of a $1 / sq. ft. prescriptive incentive based on the film's Solar Heat Gain Coefficient (SHGC) < 0.435. • *Warranty* – Film must have a minimum five-year manufacturer's warranty and one-year installer's warranty • *Conditioned Space* – Rebates shall be paid on actual square footage of glass in a conditioned space on the east, west, and south facing windows. • *Eligible Types* – Windows may be clear or factory tinted, single or double pane, but must not have reflected glass. All orientations are eligible. • *Unshaded* – Windows significantly shaded by buildings, trees or awnings are not eligible for rebates. • *Replacement Film* – Replacement of deteriorated window film is eligible for 50% of the rebate if the customer did not receive a rebate for the existing film. This incentive is targeted to provide a 25% cost reduction for the installation.

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.7 Building Envelope Improvements** **4.3.7.1 Window Tinting**
Description & Implementation Strategies (continued)	APPLICATION PROCESS 1. A prescriptive worksheet will be completed and submitted for review • Square footage of tinting • HVAC system Information • Site Layout • Exterior Photo of the south, east and west of the facility 2. Manufacturer specification sheets. 3. A request for a manufacturer's energy savings model run based on the location specific site conditions. 4. All sites will have pre/post inspections COMPLEMENTARY PROGRAMS • High Efficiency HVAC Measures • Central Plant Optimization

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.7 Building Envelope Improvements** **4.3.7.1 Cool Roof Technologies**
Projected Impacts	Demand 8 kW Energy 12,122 kWh Incentive Budget $ 10,000 (<1%) Cost per kWh $0.82 /kWh TRB $33,005
Incentives	**Incentive** **Unit** Cool Roof Technologies $0.20/sq.ft 50,000 sq.ft.
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY Cool Roofs increase the reflectivity of the roof and reduce cooling loads by either the reflective white or silver color and/or by "stealth" technologies such as ceramic and titanium oxide particles embedded in the material. The cool roof technologies allow a wide range of roof colors. TARGET AUDIENCE Who – AOAOs, Property Managers, Private and Public Facilities Directors. Roofing Companies, Architects What – All Commercial Facilities INCENTIVE & TARGETED ECONOMICS The offering of a $0.20 / sq. ft. prescriptive incentive based on Energy Star Qualified roofing products. • *Warranty* – Roof must have a minimum fifteen-year manufacturer's warranty and one-year installer's warranty • *Conditioned Space* – Rebates shall be paid on actual square footage of roof covering a conditioned space. • *Unshaded* – Roofs significantly shaded by buildings, trees or awnings are not eligible for rebates. This is targeted to incentive will provide a 25% of the incremental cost of moving from standard to Energy Star roofing materials.

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.8 Energy Star Business Equipment** **4.3.8.1 Energy Star Refrigerators w/Recycling**
Projected Impacts	Demand 21 kW Energy 496,382 kWh Incentive Budget $ 93,750 (<1%) Cost per kWh $0.19 /kWh TRB $626,914
Incentives	Energy Star Refrigerators w/Recycling — Incentive: $125/unit — Unit: 750 units
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY There is a 32 to 62% energy reduction opportunity in the replacement of the "old" office refrigerator with a modern Energy Star model. TARGET AUDIENCE Who – Property Managers, Executive Level Company Officers What – All Commercial INCENTIVE & TARGETED ECONOMICS The offering of a $125 incentive for Energy Star units bought and delivered by participating retailers. This incentive is a 10 to 25% reduction in the cost of a new Energy Star model. APPLICATION PROCESS 1. A retailer submitted application and recycling verification worksheet. • Unit size, model, • Confirmation of Pickup and Recycling. • Unit location description 2. A sample of sites will have post inspections COMPLEMENTARY PROGRAMS • High Efficiency HVAC and Lighting Measures

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.9 Energy Awareness, Measurement and Control Systems**
Projected Impacts	Demand 46 kW Energy 206,917 kWh Incentive Budget $ 131,250 (1%) Cost per kWh $0.63 /kWh TRB $263,069
Incentives	**Incentive** **Unit** Condominium Submetering $150 750 units metered Small Business Submetering $150 125 units metered

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.9 Energy Awareness, Measurement and Control Systems** **4.3.9.1 Condominium Submetering**
Projected Impacts	Demand 35 kW Energy 165,461 kWh Incentive Budget $ 112,500 (1%) Cost per kWh $0.68 /kWh TRB $204,752
Incentives	**Incentive** **Unit** Condominium Submetering $150 750 units metered
Description & Implementation Strategies	PROGRAM OBJECTIVE • This program is designed to assist master-metered condominiums and their Association of Apartment Owners (AOAO) to install billing sub meters for their units and common areas to drive energy conservation and ensure equity and fairness in allocating energy costs to tenants and/or owners of their condominium units. The knowledge of personal energy usage and the responsibility to pay for it can result in energy usage behavior modification and reward those making investments in energy efficient equipment. • The combination of billing sub meters, along with education, peer group comparisons and special equipment offerings, will assist the owner or tenant to achieve significant energy conservation and efficiency. • Provides the AOAO an opportunity to receive an energy audit of the property and participate in other Hawaii Energy incentives for conservation in all common areas. Possible incentives could include A/C, lighting, pool pumps, domestic water pumps and parking garage exhaust fans. INCENTIVE • The payment of this $150 per unit metered incentive is payable to the AOAO towards the purchase and installation of a third party sub metering system. The metering system is to be used for billing purposes so that each owner or tenant of the unit metered will be responsible for the payment of their own electric consumption. • Incentive payment will be made upon completion of: installation of each meter and billing system, tenant education sub metering workshop, energy audit of the AOAO property and commencement of real time billing to individual tenants. • Incentive payment cannot exceed 50% of total project cost.

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.9 Energy Awareness, Measurement and Control Systems** **4.3.9.1 Condominium Submetering**
Description & Implementation Strategies (continued)	ENERGY SAVINGS • It is expected there will be at least a 10% reduction in energy usage; however, there is no minimum reduction in electrical use required to retain the incentive. • Currently the M&V Review suggests 3.8% this will be reviewed as compared to actual project performance. REQUIREMENTS • The metering system must remain in place and billing to occur for a period of at least five (5) years or a pro-rated portion of the incentive will be recovered by Hawaii Energy. • Energy meter data (sub metered billing statements) must be provided to Hawaii Energy for analysis purposes. • 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. Review monthly billing history • AOAO to provide monthly individual data collection for a two month period after meter installation to Hawaii Energy. This would be the mock billing information that is supplied to the tenant. • Sub Metering system installation inspection review • Identification of Top (T) and Bottom (B) 5 energy users for the purpose of peer comparison. All information will be anonymous. • AOAO to host sub metering and energy conservation and efficiency workshops presented by Hawaii Energy. A free energy efficient power strip will be given to encourage attendance. (If power strips are not available, Hawaii Energy reserves the right to offer a comparable promotional item.) • CFL's and LED's can be purchased utilizing the point of purchase rebates made available by Hawaii Energy in retail outlets throughout the state. • AOAO owners/tenants are eligible for Energy Star Appliance rebates and can purchase Energy Star appliances through major retailers throughout the state.

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.9 Energy Awareness, Measurement and Control Systems** **4.3.9.1 Condominium Submetering**
Description & Implementation Strategies (continued)	• AOAO to perform energy audit/Vendor Project Proposals with Hawaii Energy assistance on the following: 1. Common Area Lighting 2. HVAC 3. Domestic Water Pumping 4. Domestic Water Heating

Program Category	**4.3 Business Energy Efficiency Measures (BEEM)** **4.3.9 Energy Awareness, Measurement and Control Systems** **4.3.9.2 Small Business Submetering**
Projected Impacts	Demand 12 kW Energy 41,456 kWh Incentive Budget $ 18,750 (<1%) Cost per kWh $0.45 /kWh TRB $58,317
Incentives	Small Business Submetering — **Incentive** $150 — **Unit** 125 units metered
Description & Implementation Strategies	• Small Businesses 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 business 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 owner or small business • The payment of the incentive will be based on owner 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 owner 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 owner to assist in the verification of savings and development of an ongoing energy incentive offering for other condominiums in Hawaii. • This will be a pilot program subject to review and approval of how savings will be determined. Savings methodology to be included in the TRM for 2012 Programs.

Program Category	**4.4 Custom Business Energy Efficiency Measures (CBEEM)** **Customized Programs Overview**
Projected Impacts	Demand 529 kW Energy 5,293,121 kWh Incentive Budget $974,000 (5%) Cost per kWh $0.18 /kWh TRB $5,974,917
Incentives	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. **Incentive** / **Units** Customized Project Measures <5 yrs. $0.10 1,500,000 kWh Customized Project Measures >5 yrs. $0.16 4,250,000 kWh Co-funding Leveraged Project Assistance $0.18 800,000 kWh

Program Category	**4.4 Custom Business Energy Efficiency Measures (CBEEM)** **4.4.1 Customized Project Measures** **4.4.1.1 Customized Project Measures <5 yrs.** **4.4.1.2 Customized Project Measures >5 yrs.**
Projected Impacts	Demand 464 kW Energy 4,646,633 kWh Incentive Budget $830,000 (1%) Cost per kWh $0.178 /kWh TRB $5,347,466
Incentives	**Incentive** **Units** Customized Project Measures <5 yrs. $0.10 1,500,000 kWh Customized Project Measures >5 yrs. $0.16 4,250,000 kWh
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
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 clarify if needed

Program Category	**4.4 Custom Business Energy Efficiency Measures (CBEEM)** **4.4.1 Customized Project Measures** **4.4.1.1 Customized Project Measures <5 yrs.** **4.4.1.2 Customized Project Measures >5 yrs.**
Description & Implementation Strategies (continued)	• 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 or 6 months for LED projects. • 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 **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 or 6 months or greater for LED projects) • Incentive Amount (<=50% of incremental cost) • Total Resource Cost Ratio(>=1) Encouraged technology categories • Fresh Water Pumping / Waste Water Pumping • Data Centers - Airflow Optimization • Data Centers - Server Virtualization and Related Technologies • Parking Garages - Perimeter Dimming • Parking Ventilation Control • Demand Control Ventilation (CO2 Sensors in return airstream) • LED Refrigeration Case Lighting • LED Interior Lights

<table>
<tr><td>Program Category</td><td>4.4 Custom Business Energy Efficiency Measures (CBEEM)
4.4.2 Customized Project Measures
4.4.2.1 Customized Project Measures <5 yrs.
4.4.2.2 Customized Project Measures >5 yrs.</td></tr>
<tr><td>Description & Implementation Strategies (continued)</td><td>• LED Traffic Lights and Exterior Lighting
• Commercial Refrigeration Measures
• Advanced Energy Management Controls
• Variable Refrigerant Flow Air Conditioning
• High Performance Commercial Lighting
• Bi-Level Stairwell and Parking Garage Lighting
• EC Motors and Controllers</td></tr>
<tr><td>Key Changes</td><td>Tiered Incentives by Payback
• Projects that have longer life measures often have longer paybacks that businesses have a harder time gaining 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.
<table><tr><th>Measure Life</th><th>Reduction in Energy use Incentive</th></tr><tr><td><= 5 years</td><td>$0.10 /kWh</td></tr><tr><td>> 5 years</td><td>$0.16 /kWh</td></tr></table></td></tr>
<tr><td>Marketing Strategies</td><td>• 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</td></tr>
</table>

Program Category	**4.4 Custom Business Energy Efficiency Measures (CBEEM)** **4.4.1 Customized Project Measures** **4.4.1.2 Co-funding Leveraged Project Assistance**
Projected Impacts	Demand 65 kW Energy 646,488 kWh Incentive Budget $144,000 (1%) Cost per kWh $0.18 /kWh TRB $627,451
Incentives	Co-funding Leveraged Project Assistance — Incentive: $0.18 — Units: 800,000 kWh
Description & Implementation Strategies	The program will provide an open opportunity for achieving energy efficiency by developing cost-effective projects that focus on high energy consumption businesses. The program will be a formal offer of matching or leveraging funds for projects that have other sources of funding that still do not allow the project to move forward. The example were the HTDC (High Technology Development Corporation) funds for energy studies that were not fully subscribed due to the customer not having the remainder of the funding to execute. This co-funded work resulted in 2010 in eight energy studies resulting in at least one immediately implemented project. The projects will use utility metered data and if needed, will be submetered to ensure savings performance.

Program Category	**4.5 Business Energy Services & Maintenance (BESM)** **BESM Program Overview**
Projected Impacts	Demand 359 kW Energy 3,611,875 kWh Incentive Budget $3,513,647 (16%) Cost per kWh $0.97 /kWh TRB $4,134,711
Incentives	**4.5.1 Business Direct Installation** Small Business Direct Lighting Retrofits — $0.75 — 2,666,667 kWh **4.5.2 Business Design, Audits & Commissioning** Central Plant Performance Competition — $0.80 — 900,000 kWh Cooling Tower Optimization — $0.25 — 250,000 kWh Decision Maker – Real-Time Submeters — $12,000 — 5 groups Energy Study Project implementation — $30,000 — 6 Studies Energy Study Assistance – 50% — $15,000 — 10 Studies Design Study Assistance — $15,000 — 6 Studies Energy Project Catalyst — $0.40 — 627,868 kWh

Program Category	**4.5 Business Energy Services & Maintenance (BESM)** **4.5.1 Business Direct Installation** **4.5.1.1 Small Business Direct Lighting Retrofits**
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 technologies.

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

Projected Impacts

Demand	215	kW
Energy	2,154,960	kWh
Incentive Budget	$ 2,000,000	(2%)
Cost per kWh	$0.93	/kWh
TRB	$3,194,738	

Incentives

	Incentive	Units
Small Business Direct Lighting Retrofits	$.75	2,154,960 kWh

Technologies

Small Business Lighting Retrofit providing a "Turnkey" program consisting of audits, 100% incentivized lighting measures, installation by participating Hawaii Energy Participating contractors and 6 month financing of lighting retrofit costs of custom measures beyond the cost per kWh incentive.

Program Category	**4.5 Business Energy Services & Maintenance (BESM)** **4.5.1 Business Direct Installation** **4.5.1.1 Small Business Direct Lighting Retrofits**
Technologies (continued)	The following lighting technology changes will be 100% incentivized under this measure:

	Measure Description
28W Retrofits	Two 8 ft. T12HO 110W to Four 4 ft. T8 28W Normal BF / Reflector One 8 ft. T12HO 110W to Two 4 ft. T8 28W High BF Two 8 ft. T12HO 110W to Two 4 ft. T8 28W High BF / Reflector Two 8 ft. T12 75W to Two 4 ft. T8 28W Normal BF One 8 ft. T12 75W to Two 4 ft. T8 28W Normal BF Four 4 ft. T12 40W to Four 4 ft. T8 28W Normal BF Four 4 ft. T12 40W to Two 4 ft. T8 28W Normal BF / Reflector Three 4 ft. T12 40W to Three 4 ft. T8 28W Normal BF Three 4 ft. T12 40W to Two 4 ft. T8 28W Normal BF / Reflector Two 4 ft. T12 40W to Two 4 ft. T8 28W Normal BF One 4 ft. T12 40W to One 4 ft. T8 28W Normal BF Four 4 ft. T12 34W to Four 4 ft. T8 28W Normal BF Four 4 ft. T12 34W to Two 4 ft. T8 28W Normal BF / Reflector Three 4 ft. T12 34W to Three 4 ft. T8 28W Normal BF Three 4 ft. T12 34W to Two 4 ft. T8 28W Normal BF / Reflector Two 4 ft. T12 34W to Two 4 ft. T8 28W Normal BF One 4 ft. T12 34W to One 4 ft. T8 28W Normal BF Four 4 ft. T8 32W to Four 4 ft. T8 28W Normal BF Four 4 ft. T8 32W to Two 4 ft. T8 28W Normal BF / Reflector Three 4 ft. T8 32W to Three 4 ft. T8 28W Normal BF Three 4 ft. T8 32W to Two 4 ft. T8 28W Normal BF / Reflector Two 4 ft. T8 32W to Two 4 ft. T8 28W Normal BF One 4 ft. T8 32W to One 4 ft. T8 28W Normal BF
	Two 4ft. FB40 T8 to Three 2 ft. F17
LED Retrofit	PAR20 Halogen 50W to LED PAR30 Halogen 75W to LED PAR38 Halogen 75W to LED PAR38 Halogen 90W to LED MR16 Halogen 20W to LED MR16 Halogen 50W to LED Par20 CFL to LED Par30 CFL to LED Par38 CFL to LED
CFL	A19 Incandescent 100W to CFL 26W A19 Incandescent 60W to CFL 13W A19 Incandescent 75W to CFL 19W
Exit	Incandescent Exit Sign Retrofit with LED Kit Incandescent Exit Sign to New LED Fixture

	Measure Description
25W Retrofits	Two 8 ft. T12HO 110W to Four 4 ft. T8 25W Normal BF / Reflector One 8 ft. T12HO 110W to Two 4 ft. T8 25W High BF Two 8 ft. T12HO 110W to Two 4 ft. T8 25W High BF / Reflector Two 8 ft. T12 75W to Two 4 ft. T8 25W Normal BF One 8 ft. T12 75W to Two 4 ft. T8 25W Normal BF Four 4 ft. T12 40W to Four 4 ft. T8 25W Normal BF Four 4 ft. T12 40W to Two 4 ft. T8 25W Normal BF / Reflector Three 4 ft. T12 40W to Three 4 ft. T8 25W Normal BF Three 4 ft. T12 40W to Two 4 ft. T8 25W Normal BF / Reflector Two 4 ft. T12 40W to Two 4 ft. T8 25W Normal BF One 4 ft. T12 40W to One 4 ft. T8 25W Normal BF Four 4 ft. T12 34W to Four 4 ft. T8 25W Normal BF Four 4 ft. T12 34W to Two 4 ft. T8 25W Normal BF / Reflector Three 4 ft. T12 34W to Three 4 ft. T8 25W Normal BF Three 4 ft. T12 34W to Two 4 ft. T8 25W Normal BF / Reflector Two 4 ft. T12 34W to Two 4 ft. T8 25W Normal BF One 4 ft. T12 34W to One 4 ft. T8 25W Normal BF Four 4 ft. T8 32W to Four 4 ft. T8 25W Normal BF Four 4 ft. T8 32W to Two 4 ft. T8 25W Normal BF / Reflector Three 4 ft. T8 32W to Three 4 ft. T8 25W Normal BF Three 4 ft. T8 32W to Two 4 ft. T8 25W Normal BF / Reflector Two 4 ft. T8 32W to Two 4 ft. T8 25W Normal BF One 4 ft. T8 32W to One 4 ft. T8 25W Normal BF
Refrigerated Case Lighting	6 ft. T12HO Refrigerated Case to LED - Center 6 ft. T12HO Refrigerated Case to LED - Single/Ends 6 ft. T12 Refrigerated Case to LED - Center 6 ft. T12 Refrigerated Case to LED - Single/Ends 6 ft. T8HO Refrigerated Case to LED - Center 6 ft. T8HO Refrigerated Case to LED - Single/Ends 5 ft. T12HO Refrigerated Case to LED - Center 5 ft. T12HO Refrigerated Case to LED - Single/Ends 5 ft. T12 Refrigerated Case to LED - Center 5 ft. T12 Refrigerated Case to LED - Single/Ends 5 ft. T8HO Refrigerated Case to LED - Center 5 ft. T8HO Refrigerated Case to LED - Single/Ends LED Refrigerated Case Light Drivers

Market Barriers	• Trust in equipment vendors/contractors • 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 Category	**4.5 Business Energy Services & Maintenance (BESM)** **4.5.1 Business Direct Installation** **4.5.1.1 Small Business Direct Lighting Retrofits**
Description & Implementation Strategies	• Provide complete process to provide direct installation of lighting retrofits for small business customers. • Participating Hawaii Energy Participating contractors will offer six 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/Appliances/Refrigeration)
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 • Website listing of participating lighting contractors

Program Category	**4.5 Business Energy Services & Maintenance (BESM)** **4.5.2 Business Design, Audits and Commissioning** **4.5.2.1 Central Plant Optimization Competition**
Projected Impacts	Demand 73 kW Energy 727,299 kWh Incentive Budget $ 720,000 (1%) Cost per kWh $0.99 /kWh TRB $469,710
Incentives	**Incentive** **Unit** Central Plant Optimization Competition $0.80/kWh 900,000 kWh

Incentive	Amount	Responsibilities
Systems Commissioning Program	50% incentive up to $0.20 per sq. ft.	• Preliminary Systems Review • Metering & Commissioning Plan • Development of Sequence of Operations • Recommended Operational Improvements • Recommended System Upgrades • Maintenance and Operations Plan • Operational Training • Owner commitment to implement recommendations and participate in the Optimization Competition
Metering System	100% incentive for approved metering equipment and data collection systems	• Access to performance data for five years. • Owner commitment to perform operational and system upgrade recommendations with less than 2 year paybacks up to the cost of the metering incentive within two years or forfeit metering incentive
Energy Reduction	$0.10 per kWh saved for one year	• 50% upon implementation • 25% for performance at sixth month • 25% for performance at one year

Description & Implementation Strategies

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.
- Completeness and equipment level detail of Input Data (Flows, approach temperatures, pump curve etc.)

Program Category	**4.5 Business Energy Services & Maintenance (BESM)** **4.5.2 Business Design, Audits and Commissioning** **4.5.2.1 Central Plant Optimization Competition**
Description & Implementation Strategies (continued)	• 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 • Incentive payments will be made based on actual savings resulting from 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 • Prizes for encouragement (service and commissioning tools) • Promotion of Property Management Companies, Chief Engineers, Consultants, and Service Contractors
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	**4.5 Business Energy Services & Maintenance (BESM)** **4.5.2 Business Design, Audits and Commissioning** **4.5.2.2 Cooling Tower Optimization**
Projected Impacts	Demand 20 kW Energy 202,028 kWh Incentive Budget $ 62,500 (<1%) Cost per kWh $0.31 /kWh TRB $27,861
Incentives	Cooling Tower Optimization — **Incentive** $0.25/kWh — **Units** 250,000 kWh
Description & Implementation Strategies	This program will bring together the water and energy savings potential of cooling towers. The water treatment processes drive both water consumption and the persistence of energy savings by keeping the heat exchange processes in the chillers and in the tower itself at optimum levels. The program will work with the local water departments, water treatment companies and mechanical service contractors to drive the program.

Program Category	**4.5 Business Energy Services & Maintenance (BESM)** **4.5.2 Business Design, Audits and Commissioning** **4.5.2.3 Decision Maker – Real-Time Submeters**
Projected Impacts	Demand 0 kW Energy 20,203 kWh Incentive Budget $60,000 (<1%) Cost per kWh $2.97 /kWh TRB $2,029
Incentives	Decision Maker – Real-Time Submeters — **Incentive**: $12,000/group — **Units**: 5 Groups
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY There are individuals within business organization who have influence over large numbers of employees whose behavior within the work environment drive unnecessary energy consumption. Examples can be leaving on lights, additional electronic equipment, and items such as foot heaters and additional fans that mask larger energy efficiency issues etc. This will be a pilot program subject to review and approval of how savings will be determined. Savings methodology to be included in the TRM for 2012 Programs. TARGET AUDIENCE Who – Property Managers, Executive Level Company Officers What – All Commercial INCENTIVE & TARGETED ECONOMICS The offering of the direct installation or materials with in-house installation of web-based electrical metering. This metering will be monitored by decision makers within the organization to identify usage patterns and be the basis of peer group competitions within the organization. APPLICATION PROCESS An MOU will be developed with the customer that will outline the purpose and process of setting up education and peer group competitions within their businesses. COMPLEMENTARY PROGRAMS • High Efficiency HVAC • High Efficiency Lighting Measures

Program Category	**4.5 Business Energy Services & Maintenance (BESM)** **4.5.2 Business Design, Audits and Commissioning** **4.5.2.4 Energy Study Project Implementation - 100%**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 180,000 (<1%) Cost per kWh n/a TRB n/a
Incentives	Energy Study Assistance — **Incentive**: $30,000/study — **Units**: 6 studies
Description & Implementation Strategies	• 100% Funded up to $30,000 • Customer agrees to implement reccomendations with less than 2 year paybacks within 1 year up to the value of the energy study or pays back 50% of the energy study cost. • Load / Existing Performance Measurements • Modeling new systems • Actionable recommendations

Program Category	**4.5 Business Energy Services & Maintenance (BESM)** **4.5.2 Business Design, Audits and Commissioning** **4.5.2.5 Energy Study Assistance**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 150,000 (<1%) Cost per kWh n/a TRB n/a
Incentives	Energy Study Assistance — **Incentive** $15,000/study — **Units** 10 studies
Description & Implementation Strategies	• 50% matching up to $15,000 • Load / Existing Performance Measurements • Modeling new systems • Actionable recommendations

Program Category	**4.5 Business Energy Services & Maintenance (BESM)** **4.5.2 Business Design, Audits and Commissioning** **4.5.2.6 Design Assistance**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 90,000 (<1%) Cost per kWh n/a TRB n/a
Incentives	Energy Study Assistance — **Incentive** $15,000/study — **Units** 6 studies
Description & Implementation Strategies	• 50% matching up to $15,000 for projects exceeding code requirements • Meet targeted energy efficiency levels • Actionable recommendations
Marketing Strategies	• Direct interaction with potential customers and mechanical engineers • Promote measure information on the website • Promote successful projects in the media and events

Program Category	**4.5 Business Energy Services & Maintenance (BESM)** **4.5.2 Business Design, Audits and Commissioning** **4.5.2.7 Energy Project Catalyst**
Projected Impacts	Demand 51 kW Energy 507,386 kWh Incentive Budget $ 251,147 (1%) Cost per kWh $0.40 /kWh TRB $440,373
Incentives	Energy Project Catalyst — **Incentive** $0.40/kWh — **Units** 327,868 kWh
Description & Implementation Strategies	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 up to 30% 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* o High potential for energy savings (>30% reduction in consumption). o Commitment and high probability of owner taking action on Site Audit / Commissioning / Energy Study report o Typical site that can be repeated, such as chain convenience stores o Sites with Energy Usage Density over 2.5 kWh/Sq. ft./month o Site with Peak Demand Density over 6.0 kW/ Sq. ft. o Control System Recommissioning - Sequence of operation documentation, review, testing. o Demonstrate usefulness of the addition of critical system efficiency metering such as total central plant kW/ton.

Program Category	**4.6 Business Hard-to-Reach (BHTR)** **BHTR Program Overview**
Target Market	Restaurants This sector has a low participation rate, low saturation of high efficiency equipment and high potential for energy savings. The Small Business Direct Installation (SBDI) method has shown to be effective to get attention and participation with the ability to then gather information on the restaurant equipment and operations that can lead to greater energy savings through other programs such as the ENERGY STAR Kitchen equipment program. Landlords The landlord/tenant relationship provides challenges to making energy efficiency capital investments in properties and operations such as air conditioning and lighting upgrades. This funding is to create a program that works with landlords that are taking This program will be targeted to provide landlords of small business schedule "G" customers with comprehensive audit, RFP and other support for energy saving projects that will drive down the energy cost of their tenants.
Projected Impacts	Demand 85 kW Energy 859,334 kWh Incentive Budget $1,190,000 (5%) Cost per kWh $1.38 /kWh TRB $1,245,649
Incentives	**Incentive** / **Units** **4.6.1 Energy Efficiency Equipment Grants** SBDI - Kitchen Exhaust Hood Demand Ventilation $1,700 250 hp SBDI - Restaurant Lighting $0.75 1,000,000 kWh **4.6.2 Landlord, Tenant, AOAO Measures** Energy Hero Landlord $0.30 50,000 kWh

Program Category	**4.6 Business Hard-to-Reach (BHTR)** **4.6.1 Energy Efficiency Equipment Grants** **4.6.1.1 SBDI - Kitchen Exhaust Hood Demand Ventilation**
Target Market	• Restaurants
Projected Impacts	Demand 0 kW Energy 10,819 kWh Incentive Budget $425,000 (2%) Cost per kWh $39.28 /kWh TRB $12,553
Incentives	**Incentive** **Unit** SBDI - Kitchen Exhaust Hood Demand Ventilation $1,700 250 hp
Market Barriers	• Familiarity with technology • Vendor/Contractor sales and support in Hawaii for technology • Customer lack of access to capital for energy improvements • Renter and Lessee reluctance to invest in non-owned property
Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY Kitchen Exhaust hoods run typically at full speed during the operating hours of the restaurant. These controller systems monitor the cooking surfaces for heat and/or particulates in the air to run the fans only when needed. Saving the energy that is wasted during idle periods. This will be a pilot program subject to review and approval of how savings will be determined. Savings methodology to be included in the TRM for 2012 Programs. The modest savings value is based on a single project monitored in PY2011. TARGET AUDIENCE Who – Restaurant Owners, Hawaii Restaurant Association What – Restaurants INCENTIVE & TARGETED ECONOMICS The offering of the direct installation 100% Cost Incentive. Work to be performed by participating contractors/manufacturers. APPLICATION PROCESS • Targeted Anticipation and Vendor Driven leads drive interest. • Application and site audit information • Agreement to allow marketing/promotions in Restaurant regarding work performed and savings achieved.

Program Category	**4.6 Business Hard-to-Reach (BHTR)** **4.6.1 Energy Efficiency Equipment Grants** **4.6.1.2 SBDI - Restaurant Lighting**
Target Market	• Restaurants
Projected Impacts	Demand 81 kW Energy 808,110 kWh Incentive Budget $750,000 (3%) Cost per kWh $.93 /kWh TRB $1,198,027
Incentives	Small Business Direct Installation — **Incentive** $0.75 — **Units** 1,000,000 kWh
Market Barriers	• Customer lack of access to capital for energy improvements • Renter and Lessee reluctance to invest in non-owned property
Description & Implementation Strategies	• Provide complete process to provide direct installation of lighting retrofits for small business customers. • Participating Hawaii Energy Participating contractors will offer six 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/Appliances/Refrigeration)
Marketing	• 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 • Website listing of participating lighting contractors

Program Category	**4.6 Business Hard-to-Reach (BHTR)** **4.6.1 Energy Efficiency Equipment Grants** **4.6.1.2 SBDI - Restaurant Lighting**
Technologies	A "Turnkey" program consisting of audits, 100% incentivized lighting measures, installation by participating Hawaii Energy Participating contractors and 6 month financing of lighting retrofit costs of custom measures beyond the cost per kWh incentive. The following lighting technology changes will be 100% incentivized under this measure:
Market Barriers	• Trust in equipment vendors/contractors • 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

	Measure Description		Measure Description
28W Retrofits	Two 8 ft. T12HO 110W to Four 4 ft. T8 28W Normal BF / Reflector	25W Retrofits	Two 8 ft. T12HO 110W to Four 4 ft. T8 25W Normal BF / Reflector
	One 8 ft. T12HO 110W to Two 4 ft. T8 28W High BF		One 8 ft. T12HO 110W to Two 4 ft. T8 25W High BF
	Two 8 ft. T12HO 110W to Two 4 ft. T8 28W High BF / Reflector		Two 8 ft. T12HO 110W to Two 4 ft. T8 25W High BF / Reflector
	Two 8 ft. T12 75W to Two 4 ft. T8 28W Normal BF		Two 8 ft. T12 75W to Two 4 ft. T8 25W Normal BF
	One 8 ft. T12 75W to Two 4 ft. T8 28W Normal BF		One 8 ft. T12 75W to Two 4 ft. T8 25W Normal BF
	Four 4 ft. T12 40W to Four 4 ft. T8 28W Normal BF		Four 4 ft. T12 40W to Four 4 ft. T8 25W Normal BF
	Four 4 ft. T12 40W to Two 4 ft. T8 28W Normal BF / Reflector		Four 4 ft. T12 40W to Two 4 ft. T8 25W Normal BF / Reflector
	Three 4 ft. T12 40W to Three 4 ft. T8 28W Normal BF		Three 4 ft. T12 40W to Three 4 ft. T8 25W Normal BF
	Three 4 ft. T12 40W to Two 4 ft. T8 28W Normal BF / Reflector		Three 4 ft. T12 40W to Two 4 ft. T8 25W Normal BF / Reflector
	Two 4 ft. T12 40W to Two 4 ft. T8 28W Normal BF		Two 4 ft. T12 40W to Two 4 ft. T8 25W Normal BF
	One 4 ft. T12 40W to One 4 ft. T8 28W Normal BF		One 4 ft. T12 40W to One 4 ft. T8 25W Normal BF
	Four 4 ft. T12 34W to Four 4 ft. T8 28W Normal BF		Four 4 ft. T12 34W to Four 4 ft. T8 25W Normal BF
	Four 4 ft. T12 34W to Two 4 ft. T8 28W Normal BF / Reflector		Four 4 ft. T12 34W to Two 4 ft. T8 25W Normal BF / Reflector
	Three 4 ft. T12 34W to Three 4 ft. T8 28W Normal BF		Three 4 ft. T12 34W to Three 4 ft. T8 25W Normal BF
	Three 4 ft. T12 34W to Two 4 ft. T8 28W Normal BF / Reflector		Three 4 ft. T12 34W to Two 4 ft. T8 25W Normal BF / Reflector
	Two 4 ft. T12 34W to Two 4 ft. T8 28W Normal BF		Two 4 ft. T12 34W to Two 4 ft. T8 25W Normal BF
	One 4 ft. T12 34W to One 4 ft. T8 28W Normal BF		One 4 ft. T12 34W to One 4 ft. T8 25W Normal BF
	Four 4 ft. T8 32W to Four 4 ft. T8 28W Normal BF		Four 4 ft. T8 32W to Four 4 ft. T8 25W Normal BF
	Four 4 ft. T8 32W to Two 4 ft. T8 28W Normal BF / Reflector		Four 4 ft. T8 32W to Two 4 ft. T8 25W Normal BF / Reflector
	Three 4 ft. T8 32W to Three 4 ft. T8 28W Normal BF		Three 4 ft. T8 32W to Three 4 ft. T8 25W Normal BF
	Three 4 ft. T8 32W to Two 4 ft. T8 28W Normal BF / Reflector		Three 4 ft. T8 32W to Two 4 ft. T8 25W Normal BF / Reflector
	Two 4 ft. T8 32W to Two 4 ft. T8 28W Normal BF		Two 4 ft. T8 32W to Two 4 ft. T8 25W Normal BF
	One 4 ft. T8 32W to One 4 ft. T8 28W Normal BF		One 4 ft. T8 32W to One 4 ft. T8 25W Normal BF
	Two 4ft. FB40 T8 to Three 2 ft. F17	Refrigerated Case Lighting	6 ft. T12HO Refrigerated Case to LED - Center
			6 ft. T12HO Refrigerated Case to LED - Single/Ends
LED Retrofit	PAR20 Halogen 50W to LED		6 ft. T12 Refrigerated Case to LED - Center
	PAR30 Halogen 75W to LED		6 ft. T12 Refrigerated Case to LED - Single/Ends
	PAR38 Halogen 75W to LED		6 ft. T8HO Refrigerated Case to LED - Center
	PAR38 Halogen 90W to LED		6 ft. T8HO Refrigerated Case to LED - Single/Ends
	MR16 Halogen 20W to LED		
	MR16 Halogen 50W to LED		5 ft. T12HO Refrigerated Case to LED - Center
	Par20 CFL to LED		5 ft. T12HO Refrigerated Case to LED - Single/Ends
	Par30 CFL to LED		5 ft. T12 Refrigerated Case to LED - Center
	Par38 CFL to LED		5 ft. T12 Refrigerated Case to LED - Single/Ends
			5 ft. T8HO Refrigerated Case to LED - Center
CFL	A19 Incandescent 100W to CFL 26W		5 ft. T8HO Refrigerated Case to LED - Single/Ends
	A19 Incandescent 60W to CFL 13W		
	A19 Incandescent 75W to CFL 19W		LED Refrigerated Case Light Drivers
Exit	Incandescent Exit Sign Retrofit with LED Kit		
	Incandescent Exit Sign to New LED Fixture		

Program Category	**4.6 Business Hard–to-Reach (BHTR)** **4.6.2 Landlord, Tenant, AOAO Measures** **4.6.2.1 Energy Hero Landlord**
Target Market	• Property Managers, Landlords, BOMA
Projected Impacts	Demand 4 kW Energy 40,406 kWh Incentive Budget $15,000 (<1%) Cost per kWh $0.37 /kWh TRB $35,069
Incentives	**Incentive** **Units** Energy Hero Landlord $0.30 50,000 kWh
Market Barriers	The landlord/tenant relationship provides challenges to making energy efficiency capital investments in properties and operations such as air conditioning and lighting upgrades. The tenant energy usage can be accounted for by: 1. Paying a flat rate per square foot based on a lease agreement 2. Costs Incorporated in CAM 3. Third-Party submetered 4. Separate Utility submeter Energy savings project may: • not have a direct financial incentive for either party • have simple payback beyond lease term
Description & Implementation Strategies	**Energy Hero Landlord - Major Project Support** This program will be targeted to provide landlords of small business schedule "G" customers with comprehensive audit, RFP and other support for energy saving projects that will drive down the energy cost of their tenants. The program will work with local lenders to provide project financing support in conjunction with the program.

5.0 TRANSOFRMATION PROGRAM STRATEGY & DETAILS FOR PY12

5.1 Overview

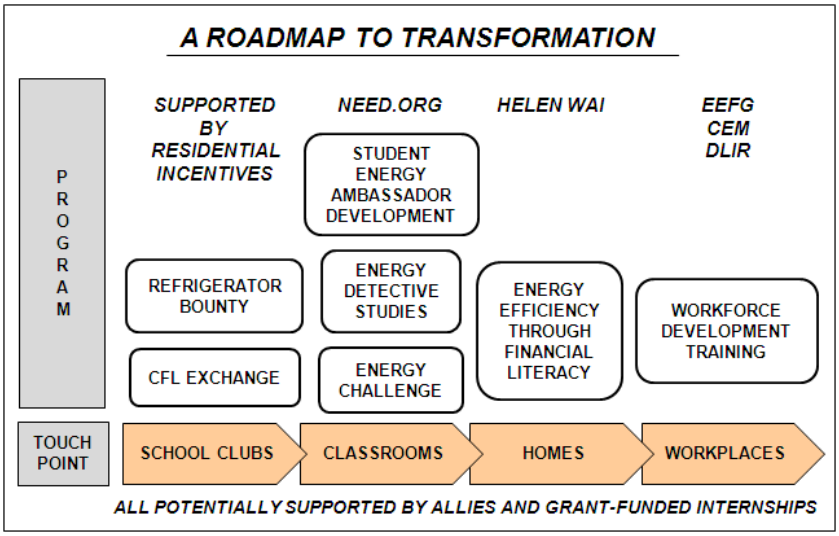
Though in the fourth year of the PBFA administration of the Hawaii Energy Program, this will be the second year the offerings include a Hawaii Energy Transformational Program. In this second year, the Transformational Program will benefit from established relationships and experience in a number of "pilot" projects completed in PY11. The experience gained and the relationships established provide Hawaii Energy with a solid foundation for continuing and expanding its transformational role within the State of Hawaii.

During this the second transformational program year Hawaii Energy will continue to test new projects through pilots and expand other established pilot projects into broader programs. In addition, Hawaii Energy will continue to seek and evaluate concepts that may be considered in future.

5.1.1 Transformational Program Vision

Hawaii Energy will not currently seek to develop its own signature projects but will, through collaboration, work to develop relationships with organizations that are working to achieve energy conservation and behavior change within the State.

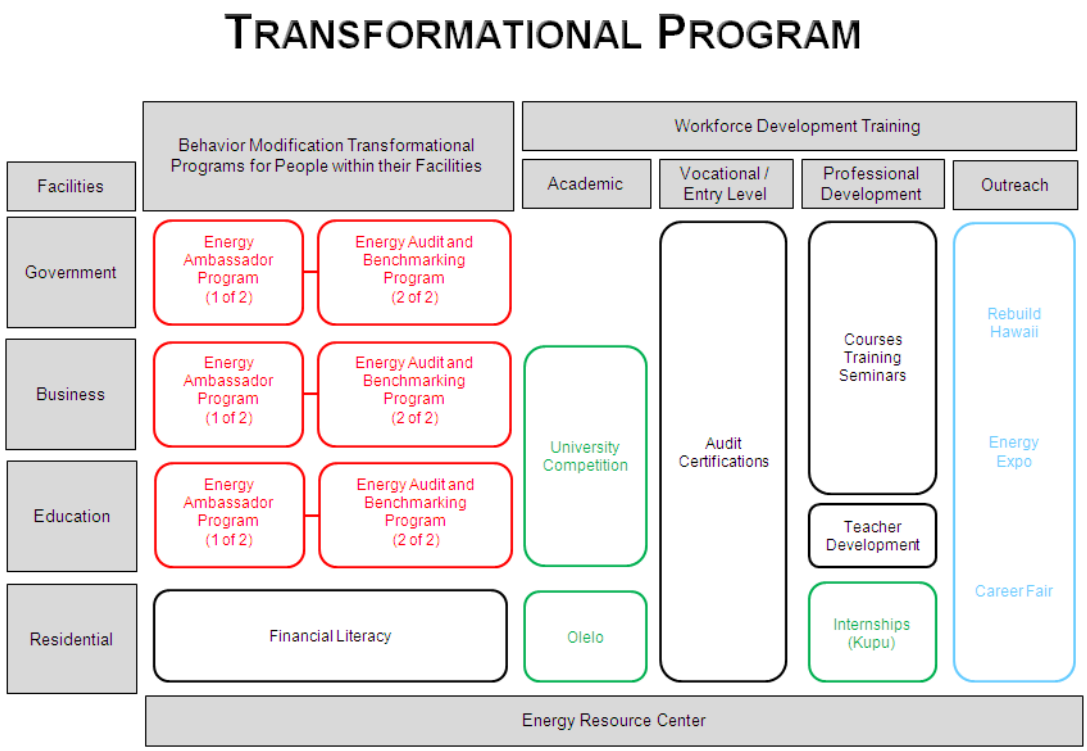
The following diagram attempts to relay a vision whereby simple energy-saving projects can bootstrap and support deeper involvement by the community, starting with students and teachers that in turn engages parents and adults at large. Through this approach, offerings from simple energy conservation projects to professional development can gain further traction across the State.



Hawaii Energy can implement projects that build on and support one another as presented in the roadmap above. From the left, incentive-funded projects a CFL Exchange, Refrigerator Bounty program or energy "challenge" like that of Kanu Hawaii or Hawaiian Electric can engage schools, students and their communities. The success of this kind of project can open the door to energy education programs such as the National Energy Education Development project (NEED.org) or projects that make use of the Kokua Hawaii Foundation Energy Detective kits to engage teachers and educate students while sending energy information and measurement activities into the home. With program activities and information reaching the home, families can be solicited for energy educational training opportunities such as the course on Energy Efficiency through Financial Literacy. From this base Hawaii Energy will offer workforce development training opportunities that will engage and train individuals within the workforce. While participation can begin at any point along the roadmap, efforts will be made to build sustained engagement on the topic of energy efficiency and conservation with the public.

5.1.2 Transformational Program Strategy

The summary project diagram below graphically depicts the proposed PY12 projects of the Hawaii Energy Transformational Program. This diagram identifies the groups that the Transformational Programs will target and identifies target audiences for Behavioral Modification, Education and Workforce Development Training. For detailed description of each program, please refer to Section 5.2 forward.



Hawaii Energy will seek to establish programs within schools that perform energy audits within homes while applying math and science in computation of energy use within the classroom. Student Energy Ambassador Programs will be performed where students and faculty are engaged for the purpose of reducing energy consumption within schools through training and audit of plug load, lighting and air conditioning. All of these programs benefit from the basic energy education provided by NEED.org efforts to educate Teachers with science of energy and energy management programs (illustrated on left).

Through school programs the families of the children and the communities at large can be engaged for energy conservation and efficiency. The Energy Efficiency through Financial Literacy workshop (illustrated in lower-left) hosted by Hawaii Energy at schools is targeting residential low income households. Other examples include: an evening event at a school with families and communities invited for presentations or a school fundraiser that provides CFLs for exchange within the school and the neighboring communities.

These programs have a broad impact in communicating energy as an important and tangible issue. Students have the ability to influence their parents and their communities. Children are the single most influential group within the State. They can influence change within their households and within the community at large.

Hawaii Energy will seek to establish Workforce Development projects and Training programs (illustrated at right) that provide training in use of tools which are made available through Lending Libraries. Hawaii Energy plans to leverage internship programs where interns develop skills through training and direct application of that which they learn while performing audits using tools from lending libraries.

5.1.3 Transformational Program Grants

Every dollar brought into the State for the purpose of energy conservation and efficiency or sustainability is an additional dollar that helps to achieve the long-term sustainability of the State and helps to achieve the goals of the Hawaii Clean Energy Initiative (HCEI). Therefore, Hawaii Energy will help draw additional funding into the State by contributing to and support efforts to write and obtain grant funding, philanthropic or corporate funding.

Through grants, Hawaii Energy also will seek to support and facilitate the work of the Department of Business Economic Development and Tourism (DBEDT), the Department of Labor and Industrial Relations (DLIR) and other organization where energy conservation and efficiency or energy related workforce development efforts are being performed.

5.1.4 Transformational Program Efforts to Collaborate

The Hawaii Energy Transformational Program will seek opportunities to collaborate with organizations throughout the State. Within the area of work force development, contacts with State organizations such as DLIR – The Department of Labor and Industrial Relations, DBEDT – The Department of Business, Economic Development and Tourism as well as the State and County Energy Offices will provide opportunities to achieve broader reach of all programs. The Program will seek to work with trade unions that have established training facilities and collaborate with the Universities and Community Colleges that are working to establish energy efficiency and sustainability courses. Hawaii Energy will explore collaboration that will enable training to take place within existing facilities while seeking to expand the types of energy efficiency training that are offered. Opportunities to collaborate with Building and Architectural groups and associations will be sought. Collaboration with non-profit organizations will continue.

Through the use of established, reliable program vendors, coupled with the ability to establish and maintain relationships, Hawaii Energy Transformational efforts will continue to be successful. The collaborative model is cost and schedule efficient compared with in-house development of courses and initiatives, and will ensure the broadest possible reach into the community.

5.1.5 Transformational Program – Improvement through Analysis

As each project is implemented, progress and results will be monitored. Analysis of project methods will be used to determine program effectiveness and determine where improvement is possible. Other attention will include:

- Analysis of projects based on well known behavioral analysis techniques and community based social marketing methods;
- Analysis of projects for the purpose of project improvement and enhancement through use of commitment based social behavior studies;
- Analysis of projects for opportunities to establish connections through to the Hawaii Energy incentive programs.

5.1.6 Transformational Program – Financial Summary

The following summary budget table outlines projects and budget details of the Transformational Program as illustrated in Section 5.3. For further detail specifying the Business and Residential budget, please refer to Appendix E.

Transformational Offering	Market Sector	Budget
Behavior Modification		
Energy Ambassador Development		
State, Federal, Civil Defense, National Guard	Government	$261,780
Small Business Workforce Development	Government	$52,356
Hawaii State Department of Education	Business & Industry	$261,780
Energy Audit & Benchmarking, Tools & Support		
State, Federal, Civil Defense, National Guard	Business & Industry	$83,770
Commercial Facilities	Business & Industry	$83,770
Educational	Education	$20,942
Workforce Development Training		
Academic Level		
University Targeted interactive Education, Competition – Kukui Cup	Business & Industry	$47,120
Video Programming Net Zero, PSAs, etc. (O'lelo)	Business & Industry	$47,120
Vocational / Entry Level		
University of Hawaii Community Colleges – Residential Audit Certifications	Residential	$188,482
Professional Development		
Workforce Development – Courses, Certification, Application	Business & Industry	$418,848
Teacher Workforce Development – Energy Education Development	Education	$209,424
Residential Home Grading System Analysis and Pilot	Education	$78,534
Workforce Development – Internships	Business & Industry	$104,712
Outreach & Education		
Sustainable Energy Career Fair(s), Energy Expo, Rebuild Hawaii	Business & Industry	$78,534
Energy Efficiency through Financial Literacy	Residential	$209,424
Supporting Services and Resources		
Energy Resource Centers		$136,489
Workforce Development Course Marketing, Project Outreach and Communication(s)		$0
Project Assessment, Directed Improvement, Analysis		$94,241
Engineering Research, Development, Energy Consumption Analysis		$0
Sub-Total: Transformational Program Budget for PY12		$2,377,326

These programs may be expanded should surplus PY11 funds be rolled over, notably the few that remain unfunded.

5.1.7 Transformational Table of Contents

The project pages that follow provide details for each program, including description, effort(s) and applicable market sector and funding category (i.e. Business or Residential with the first one mentioned being the dominant funding source), to which the project applies. Where Appendix F is specifically referenced, more detailed targets are provided.

5.2 Government Programs

Government related activities will work to raise the level of energy awareness within the government work environment with the expectation that energy savings will be achieved both through identified energy efficiency measures and behavioral changes that achieve energy conservation.

5.2.1 State, Federal, Civil Defense, National Guard Energy Ambassador Development / Audits

Program Category	**Transformational** Business, Residential **State, Federal, Civil Defense, National Guard "Energy Ambassador" Development / Audits**
Target Projects	An emerging area of focus, Hawaii Energy will seek opportunities to collaborate with State and County Government organizations, the Civil Defense and National Guard for the purpose of creating and implementing programs that provide educational training that results in audits within facilities throughout the State. These programs will engage employees and members of the service for the purpose of educating and engaging individuals and inspiring them to action. Engaging individuals in this way will produce energy savings both through identification of energy efficiency measures that are possible and the resulting energy awareness and behavioral changes for energy conservation.
Program Impacts	Transformational Budget $ 261,780
Collaborative Groups	Hawaii Energy, DBEDT, State of Hawaii Office of the Adjutant General, Hawaii State National Guard.
Project Goals	Perform training that engages occupants and members of the service in energy auditing techniques that result in behavioral change and kWh savings. This program will identify barriers to change and assess which messages and methods are most likely to ensure change will occur.

Program Category	**Transformational** Business, Residential **State, Federal, Civil Defense, National Guard** **Energy Ambassador Development / Audits**
Project Milestones	The Hawaii Energy Energy Ambassador Development / Audits program will be considered a success when the following milestones have been achieved. ☐ Hawaii Energy has established One (1) or more collaborative relationship(s) with organizations interested in participating in this program. ☐ Hawaii Energy has established One (1) or more collaborative relationship(s) with organizations capable of performing training under this program ☐ Hawaii Energy provides materials in support of Two (2) or more facilities or 6 or more large buildings (more than 100,000 square feet) within the state ☐ At a minimum, Two (2) facilities will be located within Maui or Hawaii counties. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program. ☐ See Appendix F for further details.

5.2.2 State, Civil Defense, National Guard Energy Audit & Benchmarking Tools and Support

Program Category	**Transformational** Residential, Business **State, Civil Defense, National Guard** **Energy Audit & Benchmarking Tools & Support**
Program Target	This project will focus on Hawaii State, Civil Defense and National Guard facilities. Purchase of materials including the kill-a-watt, light meters, temperature sensors and other tools that provide opportunities for building analysis and audits within the facilities. These tools will provide additional support for educational audits described previously and facilitate expansion of projects that provide exposure to and experience with energy efficiency and conservation. We will seek to provide tools that create and facilitate energy projects that allow members of these organizations to integrate energy audits and energy conservation into their daily routine.
Program Impacts	Transformational Budget $ 83,770
Collaborative Groups	Hawaii Energy, DBEDT, State of Hawaii Office of the Adjutant General, Hawaii State National Guard
Program Goals	This project, together with other Government based programs discussed, will seek to create energy based awareness within State organizations. The goal is to set targets for employees to reduce energy use consistently while establishing new habits.

Program Category	**Transformational** Residential, Business **State, Civil Defense, National Guard** **Energy Audit & Benchmarking Tools & Support**
Project Milestones	The State, Civil Defense, National Guard Energy Audit & Benchmarking Tools & Support project will be considered a success when the following milestones have been achieved: ☐ Hawaii Energy has established Two (2) or more collaborative relationship(s) with State, Civil Defense and National Guard organizations implementing energy efficiency and conservation within facilities within the State. ☐ Hawaii Energy will provide materials in support of Four (4) or more facilities within the State. ☐ At a minimum, One (1) facility will be located within the counties of Maui or Hawaii. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program.

5.3 Business & Industry Programs

5.3.1 Workforce Development - Business

Workforce development efforts will focus on development of skills for current and future Energy Efficiency Service Sector (EESS) workforce individuals.

The Program will engage and collaborate with non-profit organizations, corporations, government entities and public institutions throughout the State. Training opportunities will be provided for individuals and groups. Internships will be funded. Funding for purchase of equipment will be provided where collaborative partnerships provide for individual education, growth and training based on equipment use.

Projects will seek energy savings; however the primary objective is development of knowledge, skills and interest in EESS individuals, for application within the current and future workforce. Where feasible, EESS participants will be trained to positively influence others in their sphere of influence regarding how to save energy

5.3.1.1 Workforce Development – Courses, Certification, Application

Program Category	**Transformational** Business **Workforce Development Courses, Certification, Application**
Target Project(s)	In addition to the audit certification programs to be offered by the UH Community College system, workforce development courses including but not limited to Learning to S.E.E. (Sell Efficiency Effectively), AEE – CEM (Certified Energy Manager Certification), BOC (Building Operator Certification) and other courses resulting in certification of participants will be continued, and others will be considered to the extent that they achieve the criteria of expanding the pool of professional talent available locally to support energy efficiency. Opportunities to offer or extend participation in such courses will be sought. Hawaii Energy will seek to increase and measure the increase of the knowledge of individuals in the EESS sector and expand the knowledge levels of those interested in entering this sector. In addition, Hawaii Energy will consider opportunities to work with the University of Hawaii system in support of courses or projects where workforce development benefits will be realized.
Program Impacts	Transformational Budget $ 418,848
Collaborative Groups	Hawaii Energy, University of Hawaii, Hawaii Community Colleges, Johnson Controls, Sustainable Living Institute of Maui (SLIM), Pacific Center for Advanced Technology Teaching (PCATT), Association of Energy Engineers, Energy Efficiency Funding Group, and/or the Department of Labor and Industrial Relations and Trade Unions within the State of Hawaii or other training organizations.
Project Goals	Business community workforce knowledge and skills development through: • Certification Courses, Coursework, and Seminar offerings • Sponsorship and Scholarship for Training events hosted by others • Partnership with organizations that provide certification training • Hawaii Energy hosted training events

Program Category	**Transformational** Business **Workforce Development Courses, Certification, Application**
Project Milestones	The Hawaii Energy Workforce Development Courses project will be considered a success when the following milestones have been achieved: ☐ Hawaii Energy has established Three (3) or more collaborative relationship(s) with organizations that implement energy efficiency training. ☐ Hawaii Energy, in partnership with this/these organizations will provide training opportunities, and possibly internships, for individuals within or seeking to enter the energy efficiency service sector. According to the State of Hawaii Department of Labor and Industrial Relations (DLIR) Research & Statistics Office, an estimate of the statewide size of the energy efficiency sector in the next year or two is 1,300 professionals, scientists and technicians, and 4,800 in construction, and 3,000 administrative positions. Currently there are approximately 2,500 Energy Efficiency jobs in Hawaii. Hawaii Energy will target both current energy efficiency professionals and also work to educate those who will enter the workforce over the next few years. Hawaii Energy will target training of 500 to 1,000 of these individuals within PY 2012. ☐ Hawaii Energy will target holding 1/3 of the training days within Maui or Hawaii counties. In addition, travel stipends will be provided to individuals located within Maui or Hawaii counties to facilitate their participation in Oahu based courses. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program. ☐ See Appendix F for further details.

5.3.1.2 Workforce Development – Small Business Energy Ambassador Development

Program Category	**Transformational** Business **Workforce Development** **Small Business "Energy Ambassador" Development**
Target Project(s)	A new focus area, "Energy Ambassador" Development programs will work to certify knowledgeable individuals who make themselves available as a resource to others who are passionate about energy efficiency and are interested in helping others in *their* business community. With the Small Business "Energy Ambassador" Development project, Hawaii Energy will create a process to identify working professionals within Small Business districts, such as the Fort Street Mall, Kahala Mall, Hilo business district or Kihei business district, for example. These owners, operators, and managers will receive training and be provided with funds for projects that will educate and train others within their communities. Community Based Social Marketing (CBSM) techniques will be examined for application within these business communities, facilitated by the Energy Ambassador or professional advisor trained in CBSM. CBSM scientifically assesses barriers to defined target behavioral change, and evaluates through a pilot effort a control group versus pilot group to ensure best options are utilized for behavior change, CBSM techniques include measuring cost-effectiveness of the program versus results. Whenever possible projects will be designed and developed as "turnkey" projects for easy implementation and application in other similar communities, assuming barriers and results from the pilot can be generalized in a valid manner.
Program Impacts	Transformational Budget $ 52,356
Collaborative Groups	Hawaii Energy, Maui Economic Development Board, Organizations, others on Oahu and Hawaii Island
Project Goals	Establish a group of "Energy Ambassadors" within small business communities. Provide training, projects and funding that will achieve energy savings.

Program Category	**Transformational** Business **Workforce Development** **Small Business Energy Ambassador Development**
Project Milestone	The Hawaii Energy Small Business Energy Ambassador Development project will be considered a success when the following milestones have been achieved ☐ Hawaii Energy has established Two (2) or more collaborative relationship(s) with organizations to provide services in this arena. ☐ Hawaii Energy, in partnership with this/these organizations will provide training opportunities, and possibly internships, for energy ambassadors within target business districts. ☐ At a minimum, One (1) energy ambassador residing within Maui or Hawaii county will be trained. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program. ☐ See Appendix F for further details.

5.3.1.3 Workforce Development – Internships

Program Category	**Transformational** Business, Residential **Kupu – Rewarding Internships for Sustainable Employment (RISE)** **Kupu – Youth Energy Assessment Hawaii (YEAH)**
Target Project(s)	A continuing and expanding focus area is green jobs transition through use of internship experience. Kupu is a Hawaii based non-profit providing a home organization for the Hawaii Youth Conservation Corps (HYCC), Urban Corps, RISE and YEAH programs. The Kupu programs are a hands-on set of programs aimed at educating Hawaii's youth on the many conservation issues that threaten Hawaii's unique environment. Hawaii Energy will continue to work with the Kupu RISE and YEAH programs. Kupu - RISE, Rewarding Internships for Sustainable Employment, is an internship program that provides the first green job experience to advanced college students and recent college graduates who are entering the green workforce. Kupu - YEAH, Youth Energy Assessment Hawaii, is a program that will create teams of youth who will go into the community to perform energy audits. Hawaii Energy will contract with Kupu and potentially other groups funding interns, who develop skills applicable to the Energy Efficiency Service Sector, perform work that achieves energy efficiency within homes and small businesses and provides a broader knowledge of energy efficiency skills and career opportunities.
Program Impacts	Transformational Budget $ 104,712
Collaborative Groups	Hawaii Energy, Kupu – R.I.S.E., Kupu – YEAH
Project Goals	University and High School level workforce knowledge and skills development through: • Employment of a number of RISE interns working on energy efficiency projects within the State • Partnership with the YEAH program for development of curriculum and training materials used to train Kupu-RISE energy auditing teams.

Program Category	**Transformational** Business, Residential **Kupu – Rewarding Internships for Sustainable Employment (RISE)** **Kupu – Youth Energy Assessment Hawaii (YEAH)**
Project Milestones	The project will be considered a success when the following milestones have been achieved. ☐ Hawaii Energy will continue and expand the partnership with Kupu Hawaii for the purpose of engaging Kupu – RISE interns. Hawaii Energy will also consider other vendors who can provide these services if expansion warrants it. ☐ With Kupu – RISE, Hawaii Energy will establish Four (4) or more internships that enable development of energy efficiency service sector skills. The project focus area and application of the Kupu – RISE interns is yet to be determined. ☐ With Kupu – YEAH, Hawaii Energy will facilitate energy audit training and funding for interns who perform energy audits in residential homes. The number of training sessions, number of YEAH interns and number of audits performed is yet to be determined. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program. ☐ See Appendix F for further details.

5.3.2 Commercial Facility Energy Audit & Benchmarking Tools and Support

Program Category	**Transformational** Business **Commercial Facility Energy Audit & Benchmarking Tools & Support**
Program Target	A new focus area, this project will focus on Hawaii Commercial Facilities. The Program will include purchase of materials including kill-a-watt meters, light meters, temperature sensors and other items that will support projects for education and training in energy efficiency measures and conservation behavior. Training will be provided for use of these tools. Tools will be placed within lending libraries or in certain instances given or loaned to commercial facilities for their application in energy saving measures. Facilitating Energy Star Benchmarking of Commercial Buildings will be an area of focus.
Program Impacts	Transformational Budget $ 83,770
Collaborative Groups	Hawaii Energy, TBD – Commercial Facilities
Program Goals	This project, together with other business & industrial projects will seek to provide tools that create energy efficiency awareness and energy conservation behavior changes. EnergyStar Benchmarking of commercial buildings within the State will be a goal.

Program Category	**Transformational** Business **Commercial Facility Energy Audit & Benchmarking Tools & Support**
Project Milestones	The Hawaii Energy Tools & Support project will be considered a success when the following milestones have been achieved. ☐ Hawaii Energy will establish One (1) or more collaborative relationship(s) with organizations that will provide Energy Audit & Benchmarking Tools for the purpose of educating or achieving energy savings. ☐ Hawaii Energy will provide materials in support of Two (2) or more large, or Three (3) or more small commercial facilities within the State. ☐ Hawaii Energy will facilitate expansion of EnergyStar Benchmarking programs currently being pursued by DBEDT and others within the State. ☐ At a minimum, One (1) facility will be located within Maui or Hawaii counties. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program.

5.3.3 Energy Resource Centers

Program Category	**Transformational** Business **Energy Resource Centers – Business**
Target Project	This is an emerging focus area where background study has been completed. This project will assist businesses who provide energy efficiency services to other businesses (BTB) or private homeowners, through funding for creation of energy resource centers. These Centers, based upon successful models from other communities, will provide facilities managers and businesses with access to equipment that can be used for audit and analysis of facility energy consumption. Equipment that provides benefit to business or residential customers will be considered for inclusion. Collaborative relationships will be sought when equipment resource availability can draw people in for additional contact. Economic Development Boards who actively reach out to community businesses will be considered as their activities provide opportunities for outreach and education related to resource availability. Other Hawaii Energy projects and programs may advertise resources available through the Energy Resource Centers, incorporating these resources when appropriate.
Program Impacts	Transformational Budget $ 136,489
Collaborative Groups	Hawaii Energy, Kuha'o Business Center, Island Economic Development Center. Others TBD
Project Goals	Provide support for Facilities, Building Managers and Businesses wishing to characterize and monitor facilities and equipment within facilities. Provide equipment useful to Transformational Projects including people involved with workforce development and facilities audit activities. Become established as a feature/capability that is viewed as a necessary benefit to attract businesses in to these facilities.

Program Category	**Transformational** Business **Energy Resource Centers – Business**
Project Milestones	The Energy Resource Centers project will be considered a success when the following milestones have been achieved. ☐ Hawaii Energy will establish Two (2) or more energy resource centers that will make energy efficiency resources available to the community. ☐ Equipment will be identified, purchased, inventoried and placed in service. ☐ Hawaii Energy will document an inventory process and teach equipment holders its use. ☐ Hawaii Energy will establish a connection between training offered within other projects, such as Workforce and Education development projects, where Energy Resource Center items will be utilized, and education regarding proper usage provided. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program. ☐ See Appendix F for further details.

5.3.4 Hawaii State – Department of Education "Energy Ambassador" Development

Program Category	**Transformational** Business, Residential **Hawaii Department of Education** **Energy Ambassador Development**
Target Project	A new focus area, this program is being developed in which Students and Teacher/Mentors are engaged, within schools throughout the State, for the purpose of auditing school facilities. Tools and training are made available for the purpose. Education of students regarding energy auditing techniques will develop both a level of knowledge and awareness regarding energy conservation. While the direct benefit of this program is the school, through energy audit, Hawaii Energy will seek opportunities to extend the education and training that occurs within this program into energy conservation and behavioral changes within the home.
Program Impacts	Transformational Budget $ 261,780
Collaborative Groups	Hawaii Energy, Hawaii DOE, High & Intermediate School(s), Kupu, others TBD
Project Goals	Energy audits of schools throughout the State of Hawaii with actual energy savings opportunities identified. Linkages incorporated and provided to facilitate use of Hawaii Energy incentive funds to achieve savings opportunities identified.

Program Category	**Transformational** Business, Residential **Hawaii Department of Education** **Energy Ambassador Development**
Project Milestones	The Department of Education "Energy Ambassador" Development Project will be considered a success when the following milestones have been achieved. ☐ Hawaii Energy will establish partnerships with Five (5) or more schools or complexes throughout the State. ☐ Participants of the Transformational Program Workforce Development project will be included to be eligible to receive hands on energy audit training. ☐ Where possible, facility wide electrical consumption data will be captured and real-time display will be made available and used within the program. ☐ Members of the identified school group(s), students, will be trained to understand and identify energy consumers within school facilities. ☐ Energy saving opportunities will be identified at each school. ☐ Energy saving behavioral opportunities will be considered and opportunities for change explored. Community Based Social Marketing will be considered as a means of properly conducting the pilot to achieve behavior change. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program.

5.3.5 Sustainable Energy Career Fair(s), Energy Expo, Rebuild Hawaii

Program Category	**Transformational** Business, Residential **Sustainable Energy Career Fair(s), Energy Expo, Rebuild Hawaii**
Target Project	A continuing focus, Hawaii Energy will seek partners to provide a career fair for Energy Efficiency Service Sector potential employees and employers. Government organizations such as DBEDT – The Department of Business Economic Development and Tourism along with DLIR – The Department of Labor and Industrial Relations, Vendors and Non-Profit Organizations will be sought as partners. The career fair will provide individuals with opportunities to talk with perspective employers. In addition, training sessions will be considered which provide instruction for job seekers as well and educational opportunities for those in the industry. Training will be provided to employers that increases their awareness and understanding of value in hiring individuals with knowledge in energy efficiency and conservation.
Program Impacts	Transformational Budget $ 78,534
Collaborative Groups	Hawaii Energy, DLIR - Department of Labor and Industrial Relations, UH Manoa, UH Community College(s), DBEDT – Department of Business Economic Development and Tourism
Project Goals	Hawaii Energy will collaborate with a community college for the purpose of sponsoring a career fair, much like the one held at LCC during PY 2011. This career fair will provide an opportunity for employers and employees to connect and will provide training to both for the purpose of increasing energy efficiency and conservation awareness. In addition, Hawaii Energy will facilitate the on-going success of Rebuild Hawaii.

Program Category	**Transformational** Business, Residential **Sustainable Energy Career Fair(s), Energy Expo, Rebuild Hawaii**
Project Milestones	The Hawaii Energy, Energy Efficiency Service Sector Career Fair project will be considered a success when the following milestones have been achieved. ☐ Hawaii Energy will establish a partnership with Two (2) or more organizations for the purpose of hosting an EESS career fair. ☐ The career fair will connect training programs with business and individuals. ☐ At least Two (2) Educational "modules" will be provided during the event. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program. ☐ See Appendix F for further details.

5.3.6 University Targeted Interactive Education, Competition – Kukui Cup

Program Category	**Transformational** Business, Residential **University Targeted Interactive Education, Competition** **Kukui Cup**
Program Target	This project, begun with limited support in PY11, will engage the UH Manoa Computer Science Department that has developed and performed a program referred to as the Kukui Cup. The Kukui Cup was performed during Fall 2011 at the Hale Aloha dorms at UH Manoa. During Fall 2012, the Kukui Cup will be performed at UH Manoa within the Hale Aloha and East West Center dorms as well as dorms within HPU, Hawaii Pacific University. The Kukui Cup program involves real-time electrical monitoring, educational events, energy related field trips and a smart grid game, all of which provide students the opportunity to perform tasks and participate in educational activities related to energy. The underlying goal of the program is energy awareness and behavior change that results in present year energy savings within dorm facilities.
Program Impacts	Transformational Budget $ 47,120
Collaborative Groups	Hawaii Energy, HPU, UH Manoa – Kukui Cup
Program Goals	Perform the Kukui Cup program at multiple dorm locations in the Fall of 2012. This program teaches energy concepts to participants and monitors and encourages energy usage reduction in dorm facilities toward program goals.

Program Category	**Transformational** Business, Residential **University Targeted Interactive Education, Competition** **Kukui Cup**
Project Milestones	The Hawaii Energy, UH Manoa, Hawaii Pacific University Kukui Cup project will be considered a success when the following milestones have been achieved. ☐ Hawaii Energy will continue efforts to develop and maintain partnerships that facilitate contribution to the Kukui Cup program including efforts with UH Manoa and HPU as well as possible work with BYUH. ☐ The Kukui Cup program will be performed within at least Three (3) dormitory buildings. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program. ☐ See Appendix F for further details.

5.3.7 Video Programming Net Zero, PSAs, etc. (O'lelo)

Program Category	**Transformational** Business, Residential **Net Zero Home Analysis, Demonstration and Advertising**
Target Project	An emerging focus area, Hawaii Energy will facilitate (with other collaborative organizations) development of a television program, similar in nature to the Blue Planet Foundation "Home Energy Makeover". The program developed will focus on Net Zero homes within the State. Multiple Net Zero homes in various stages of construction will be identified. Energy efficiency features of each home, along with "Net Zero" concepts related to electrical connection and electric utility billing and interactions.
Program Impacts	Transformational Budget $ 47,120
Collaborative Groups	Hawaii Energy, Blue Planet Foundation, Builders Industry Association (BIA), Builder(s) within the State of Hawaii engaged in new construction or construction of Net Zero homes.
Project Goals	Through collaboration with others, Hawaii Energy will seek to increase awareness of issues and opportunities associated with construction of a Net Zero home. Energy efficiency features will be outlined and highlighted. This project will seek to achieve wide media distribution through cable and on-line channels.
Project Milestones	The Hawaii Energy Net Zero Home project will be considered a success when the following milestones have been achieved. ☐ Hawaii Energy will establish a partnership with One (1) or more organizations involved in design and/or construction of Net Zero homes within the State of Hawaii. ☐ Through this partnership Hawaii Energy will identify Net Zero homes in various stages of construction. ☐ A show, documentary in nature, will be developed for television and on-line viewing. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program.

5.4 Education Programs

The Hawaii Energy Transformational Program will pursue projects that provide opportunities for grades 5-12 students to develop science, technology, engineering and math (STEM) skills. These projects work to prepare tomorrow's workforce through educational development within the STEM arena. They also seek to facilitate development and awareness of Energy Efficiency Service Sector (EESS) career opportunities prior to student entry into University.

At the grades 5-12 level there are two primary goals, first to develop the STEM skills and further the interest necessary to ensure sufficient science and engineering students will be available in the future. The science and engineering field continues to grow as the U.S. Department of Labor predicts jobs requiring science, engineering and technical training will increase 34% between 2008 and 2018. The second goal is to provide an opportunity for the primary school students to develop these STEM skills through application of energy efficiency and energy conservation related projects.

These primary school workforce pipeline development efforts, combined with efforts targeted at Technical Schools, Community Colleges, the University and in Certification Courses work to address issues identified in the EESS Workforce Education and Training Needs report from Lawrence Berkeley Laboratories. This report identified a need to quickly develop and implement new education and training programs to increase the skills of those already active in the field and to help prepare new EESS employees and to also address the point that a *"key challenge for the EESS is that many engineering graduates are unaware of the EESS and the potential career opportunities in this sector."*

Through application of funds both at the K-12 grade level and at the University and beyond, Hawaii Energy will seek to educate those who are capable of performing EESS functions in the very near future as well as those who may fill the pipeline to develop students for careers in the energy efficiency service sector of the future.

5.4.1 Teacher Workforce Development – Energy Education Development

Program Category	**Transformational** **Residential**, *Business* **Teacher - Energy Education Development**
Target Project	A continuing focus area, the NEED project works to promote an energy conscious and educated society by creating an effective network of educators, students, business, government and community leaders to design and deliver objective, multi-sided energy education programs. NEED.org will be engaged for the purpose of bringing NEED developed energy and energy efficiency curriculum to Hawaii schools, teachers and students NEED will also be engaged to manage a teacher/student grant program receiving and reviewing grant proposals, issuing funds and gathering data. http://www.need.org/needpdf/Elementary%20Energy%20Infobook.pdf
Program Impacts	Transformational Budget $ 209,424
Collaborative Groups	Hawaii Energy, National Education Development Project
Project Goals	Grades 5-12 workforce development through partnership with the National Energy Education Development Project will be established and NEED.org will establish contact(s) with schools and teachers throughout the State of Hawaii. NEED.org will present 5 teacher training professional development days during which NEED developed energy efficiency and science of energy curriculum will be presented. NEED curriculum project kits will be distributed to teachers for student and teacher use. Maui, Hawaii Island and Oahu will each have scheduled training sessions. A goal of training an additional 200 teachers will be set, with the expectation that 100% of the trained teachers will make use of the materials within 2 or 3 classes thereby engaging between 12,000 and 18,000 students overall.
Program Category	**Transformational** Residential, *Business* **Teacher – Energy Education Development**

Project Milestones	The Hawaii Energy NEED.org project will be considered a success when the following milestones have been achieved. ☐ Minimum of Four (4) NEED.org teacher development energy education workshops are organized and held within the State of Hawaii. ☐ A minimum of One (1) NEED workshop is be held in each program county, Honolulu, Maui and Hawaii. ☐ Between 120 and 200 eligible and representative individuals will be invited to attend the educator workforce development workshops and receive NEED.org energy efficiency curriculum and material. ☐ Trained educators bring NEED.org materials into the classroom and use curriculum to engage students in energy efficiency studies. Metrics will be captured and analyzed. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program. ☐ See Appendix F for further details.

5.4.2 Educational Energy Audit & Benchmarking Tools and Support

Program Category	**Transformational** Residential, *Business* **Energy Management Tools & Learning Devices**
Program Target	A continuing focus area with additional locations, this project will focus on Hawaii Schools, public, charter and private for grades 5 through 12. The project includes purchase of devices including the Belkin Conserve Insight energy-use monitor and other tools that are to be used in science, math and green club projects to provide exposure to and experience with energy efficiency to these children prior to high school graduation. These tools will become the property of the school to be used year to year for similar projects. We will create energy project guidance with these tools that is simple for the teachers to use and effective at teaching energy efficiency and conservation concepts through math and science. Teachers will be provided with a Hawaii Energy point of contact for follow-up questions. A successful similar project from PY11 was performed at Pahoa High and Intermediate School and will be replicated in at least three other schools. This project included students using a Belkin Conserve Insight to measure energy consumption of items within their homes. The students then perform a math and science project in the classroom to analyze the data collected.
Program Impacts	Transformational Budget $ 20,942
Collaborative Groups	Hawaii Energy, TBD – School Green Clubs
Program Goals	This project, together with other 5-12 grade programs discussed, will create energy based STEM projects in schools that shall be used for years to follow to increase engagement of students to understand energy efficiency concepts and reduce energy consumption.

Program Category	**Transformational** Residential, *Business* **Energy Management Tools & Learning Devices**
Project Milestones	The Hawaii Energy Management Tools & Learning Devices project will be considered a success when the following milestones have been achieved. ☐ Hawaii Energy will provide materials in support of Three (3) or more schools within the State. ☐ At a minimum Two (2) schools will be located on neighbor islands, One (1) school will be located within each county. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program. ☐ See Appendix F for further details.

5.5 Residential Programs

5.5.1 University of Hawaii Community Colleges – Audit Certifications

Program Category	**Transformational** Business, Residential **University of Hawaii Community Colleges** **Audit Certifications**
Target Project	An emerging focus area, financial support of workforce development courses including Building Operator Certification and other courses resulting in certification of participants will be implemented The courses will be included in a program from Leeward Community College, called the Green Mechanical Council Certification Series, that provides incremental certification(s) with up to 800 contact hours producing the final over arching certification. The series provides curriculum, train-the-trainer training and support. In addition, a "house on wheels" supports training activities. This "house" provides many elements available in a residential home and facilitates hands on training for testing of the various elements of the home.
Program Impacts	Transformational Budget $ 188,482
Collaborative Groups	Hawaii Energy, University of Hawaii, Hawaii Community Colleges
Project Goals	With University of Hawaii Community Colleges, develop and offer work force certification courses and a certification path that leads to a more capable EESS workforce.

Program Category	**Transformational** Business, Residential **University of Hawaii Community Colleges Audit Certifications**
Project Milestones	The Hawaii Energy / University of Hawaii Community Colleges Green Mechanical Council Residential Audit Certification program will be considered a success when the following milestones have been achieved. ☐ Hawaii Energy will establish One (1) or more collaborative relationship(s) with organizations capable of implementing energy efficiency training. ☐ Hawaii Energy, in partnership with this/these organizations will offer financial support to the implementation of the Certification series. ☐ Hawaii Energy will determine the total population eligible and ensure access is available for eligible participants. Hawaii Energy will assess penetration within first year pilot. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program.

5.5.2 Energy Efficiency through Financial Literacy

Program Category	**Transformational** Residential **Energy Efficiency through Financial Literacy**
Program Target	A continuing and expanding focus area, teaching Residential Hard to Reach individuals and other residential groups such as Condo dwellers Energy Efficiency training combined with Financial Literacy and budgeting concepts. A direct tie is made between financial well being and electrical expenditure. Energy efficiency concepts are taught and energy savings measures explained. Hard to reach individuals are contacted through Public Housing, Hawaiian Homelands Communities and Community Organizers. In the second year of collaboration, the project will refine presentation materials, evaluation and behavioral change implications.
Program Impacts	Transformational Budget $ 209,424
Collaborative Groups	Hawaii Energy, Helen N Wai LLC, Kuha'o Business Center, The Kohala Center, Public Housing, Hawaiian Homeland Communities, Department of Hawaiian Homelands, etc.
Program Goals	Change energy efficiency behavior by providing energy efficiency motivation through financial literacy presentations and training. The program has a goal of establishing contact with additional community leaders and building relationships that provide opportunities to present energy efficiency information and training within low income communities.

Program Category	**Transformational** Residential **Energy Efficiency through Financial Literacy**
Project Milestones	The Energy Efficiency through Financial Literacy project will be considered a success when the following milestones have been achieved. ☐ Hawaii Energy will establish a partnership with One (1) or more organizations involved in performing financial literacy training within the State of Hawaii. ☐ A combined financial literacy, energy efficiency presentation will be refined including behavioral change intentions, for presentation within target communities. ☐ A network of residential communities will be identified. This network shall include an additional minimum of Five (5) distinct communities with a minimum of Ten (10) distinct course locations. ☐ Presentation of prepared materials will be presented at minimum Ten (10) times. This will include at minimum Two (2) times on each island represented by the Hawaii Energy program. ☐ This project will reach more than 1,000 residential individuals. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program. ☐ See Appendix F for further details.

5.5.3 Residential Home Rating System Analysis & Pilot

Program Category	**Transformational** Residential **Residential Home Energy Rating System Analysis & Pilot**
Program Target	Hawaii Energy will explore and seek to deploy a residential home rating system program that provides a mechanism for grading homes relative to their energy efficiency measures. A means for drawing this into use within the community will be explored. One such possibility to be explored might involve training of household inspectors and auditors in the use and application of a home energy grading method then engaging brokers and realtors representing both buyers and sellers and encouraging application of energy grading as a value add for buyers and sellers via an MLS provider, as a required element of inspection or appraisal for buyers.
Program Impacts	Transformational Budget $ 78,534
Collaborative Groups	Hawaii Energy, EEFG, PECI, To Be Determined
Program Goals	Hawaii Energy will research available home rating systems with the goal of developing an understanding of options and identifying a small number for consideration and deployment within Hawaii. Hawaii Energy will seek to understand programs implemented elsewhere and develop an understanding of how to integrate within communities in Hawaii. Hawaii Energy will seek to deploy the program in pilot form.

Program Category	**Transformational** Residential **Residential Home Energy Rating System Analysis & Pilot**
Project Milestones	The Residential Home Rating System Analysis & Pilot program will seek primarily to develop an understanding of alternatives and implementation techniques used in other communities across the country. ☐ Hawaii Energy will establish a partnership with One (1) or more organizations that have developed and implemented a home rating system. ☐ The home rating system concept will be discussed with broker/realtor organizations and appraisal and inspection groups. ☐ Interest and buy-in of energy rating concepts will be evaluated. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program.

5.6 Program Support

Services in this category cross all programs for the purpose of enhancing effectiveness and efficiency of programs, best use of ratepayer dollars, and maximizing participation by eligible groups and individuals.

5.6.1 Workforce Development Course Marketing, Project Outreach and Communications

Program Category	**Transformational** Residential, Business **Workforce Development Course Marketing, Project Outreach and Communication(s)**
Program Target	This marketing effort will work towards marketing, outreach and communications in support of Hawaii Energy Transformational Program Goals. Marketing efforts will focus on raising awareness regarding courses being offered for the purpose of increasing the reach and impact of the transformational program. Transformational outreach and communications will raise awareness for programs to engage people and draw them into potential transformative action. CBSM will be used to analyze potential marketing opportunities and efforts to meet these targets.
Program Impacts	Transformational Budget $ 0 *(to be funded with surplus PY11 incentives, if approved)*
Collaborative Groups	Hawaii Energy, Leader's Wisdom, MVNP
Program Goals	Expand reach and impact of transformational program offerings through marketing and communications. Increase linkage between individual transformational programs and between transformational and incentive based programs within Hawaii Energy.

Program Category	**Transformational** Residential, Business **Workforce Development Course Marketing, Project Outreach and Communication(s)**
Project Milestones	The transformational Workforce Development Course Marketing, Project Outreach and Communication(s) program will establish and continue efforts within organizations that perform outreach and communications. ☐ Hawaii Energy will establish Two (2) or more collaborative vendor relationships with organizations that perform community based social marketing and change management. ☐ Hawaii Energy, in conjunction with these vendors, will develop a transformational marketing strategy that will increase the impact of its programs and awareness of the energy conservation goals. ☐ A minimum of Two (2) PY12 Hawaii Energy programs will be designed and implemented using CBSM and change management approaches. ☐ All current programs from PY11 that are continued will be evaluated and considered for potential improvement using change management and CBSM approaches, in order to maximize ratepayer dollar expenditures. ☐ Project metrics will be established, captured and reviewed in the process of analyzing and improving the PY 2012 Transformational Program.

5.6.2 Project Assessment, Directed Improvement, Analysis

Program Category	**Transformational** Residential, Business **Project Assessment, Directed Improvement, Analysis**
Program Target	All Hawaii Energy Transformational Programs will be monitored and reviewed for the purpose of analyzing program and project targets, project goals, project metrics and for performing surveys and other types of analysis for the purpose of improving program impact. In addition, effort will be put forth for the purpose of identifying second order effects in program and project where individuals trained reach beyond what they are being trained to do and into family, friend or business relationships to share what they have learned. Linkages between transformational programs and Hawaii Energy incentive based activities will be sought. Linkages that can and should be made to other programs within Hawaii Energy to create synergies.
Program Impacts	Transformational Budget $ 94,241
Collaborative Groups	Hawaii Energy, Leader's Wisdom, Community Based Social Marketing Expert(s), Energy Efficiency Agencies Nationwide
Program Goals	Provide thorough analysis of on-going transformational projects; establish new metrics and review status and performance. Work with organizations to ensure data is being captured. Monitor programs and identify areas in which modification will produce improved results.
Project Milestones	The Project Assessment, Directed Improvement and Analysis efforts will be performed throughout the Transformational Program. Analysis of projects, review of status and metrics will provide a basis for improving project effectiveness and impact. Community Based Social Marketing techniques will be used to further identify keys to project success.

5.6.3 Engineering Research, Development, Energy Consumption Analysis

Program Category	**Transformational** Residential, Business **Engineering Research, Development** **Energy Consumption Analysis**
Program Target	The Hawaii Energy Transformational Program will require engineering analysis for development and implementation of many of the transformational efforts. Engineering efforts may be project specific, such as evaluation of tools to provide in lending libraries, analysis of course opportunities or more general, such as the analysis of energy consumption within zip codes throughout the State.
Program Impacts	Transformational Budget $ 0 *(to be funded with surplus PY11 incentives, if approved)*
Collaborative Groups	Hawaii Energy, Association for Energy Engineers, Energy Engineering Consultant(s), TBD
Program Goals	Provide engineering support for the Hawaii Energy Transformational Program.
Project Milestones	Provide services such as the following: • Evaluation to identify which tools to provide in lending libraries • Analysis of potential course opportunities to fund • Analysis of energy consumption within zip codes throughout the State • Other research and development as required to support transformation projects The engineering research and development project works in support of the Hawaii Energy program and in support of goals and milestones of other projects specified within this document.

6.0 PROGRAM BUDGET SUMMARY FOR PY12

Below is a summary of the PY12 Budget.

Hawaii Energy Efficiency Program Annual Plan Budget
July 1, 2012 through June 30, 2013

Activity	Non-Incentive	Incentive	Total
Residential Programs			
REEM	2,684,143	7,718,682	10,402,826
CESH	27,881	10,500	38,381
RESM	103,237	847,500	950,737
RHTR	103,238	1,159,991	1,263,228
Total Residential Programs	**2,918,499**	**9,736,673**	**12,655,172**
Residential Market Evaluation	**127,300**	**0**	**127,300**
Residential Outreach	**659,858**	**0**	**659,858**
Total Residential Services and Initiatives	**3,705,657**	**9,736,673**	**13,442,330**
Business Programs			
BEEM	1,311,945	6,222,730	7,534,675
CBEEM	760,957	974,000	1,734,957
BESM	551,575	3,513,647	4,065,222
BHTR	475,475	1,190,000	1,665,475
Total Business Programs	**3,099,952**	**11,900,377**	**15,000,329**
Business Market Evaluation	**255,550**	**0**	**255,550**
Business Outreach	**1,173,635**	**0**	**1,173,635**
Total Business Services and Initiatives	**4,529,137**	**11,900,377**	**16,429,514**
Total Residential and Business Services and Initiatives	**8,234,794**	**21,637,050**	**29,871,844**
Transformational Programs			
Residential Transformational Programs	0	1,069,797	1,069,797
Business Transformational Programs	0	1,307,529	1,307,529
Total Transformation Services and Initiatives	**0**	**2,377,326**	**2,377,326**
Total Supporting Services	**2,091,908**	**0**	**2,091,908**
Total Tax on Non-Incentive	**486,594**	**0**	**486,594**
Estimated Contractor Costs	**10,813,296**	**24,014,376**	**34,827,672**

Upon request, Hawaii Energy can provide further detail of incentive rebate expenses. Formal changes to the budget (Appendix A and summarized above) will be in accordance with contract Amendment #4, dated 05 April 2011.

7.0 PERFORMANCE INCENTIVE GOALS AND INCENTIVE FRACTIONS PY12

7.1 Performance Incentive Fractions

The following table shows the PY12 Performance Incentive Fractions as contained in the supplemental contract covering the PY11 and PY12 budget and are further applied in Section 7.2 below.

PERFORMANCE INCENTIVE FRACTIONS	
Performance Target Category	**Performance Incentive Fractions**
Energy (kWh)	35%
Peak Demand (kW)	5%
Total Resource Benefits ($)	40%
Transformation Infrastructure Development	10%
Broad Participation (Island Equity)	10%

7.2 Performance Incentive Goals

The following table shows the PY12 Program Performance Goals and Incentives as contained in the supplemental contract covering the PY12 budget. The transition between Minimum, Target and Maximum shall be calculated on a linear basis for both goals and awards where appropriate.

PY12 Performance Goals and Incentives									
Performance Target	***Performance Goals***					***Performance Incentive Awards***			
		Minimum	**Target**	**Maximum**		**% of Target**	**Minimum**	**Target**	**Maximum**
Energy		88,169,207	117,558,943	129,314,837	kWh	35%	$183,750	$245,000	$303,188
Peak Demand		13,328	17,771	19,548	kW	5%	$26,250	$35,000	$43,313
Total Resource Benefit		$100,747,807	$125,934,759	$151,121,711	$	40%	$224,000	$280,000	$346,500
Transformation Infrastructure Development	Substantially accomplish at least two Annual Plan Transformational Tasks in each of the four categories, including: Government, Business & Industry, Education and Residential; 1% of the Target incentive will be awarded for each Task accomplished up to 10%.					10%	N/A	$70,000	N/A
Broad Participation (Island Equity)	Maui	$2,505,053	$3,131,316	$3,757,579	Incentives	10%	N/A	$70,000	N/A
	Hawaii	$2,403,231	$3,004,039	$3,604,846	Incentives				
	Honolulu	$14,311,217	$17,889,021	$21,466,825	Incentives				
Total	$24,014,376 Incentives					100%		$700,000	

8.0 CONCLUSION

The Hawaii Energy Team is projecting strong energy savings results for PY11 (ending June 30, 2012). This is even though tighter TRM energy savings standards, market saturation and a slow economy are making it increasingly difficult to find low cost energy savings opportunities.

The sobering news is that our past accomplishments are no guarantee that we will achieve the more challenging energy savings needed going forward to meet the state's clean energy goals. Our ultimate clean energy success will require continuous innovation and improvement of our efficiency technologies, energy awareness education and program strategies to ensure that we stay ahead of our goals. The Hawaii Energy pledge is to engage these requirements with the best effort possible.

For PY12, the Hawaii Energy Team will continue the transparency, integrity, cost-effectiveness, innovation and singular focus on saving energy for Hawaii that have been the key hallmarks of our tenure as Hawaii's first independent Public Benefit Fee Administrator. Working under the PUC's leadership, together with our allies, government agencies, utilities and utility customers, we look forward to being a major catalyst and contributor to Hawaii's successful climb to a clean energy future.

MAHALO

The Hawaii Energy Team

9.0 APPENDICES

Appendix A – Program Budget PY12 (Full Version)

Appendix B – Summary Presentation of Programs

Appendix C – TRB Utility Benefit Values

Appendix D – Synopsis of Transformational Programs in PY11

Appendix E – Transformational Project Budget Details

Appendix F – Proposed Transformational Tasks & Milestones in the Context of PY11

Appendix A – Program Budget (Full Version)

Hawaii Energy Efficiency Program Annual Plan Budget - June 28, 2012	PY12 Budget
Residential Programs	
Residential Program Ops and Management	
REEM	2,684,143
CESM	27,881
RESM	103,237
RHTR	103,238
Subotal Residential Programs	2,918,499
Residential Market Evaluation	127,300
Residential Outreach	659,858
Total Residential Non-Incentive	3,705,657
Residential Incentives	
REEM	7,718,682
CESM	10,500
RESM	847,500
RHTR	1,159,991
Subtotal Residential Incentives	9,736,673
Residential Transformational	1,069,797
Total Residential Incentives	*10,806,470*
Total Residential Programs	**14,512,127**
Business (C&I) Programs	
Business Programs Ops and Management	
BEEM	1,311,945
CBEEM	760,957
BESM	551,575
BHTR	475,475
Subtotal Business Programs	3,099,952
Business Evaluation	255,550
Business Outreach	1,173,635
Total Business Non-Incentive	4,529,137
Business Incentives	
BEEM	6,222,730
CBEEM	974,000
BESM	3,513,647
BHTR	1,190,000
Subotal Business Incentive	11,900,377
Business Transformational	1,307,529
Total Business Incentives	13,207,906
Total Business Programs	**17,737,043**
Supporting Services	
Supporting Services	2,091,908
Total Supporting Services	**2,091,908**
Subtotal Non-Incentive (Prior to Tax)	10,326,702
Less Performance Incentives (Prior to Tax)	(700,000)
Subtotal Non-Incentive Less Performance Incentives (PI)	9,626,702
Total Tax on Non-Incentive Without PI	486,594
Performance Incentive Award (Inclusive of Tax)	700,000
Subtotal Non-Incentive Billed	*10,813,296*
Subtotal Residential and Business Customer Incentives	*21,637,050*
Subtotal Transformational Incentives	*2,377,326*
Subtotal Customer and Transformational Incentives	*24,014,376*
Sub-Total Estimated Contractor Costs	***34,827,672***
Performance Awards in Excess of Target Levels	133,000
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels	**34,960,672**

Appendix B – Summary Presentation of Programs

Hawaii Energy - PY2012 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS BY MEASURE

Combined Programs		Budget	Plan					kW	kWh	$/kWh		TRB
Residential	45%	$ 9,736,673	$ 9,736,673	$ (0)	SWH	4,000	59.2%	10,007	71,819,271	$ 0.136		
Business	55%	$ 11,900,377	$ 11,900,377	$ -	SWH*	484	40.8%	6,889	46,163,535	$ 0.258		
Bottom Up Program Impacts		$ 21,637,050	$ 21,637,050	$ (0)	CFL	1,410,900		16,896	117,982,806	$ 0.183	100.4%	$ 135,033,615
Top Down from Budget Table		$ 21,637,050					Target Impact Levels	16,404	117,558,943	$ 0.184		$ 122,689,141

Residential Programs

Residential Target	$ 9,736,673			
Difference				
Residential Plan	$ 9,736,673	10,007	71,819,271	$ 0.136	$ 72,451,707

Program	Category	Measures	Count	Units	Average Incentive per Unit	Estimated Budget	% Total Program	kW/Unit	kWh/Unit	TRM Reference	$/Lifetime kWh	System Loss	Free Rider	Effective kWh	Program Cost per kWh	kW	% Total Program	kWh	% Total Program	Life	TRB kW	TRB kWh	TRB	% Total Program
REEM	***Residential Energy Efficiency Measures***					**$ 7,718,682**	**36%**								**$ 0.12**	**8,854**	**52%**	**65,062,032**	**55%**				**$ 64,015,578**	**47%**
	High Efficiency Water Heating					**$ 3,166,500**	**15%**								**$ 0.434**	**1,594**	**9%**	**7,304,272**	**6%**				**$ 17,153,970**	**13%**
		Solar Water Heater (SWH) Incentive	3,750	systems	$ 750	$ 2,812,500	13%	0.4600	2,066.0	8.1.1	$ 0.018	10.7%	0.73	1,669.56	$ 0.45	1,394	8%	6,260,832	5%	20.0	$ 4,731	$ 1.39	$ 15,328,063	11%
		Solar Water Heater Interest Buydown	250	systems	$ 1,000	$ 250,000	1%	0.4600	2,066.0	8.1.2	$ 0.024	10.7%	0.73	1,669.56	$ 0.60	93	1%	417,389	0%	20.0	$ 4,731	$ 1.39	$ 1,021,871	1%
		Solar Water Heater Energy Hero Gift Packs	400	kits	$ 35	$ 14,000	0%	0.0491	245.9	8.1.3	$ 0.028	10.7%	0.73	198.71	$ 0.18	16	0%	79,486	0%	5.0	$ 1,629	$ 0.48	$ 64,238	0%
		Heat Pumps	450	units	$ 200	$ 90,000	0%	0.2500	1,503.0	8.1.4	$ 0.013	10.7%	0.73	1,214.59	$ 0.16	91	1%	546,565	0%	10.0	$ 2,932	$ 0.87	$ 739,798	1%
	High Efficiency Lighting					**$ 2,082,682**	**10%**								**$ 0.049**	**5,862**	**35%**	**42,527,335**	**36%**				**$ 35,405,286**	**26%**
		CFLs	1,410,900	lamps	$ 0.98	$ 1,382,682	6%	0.0050	36.3	8.2.1	$ 0.004	10.7%	0.73	29.33	$ 0.03	5,701	34%	41,387,900	35%	6.0	$ 1,918	$ 0.57	$ 34,447,944	26%
		LED	100,000	lamps	$ 7	$ 700,000	3%	0.0020	14.1	8.2.2	$ 0.083	10.7%	0.73	11.39	$ 0.61	162	1%	1,139,435	1%	6.0	$ 1,918	$ 0.57	$ 957,343	1%
	High Efficiency Air Conditioning					**$ 162,500**	**1%**								**$ 0.168**	**200**	**1%**	**964,398**	**1%**				**$ 1,705,580**	**1%**
		VRF Split System AC	200	units	$ 200	$ 40,000	0%	0.5000	2,500.0	8.3.2	$ 0.005	10.7%	0.73	2,020.28	$ 0.10	81	0%	404,055	0%	15.0	$ 3,935	$ 1.16	$ 786,797	1%
		Ceiling Fans	2,500	units	$ 40	$ 100,000	0%	0.0190	167.0	8.3.3	$ 0.048	10.7%	0.73	134.95	$ 0.30	38	0%	337,386	0%	5.0	$ 1,629	$ 0.48	$ 225,461	0%
		Solar Attic Fans	150	units	$ 50	$ 7,500	0%	-	502.0	8.3.4	$ 0.005	10.7%	0.73	405.67	$ 0.12	-	0%	60,851	0%	20.0	$ 4,731	$ 1.39	$ 84,877	0%
		Whole House Fans	200	units	$ 75	$ 15,000	0%	0.5000	1,003.0	8.3.5	$ 0.004	10.7%	0.73	810.53	$ 0.09	81	0%	162,107	0%	20.0	$ 4,731	$ 1.39	$ 608,445	0%
	High Efficiency Appliances					**$ 1,342,500**	**6%**								**$ 0.196**	**359**	**2%**	**6,834,218**	**6%**				**$ 8,646,154**	**6%**
		Refrigerator (<$600)	750	units	$ 50	$ 37,500	0%	0.0170	105.0		$ 0.034	10.7%	0.73	84.85	$ 0.59	10	0%	63,639	0%	14.0	$ 3,754	$ 1.11	$ 109,132	0%
		Refrigerator with Recycling	6,000	units	$ 125	$ 750,000	3%	0.0340	822.0	8.4.1	$ 0.011	10.7%	0.73	664.27	$ 0.19	165	1%	3,985,599	3%	14.0	$ 3,754	$ 1.11	$ 5,031,420	4%
		Freezer with Recycling	1,000	units	$ 125	$ 125,000	1%	0.0340	859.0		$ 0.010	10.7%	0.73	694.17	$ 0.18	27	0%	694,166	1%	14.0	$ 3,754	$ 1.11	$ 871,674	1%
		Garage Refrigerator / Freezer Bounty	1,500	units	$ 75	$ 112,500	1%	0.0340	859.0	8.4.1	$ 0.006	10.7%	0.73	694.17	$ 0.11	41	0%	1,041,250	1%	14.0	$ 3,754	$ 1.11	$ 1,307,510	1%
		Clothes Washer (Tier II/III)	5,000	units	$ 50	$ 250,000	1%	0.0280	206.0	8.4.1	$ 0.022	10.7%	0.73	166.47	$ 0.30	113	1%	832,353	1%	11.0	$ 3,155	$ 0.93	$ 1,131,953	1%
		Pool VFD Controller Pumps	450	units	$ 150	$ 67,500	0%	0.0060	597.3	8.4.2	$ 0.025	10.7%	0.73	482.69	$ 0.31	2	0%	217,211	0%	10.0	$ 2,932	$ 0.87	$ 194,465	0%
	Energy Awareness, Measurement and Control Systems					**$ 964,500**	**4%**								**$ 0.130**	**838**	**5%**	**7,431,808**	**6%**				**$ 1,104,588**	**1%**
		Room Occupancy Sensors	300	units	$ 5	$ 1,500	0%	0.0046	20.8	8.5.1	$ 0.030	10.7%	0.73	16.81	$ 0.30	1	0%	5,042.6	0%	8.0	$ 2,453	$ 0.73	$ 6,393	0%
		Peer Group Comparison	75,000	homes	$ 11.84	$ 888,000	4%	0.0137	120.4	8.5.2	$ 0.098	10.7%	0.73	97.28	$ 0.12	833	5%	7,295,852.0	6%	1.0	$ 339	$ 0.10	$ 1,041,122	1%
		Whole House Energy Metering	750	units	$ 100	$ 75,000	0%	0.0070	216.0	8.5.3	$ 0.116	10.7%	0.73	174.55	$ 0.57	4	0%	130,913.8	0%	4.0	$ 1,323	$ 0.39	$ 57,073	0%
CESH	**Custom Energy Solutions for the Home**					**$ 10,500**	**0%**								**$ 0.37**	**28**		**28,284**	**0%**				**$ 59,727**	**0%**
	Target Cost Request for Proposals					$ 10,500	0%								**$ 0.371**	28	0%	28,284	0%				$ 59,727	0%
		Custom Packaged Proposals (units in kWh)	35,000	kWh	$ 0.30	$ 10,500	0%	0.0010	1.0	9.1.1	$ 0.060	10.7%	0.73	0.81	$ 0.37	28	0%	28,284	0%	5.0	$ 1,629	$ 0.48	$ 59,727	0%
RESM	**Residential Energy Services & Maintenance**					**$ 847,500**	**4%**								**$ 0.55**	**289**	**2%**	**1,553,026**	**1%**				**$ 2,641,235**	**2%**
	Residential Direct Installation					**$ 12,500**	**0%**								**$ 0.619**	**20**		**20,203**					**$ 57,405**	
		TBD	25,000	kWh	$ 0.50	$ 12,500	0%	0.0010	1.0		$ 0.071	10.7%	0.73	0.81	$ 0.62	20	0%	20,203	0%	7.0	$ 2,193	$ 0.65	$ 57,405	0%
	Residential Design and Audits					**$ 780,000**	**4%**								**$ 0.555**	**251**	**1%**	**1,406,111**	**1%**				**$ 2,511,414**	**2%**
		Efficiency Inside Home Design	750	Homes	$ 1,000	$ 750,000	3%	0.4000	2,200.0	10.2.1	$ 0.030	10.7%	0.73	1,777.84	$ 0.56	242	1%	1,333,382	1%	15.0	$ 3,935	$ 1.16	$ 2,501,039	2%
		Hawaii Energy Hero Audits	300	Audits	$ 100	$ 30,000	0%	0.0342	300.0	10.2.3	$ 0.333	10.7%	0.73	242.43	$ 0.41	8	0%	72,730	0%	1.0	$ 339	$ 0.10	$ 10,375	0%
	Residential System Tune-Ups					**$ 55,000**	**0%**								**$ 0.434**	**18**	**0%**	**126,712**	**0%**				**$ 72,416**	**0%**
		Central AC Maintenance	100	Tune Ups	$ 50	$ 5,000	0%	0.0740	323.0	10.3.1	$ 0.155	10.7%	0.73	261.02	$ 0.19	6	0%	26,102	0%	1.0	$ 339	$ 0.10	$ 4,741	0%
		Solar Water Heater Tune Up	500	Tune Ups	$ 100	$ 50,000	0%	0.0290	249.0	10.3.2	$ 0.080	10.7%	0.73	201.22	$ 0.50	12	0%	100,610	0%	5.0	$ 1,629	$ 0.48	$ 67,675	0%
RHTR	***Residential Hard to Reach***					**$ 1,159,991**	**5%**								**$ 0.22**	**836**	**5%**	**5,175,930**	**4%**				**$ 5,735,168**	**4%**
	Energy Efficiency Equipment Grants					**$ 508,688**	**2%**								**$ 0.117**	**609**		**4,363,608**					**$ 3,533,116**	
		Solar Inspections (WAP)	450	Inspections	$ 95	$ 42,750	0%	0.0460	206.6	11.1.1	$ 0.092	10.7%	0.73	166.96	$ 0.57	17	0%	75,130	0%	5.0	$ 1,629	$ 0.48	$ 63,530	0%
		Energy Hero Gift Packs	2,000	Packs	$ 40	$ 80,000	0%	0.0491	245.9	11.1.2	$ 0.033	10.7%	0.73	198.71	$ 0.20	79	0%	397,428	0%	5.0	$ 1,629	$ 0.48	$ 321,191	0%
		CFL Exchange	125,000	Lamps	$ 2.49	$ 310,938	1%	0.0050	37.8	11.1.3	$ 0.011	10.7%	0.73	30.55	$ 0.08	505	3%	3,818,320	3%	6.0	$ 1,918	$ 0.57	$ 3,138,021	2%
		Hawaii Energy Hero Audits	300	Audits	$ 250	$ 75,000	0%	0.0342	300.0	11.1.4	$ 0.833	10.7%	0.73	242.43	$ 1.03	8	0%	72,730	0%	1.0	$ 339	$ 0.10	$ 10,375	0%
	Landlord, Tenant, AOAO Measures					**$ 651,303**	**3%**								**$ 0.802**	**227**		**812,322**					**$ 2,202,051**	**2%**
		Hawaii Energy Hero Landlord Program	5,212	kWh	$ 0.25	$ 1,303	0%	0.0010	1.0	11.2.1	$ 0.017	10.7%	0.73	0.81	$ 0.31	4	0%	4,212	0%	15.0	$ 3,935	$ 1.16	$ 21,459	0%
		Custom SWH Proposals (units in kWh)	1,000,000	kWh	$ 0.65	$ 650,000	3%	0.0003	1.0		$ 0.033	10.7%	0.73	0.81	$ 0.80	223	1%	808,110	1%	20.0	$ 4,731	$ 1.39	$ 2,180,592	2%

Business Programs																													
								Business Target							$ 11,900,377														
								Difference							$ -														
								Business Plan							$ 11,900,377			6,889		46,163,535	$ 0.258					$ 62,581,908		
Program		Category	New/ Exist	Measures	Count	Units	Average Incentive per Unit	Estimated Budget	% Total Program	kW/Unit	kWh/Unit		$/Lifetime kWh	System Loss	Free Rider	Effective kWh	Program Cost per kWh	kW	% Total Program	kWh	% Total Program	Life	TRB kW	TRB kWh	TRB	% Total Program
BEEM	**Business Energy Efficiency Measures**							**$ 6,222,730**	**29%**							**$ 0.17**	**5,916**	**34%**	**36,399,205**	**31%**				**$ 51,226,632**	**37%**
		High Efficiency Lighting						**$ 3,371,900**	**16%**							**$ 0.13**	**4,009**	**23%**	**26,571,559**	**23%**				**$ 34,271,070**	**25%**
x			E	CFL	16,100	lamps	$ 2.00	$ 32,200	0%	0.0290	246.5	12.1.1	$ 0.003	10.7%	0.73	199.20	$ 0.01	377	2%	3,207,106	3%	3.0	$ 1,002	$ 0.30	$ 1,336,043	1%
			E	CFL - Military Homes	32,900	lamps	$ 1.00	$ 32,900	0%	0.0050	45.3	12.1.1	$ 0.007	10.7%	0.73	36.61	$ 0.03	133	1%	1,204,383	1%	3.0	$ 1,002	$ 0.30	$ 492,959	0%
x			E	T12 to T8 Standard (2 / 3 / Straight 8 foot lamps)	5,000	lamps	$ 6.00	$ 30,000	0%	0.0070	56.4	12.1.2	$ 0.008	10.7%	0.73	45.58	$ 0.13	28	0%	227,887	0%	14.0	$ 3,754	$ 1.11	$ 358,470	0%
x			E	T12 to T8 Low Wattage	30,000	lamps	$ 15.00	$ 450,000	2%	0.0090	78.1		$ 0.014	10.7%	0.73	63.11	$ 0.24	218	1%	1,893,402	2%	14.0	$ 3,754	$ 1.11	$ 2,915,268	2%
x			E/N	T8 to T8 Low Wattage	115,200	lamps	$ 7.50	$ 864,000	4%	0.0060	51.0	12.1.3	$ 0.011	10.7%	0.73	41.21	$ 0.18	559	3%	4,747,808	4%	14.0	$ 3,754	$ 1.11	$ 7,353,146	5%
x			E	Delamp	5,000	lamps removed	$ 7.50	$ 37,500	0%	0.0170	149.2	12.1.4	$ 0.004	10.7%	0.73	120.57	$ 0.06	69	0%	602,850	1%	14.0	$ 3,754	$ 1.11	$ 925,275	1%
x			E	Delamp/Reflector	2,500	lamps removed	$ 15.00	$ 37,500	0%	0.0170	149.2	12.1.5	$ 0.007	10.7%	0.73	120.57	$ 0.12	34	0%	301,425	0%	14.0	$ 3,754	$ 1.11	$ 462,637	0%
x			E	LED Refrigerated Case Lighting	2,000	lamps	$ 75.00	$ 150,000	1%	0.0230	223.6	12.1.6	$ 0.034	10.7%	0.73	180.69	$ 0.42	37	0%	361,387	0%	10.0	$ 2,851	$ 0.85	$ 414,078	0%
x			E	ENERGY STAR LED Non-Dimmable - Existing	40,000	lamps	$ 15.00	$ 600,000	3%	0.0179	154.7	12.1.7	$ 0.010	10.7%	0.73	125.01	$ 0.12	579	3%	5,000,585	4%	10.0	$ 2,932	$ 0.87	$ 6,026,191	4%
x			E	ENERGY STAR LED Dimmable w/Controls - Existing	26,090	lamps	$ 20.00	$ 521,800	2%	0.0239	203.3	12.1.7	$ 0.010	10.7%	0.73	164.29	$ 0.12	504	3%	4,286,294	4%	10.0	$ 2,932	$ 0.87	$ 5,188,682	4%
x			New	ENERGY STAR LED Non-Dimmable - New	12,000	lamps	$ 10.00	$ 120,000	1%	0.1100	95.0	12.1.7	$ 0.011	10.7%	0.73	76.77	$ 0.13	1,067	6%	921,245	1%	10.0	$ 2,932	$ 0.87	$ 3,925,375	3%
x			New	ENERGY STAR LED Dimmable w/Controls - New	10,000	lamps	$ 15.00	$ 150,000	1%	0.0239	203.3	12.1.7	$ 0.007	10.7%	0.73	164.29	$ 0.09	193	1%	1,642,888	1%	10.0	$ 2,932	$ 0.87	$ 1,988,763	1%
x			E	ENERGY STAR LED Non-Dimmable A19 Only - Existing	5,000	lamps	$ 10.00	$ 50,000	0%	0.0061	52.5	12.1.7	$ 0.019	10.7%	0.73	42.43	$ 0.24	25	0%	212,129	0%	10.0	$ 2,932	$ 0.87	$ 255,936	0%
x			N	ENERGY STAR LED Dimmable A19 Only - New	3,000	lamps	$ 10.00	$ 30,000	0%	0.0061	52.5	12.1.7	$ 0.019	10.7%	0.73	42.43	$ 0.24	15	0%	127,277	0%	10.0	$ 2,932	$ 0.87	$ 153,562	0%
x			E	LED Exit Signs	1,000	signs	$ 25.00	$ 25,000	0%	0.0350	307.0	12.1.8	$ 0.005	10.7%	0.73	248.09	$ 0.10	28	0%	248,090	0%	16.0	$ 4,108	$ 1.21	$ 416,705	0%
x			E	HID Pulse Start	600	lamps	$ 60.00	$ 36,000	0%	0.0350	196.0	12.1.10	$ 0.022	10.7%	0.73	158.39	$ 0.38	17	0%	95,034	0%	14.0	$ 3,754	$ 1.11	$ 168,916	0%
x			E/N	Sensors	4,000	sensors	$ 20.00	$ 80,000	0%	0.0250	200.0	12.1.13	$ 0.013	10.7%	0.73	161.62	$ 0.12	81	0%	646,488	1%	8.0	$ 2,453	$ 0.73	$ 667,105	0%
x			E/N	Stairwell Bi-Level Dimming Fluorescent	1,000	Fixture	$ 50.00	$ 50,000	0%	0.0560	546.0		$ 0.007	10.7%	0.73	441.23	$ 0.11	45	0%	441,228	0%	14.0	$ 3,754	$ 1.11	$ 658,369	0%
x			E/N	Daylighting	500,000	kWh	$ 0.150	$ 75,000	0%	-	1.0	12.1.14	$ 0.008	10.7%	0.73	0.81	$ 0.19	-	0%	404,055	0%	20.0	$ 4,731	$ 1.39	$ 563,589	0%
		High Efficiency HVAC						**$ 1,731,000**	**8%**							**$ 0.28**	**1,197**	**7%**	**6,272,307**	**5%**				**$ 10,803,708**	**8%**
x			E/N	Chillers - kW/Ton meter & Chiller Curve Optimization	1,500,000	kWh	$ 0.25	$ 375,000	2%	0.0002	1.0	12.2.1	$ 0.013	10.7%	0.73	0.81	$ 0.31	242	1%	1,212,165	1%	20.0	$ 4,731	$ 1.39	$ 2,837,767	2%
x			E	VFD - Chilled Water / Condenser Water	500	hp	$ 80	$ 40,000	0%	0.2450	902.7	12.2.2	$ 0.006	10.7%	0.73	729.48	$ 0.11	99	1%	364,740	0%	15.0	$ 3,935	$ 1.16	$ 812,721	1%
x			E	VFD - AHU	1,200	hp	$ 50	$ 60,000	0%	0.2000	471.6	12.2.4	$ 0.007	10.7%	0.73	381.10	$ 0.13	194	1%	457,326	0%	15.0	$ 3,935	$ 1.16	$ 1,293,758	1%
x			E/N	Garage Active Ventilation Control	3,400,000	kWh	$ 0.14	$ 476,000	2%	0.0001	1.0	12.2.5	$ 0.018	10.7%	0.73	0.81	$ 0.17	314	2%	2,747,574	2%	8.0	$ 2,453	$ 0.73	$ 2,762,122	2%
x			E	Package Units - 25% Better Than Code	900	tons	$ 200	$ 180,000	1%	0.0930	552.2	12.2.6	$ 0.024	10.7%	0.73	446.24	$ 0.45	68	0%	401,615	0%	15.0	$ 3,935	$ 1.16	$ 732,137	1%
x			E	VFR Split Systems - Existing	1,500	tons	$ 300	$ 450,000	2%	0.1930	676.7	12.2.7	$ 0.030	10.7%	0.73	546.85	$ 0.55	234	1%	820,272	1%	15.0	$ 3,935	$ 1.16	$ 1,872,284	1%
x			N	VFR Split Systems - New Construction	600	tons	$ 250	$ 150,000	1%	0.0950	554.0	12.2.7	$ 0.030	10.7%	0.73	447.69	$ 0.56	46	0%	268,616	0%	15.0	$ 3,935	$ 1.16	$ 492,919	0%
		High Efficiency Water Heating						**$ 113,500**	**1%**							**$ 0.30**	**235**	**1%**	**377,913**	**0%**				**$ 1,300,437**	**1%**
x			E	Commercial Solar Water Heating - Electric Resistance	250	tons	$ 250	$ 62,500	0%	1.0000	927.0	12.3.1	$ 0.018	10.7%	0.73	749.12	$ 0.33	202	1%	187,279	0%	15.0	$ 3,935	$ 1.16	$ 1,012,216	1%
x			E/N	Commercial Solar Water Heating - Heat Pump	75	tons	$ 100	$ 7,500	0%	0.3800	164.0		$ 0.041	10.7%	0.73	132.53	$ 0.75	23	0%	9,940	0%	15.0	$ 3,935	$ 1.16	$ 102,153	0%
x			E	Heat Pump - Conversion - Electric Resistance	200	tons	$ 120	$ 24,000	0%	0.0400	668.0	12.3.2	$ 0.018	10.7%	0.73	539.82	$ 0.22	6	0%	107,963	0%	10.0	$ 2,932	$ 0.87	$ 112,433	0%
x			E	Heat Pump Upgrade	300	tons	$ 65	$ 19,500	0%	0.0150	300.0		$ 0.022	10.7%	0.73	242.43	$ 0.27	4	0%	72,730	0%	10.0	$ 2,932	$ 0.87	$ 73,634	0%
		High Efficiency Water Pumping						**$ 213,200**	**1%**							**$ 0.22**	**91**	**1%**	**985,215**	**1%**				**$ 1,502,462**	**1%**
x			E	VFD Dom. Water Booster Packages - VFD	100	hp	$ 700	$ 70,000	0%	0.5240	5,100.0	12.4.1	$ 0.009	10.7%	0.73	4,121.36	$ 0.17	42	0%	412,136	0%	15.0	$ 3,935	$ 1.16	$ 644,822	0%
x			E	VFD Dom. Water Booster Packages - added HP Reduction	40	hp reduced	$ 80	$ 3,200	0%	0.1150	989.0	12.4.1	$ 0.005	10.7%	0.73	799.22	$ 0.10	4	0%	31,969	0%	15.0	$ 3,935	$ 1.16	$ 51,720	0%
x			E/N	VFD Pool Pump Packages	400	hp	$ 350	$ 140,000	1%	0.1400	1,674.0	12.4.2	$ 0.014	10.7%	0.73	1,352.78	$ 0.26	45	0%	541,110	0%	15.0	$ 3,935	$ 1.16	$ 805,920	1%
		High Efficiency Motors						**$ 33,300**	**0%**							**$ 0.09**	**78**	**0%**	**391,141**	**0%**				**$ 758,903**	**1%**
x			E/N	CEE Tier 1+ Premium Efficiency Motors	1,800	HP	$ 6	$ 10,800	0%	0.0283	46.4	12.5.1	$ 0.009	10.7%	0.73	37.50	$ 0.16	41	0%	67,493	0%	15.0	$ 3,935	$ 1.16	$ 240,285	0%
			E/N	ECM w/Controller- Evaporator Fan Motors	200	motor	$ 85	$ 17,000	0%	0.1500	1,335.0	12.5.1	$ 0.004	10.7%	0.73	1,078.83	$ 0.08	24	0%	215,765	0%	15.0	$ 3,935	$ 1.16	$ 345,746	0%
			E/N	ECM - Fan Coil Fans	100	motor	$ 55	$ 5,500	0%	0.1500	1,335.0	12.5.1	$ 0.003	10.7%	0.73	1,078.83	$ 0.05	12	0%	107,883	0%	15.0	$ 3,935	$ 1.16	$ 172,873	0%
		Commercial Industrial Processes						**$ 450,000**	**2%**							**$ 0.57**	**154**	**1%**	**789,342**	**1%**				**$ 1,180,009**	**1%**
x			E	Waste Water Processes	100,000	kWh	$ 0.50	$ 50,000	0%	0.0002	1.0	12.6.1	$ 0.033	10.7%	0.73	0.81	$ 0.62	16	0%	80,811	0%	15.0	$ 3,935	$ 1.16	$ 157,359	0%
x			E	Compressed Air	100,000	kWh	$ 0.25	$ 25,000	0%	0.0002	1.0	12.6.2	$ 0.025	10.7%	0.73	0.81	$ 0.31	16	0%	80,811	0%	10.0	$ 2,932	$ 0.87	$ 117,358	0%
x			E/N	Kitchen Exhaust Hood Demand Ventilation	500	hp	$ 300	$ 150,000	1%	-	53.6	12.6.3	$ 0.373	10.7%	0.73	43.27	$ 6.93	-	0%	21,637	0%	15.0	$ 3,935	$ 1.16	$ 25,106	0%
x			E/N	ENERGY STAR Commercial Kitchen Equipment	750,000	kWh	$ 0.30	$ 225,000	1%	0.0002	1.0		$ 0.030	10.7%	0.73	0.81	$ 0.37	121	1%	606,083	1%	10.0	$ 2,932	$ 0.87	$ 880,186	1%
		Building Envelope Improvements						**$ 84,830**	**0%**							**$ 0.28**	**86**	**0%**	**308,429**	**0%**				**$ 520,058**	**0%**
x			E	Window Tinting	74,830	square feet	1.00	$ 74,830	0%	0.0013	4.9	12.7.1	$ 0.020	10.7%	0.73	3.96	$ 0.25	79	0%	296,307	0%	10.0	$ 2,932	$ 0.87	$ 487,053	0%
x			E	Cool Roof Technologies	50,000	square feet	0.20	$ 10,000	0%	0.00019	0.30	12.7.2	$ 0.067	10.7%	0.73	0.24	$ 0.82	8	0%	12,122	0%	10.0	$ 2,932	$ 0.87	$ 33,005	0%
		Energy Star Business Equipment						**$ 93,750**	**0%**							**$ 0.19**	**21**	**0%**	**496,382**	**0%**				**$ 626,914**	**0%**
x			E	Refrigerators w/Recycling	750	units	$ 125	$ 93,750	0%	0.0340	819.0	12.8.1	$ 0.011	10.7%	0.73	661.84	$ 0.19	21	0%	496,382	0%	14.0	$ 3,754	$ 1.11	$ 626,914	0%
		Energy Awareness, Measurement and Control Systems						**$ 131,250**	**1%**							**$ 0.63**	**46**	**0%**	**206,917**	**0%**				**$ 263,069**	**0%**
x			E/N	Condominum Submetering Pilot	750	units metered	$ 150	$ 112,500	1%	0.0570	273.0	12.9.1	$ 0.069	10.7%	0.73	220.61	$ 0.68	35	0%	165,461	0%	8.0	$ 2,453	$ 0.73	$ 204,752	0%
x			E/N	Small Business Submetering Pilot	125	units metered	$ 150	$ 18,750	0%	0.1140	410.4	12.9.2	$ 0.046	10.7%	0.73	331.65	$ 0.45	12	0%	41,456	0%	8.0	$ 2,453	$ 0.73	$ 58,317	0%

Business Programs Cont.

Program	Category	Measures	Count	Units	Average Incentive per Unit	Estimated Budget	% Total Program	kW/Unit	kWh/Unit			System Loss	Free Rider	Effective kWh	Program Cost per kWh	kW	% Total Program	kWh	% Total Program	Life	TRB kW	TRB kWh	TRB	% Total Program
CBEEN	**Custom Business Energy Efficiency Measures**					**$ 974,000**	**5%**								**$ 0.18**	**529**	**3%**	**5,293,121**	**4%**				**$ 5,974,917**	**4%**
	Customized Project Measures					**$ 974,000**									**$ 0.18**	**529**		**5,293,121**					**$ 5,974,917**	
x	E/N	Customized Project Measures - Under 5 year Life	1,500,000	kWh	$ 0.10	$ 150,000	1%	0.0001	1.0	13.1.1	$ 0.0200	10.7%	0.73	0.81	$ 0.12	121	1%	1,212,165	1%	5.0	$ 1,629	$ 0.48	$ 782,850	1%
x	E/N	Customized Project Measures - Over 5 year Life	4,250,000	kWh	$ 0.16	$ 680,000	3%	0.0001	1.0	13.1.1	$ 0.0133	10.7%	0.73	0.81	$ 0.20	343	2%	3,434,468	3%	12.0	$ 3,364	$ 0.99	$ 4,564,616	3%
	E/N	Cofunding Leveraged Project Assistance	800,000	kWh	$ 0.18	$ 144,000	1%	0.0001	1.0	13.1.1	$ 0.0225	10.7%	0.73	0.81	$ 0.22	65	0%	646,488	1%	8.0	$ 2,453	$ 0.73	$ 627,451	0%
BESM	**Business Service and Maintenance**					**$ 3,513,647**	**16%**								**$ 0.97**	**359**	**2%**	**3,611,875**	**3%**				**$ 4,134,711**	**3%**
	Business Direct Installation					**$ 2,000,000**	**9%**								**$ 0.93**	**215**	**1%**	**2,154,960**	**2%**				**$ 3,194,738**	**2%**
x	E	SBDI - Lighting Retrofits	2,666,667	kWh	$ 0.75	$ 2,000,000	9%	0.0001	1.0	14.1.1	$ 0.054	10.7%	0.73	0.81	$ 0.93	215	1%	2,154,960	2%	14.0	$ 3,754	$ 1.11	$ 3,194,738	2%
	Business Design, Audits and Commissioning					**$ 1,513,647**	**7%**								**$ 1.04**	**144**	**1%**	**1,456,915**	**1%**				**$ 939,972**	**1%**
x	E	Central Plant Performance Competition	900,000	kWh	$ 0.80	$ 720,000	3%	0.0001	1.0	14.2.1	$ 0.160	10.7%	0.73	0.81	$ 0.99	73	0%	727,299	1%	5.0	$ 1,629	$ 0.48	$ 469,710	0%
x	E	Cooling Tower Optimization	250,000	kWh	$ 0.25	$ 62,500	0%	0.0001	1.0	14.2.3	$ 0.250	10.7%	0.73	0.81	$ 0.31	20	0%	202,028	0%	1.0	$ 339	$ 0.10	$ 27,861	0%
x	E	Decision Maker - Real-Time Submeters	5	Groups	$ 12,000	$ 60,000	0%	-	5,000.0	14.2.4	$ 2.400	10.7%	0.73	4,040.55	$ 2.97	-	0%	20,203	0%	1.0	$ 306	$ 0.10	$ 2,029	0%
x	E	Energy Study Project Implementation - 100%	6	studies	$ 30,000	$ 180,000	1%			14.2.6		10.7%	0.73	-		-	0%	-	0%					0%
x	E	Energy Study Assistance - 50%	10	studies	$ 15,000	$ 150,000	1%			14.2.6		10.7%	0.73	-		-	0%	-	0%					0%
x	E/N	Design Assistance - 50%	6	studies	$ 15,000	$ 90,000	0%			14.2.7		10.7%	0.73	-		-	0%	-	0%					0%
x	E/N	Energy Project Catalyst	627,868	kWh	$ 0.40	$ 251,147	1%	0.0001	1.0	14.2.8	$ 0.057	10.7%	0.73	0.81	$ 0.49	51	0%	507,386	0%	7.0	$ 2,193	$ 0.65	$ 440,373	0%
BHTR	**Business Hard to Reach**					**$ 1,190,000**	**5%**								**$ 1.38**	**85**		**859,334**					**$ 1,245,649**	
	Energy Efficiency Equipment Grants					**$ 1,175,000**									**$ 1.43**	**81**		**818,929**					**$ 1,210,580**	
x	E	SBDI - Kitchen Exhaust Hood Demand Ventilation	250	hp	$ 1,700	$ 425,000	2%	-	53.6		2.116	10.7%	0.73	43.27	$ 39.28	-	0%	10,819	0%	15.0	$ 3,935	$ 1.16	$ 12,553	0%
x	E	SBDI - Restaurant Lighting	1,000,000	kWh	$ 0.75	$ 750,000	3%	0.0001	1.0		$ 0.054	10.7%	0.73	0.81	$ 0.93	81	0%	808,110	1%	14.0	$ 3,754	$ 1.11	$ 1,198,027	1%
	Landlord, Tenant, AOAO Measures					**$ 15,000**	**0%**								**$ 0.37**	**4**		**40,406**					**$ 35,069**	**0%**
		Energy Hero Landlord	50,000	kWh	$ 0.30	$ 15,000	0%	0.0001	1.0	15.2.1	$ 0.043	10.7%	0.73	0.81	$ 0.37	4	0%	40,406	0%	7.0	$ 2,193	$ 0.65	$ 35,069	0%
Potential Business Project Pending Developer Progress on Planned Schedule (figures provided for demonstration of impact and not summarized in Business Program Totals above.																								
SWAC	**Sea Water Air Conditioning**					$ 7,500,000	35%									11,576	66%	62,224,470	53%				$ 141,561,971	103%
	Sea Water Air Conditioning					$ 7,500,000	35%								**$ 0.12**	11,576	66%	62,224,470	53%				$ 141,561,971	103%
		SWAC Infrastructure Support Incentive	25,000	tons	$ 300	$ 7,500,000	35%	0.5730	3,080.0		$ 0.005	10.7%	0.73	2,488.98	$ 0.12	11,576	66%	62,224,470	53%	20.0	$ 4,731	$ 1.39	$ 141,561,971	103%

Appendix C

TRB Utility Benefit Values

Hawaii Energy

Hawaii Energy - PY2012 ANNUAL PLAN
TRB Calculations

Discount Rate			HECO IRP4 Avoided Cost		NPV for each Year		NPV Cumulative from Final Year	
		6%						
Year	Period	NPV Multiplier	$/kW/yr.	$/kWh/yr.	$/kW/yr.	$/kWh/yr.	$/kW/yr.	$/kWh/yr.
2012	1	1.00	$ 338.6	$ 0.104	$ 339	$ 0.1040	$ 339	$ 0.1040
2013	2	0.94	$ 353.2	$ 0.104	$ 333	$ 0.0978	$ 672	$ 0.2019
2014	3	0.89	$ 370.6	$ 0.109	$ 330	$ 0.0969	$ 1,002	$ 0.2987
2015	4	0.84	$ 382.5	$ 0.112	$ 321	$ 0.0943	$ 1,323	$ 0.3931
2016	5	0.79	$ 386.2	$ 0.113	$ 306	$ 0.0899	$ 1,629	$ 0.4830
2017	6	0.75	$ 387.7	$ 0.114	$ 290	$ 0.0851	$ 1,918	$ 0.5681
2018	7	0.70	$ 389.1	$ 0.114	$ 274	$ 0.0806	$ 2,193	$ 0.6486
2019	8	0.67	$ 391.9	$ 0.115	$ 261	$ 0.0766	$ 2,453	$ 0.7252
2020	9	0.63	$ 390.7	$ 0.115	$ 245	$ 0.0720	$ 2,699	$ 0.7972
2021	10	0.59	$ 394.6	$ 0.116	$ 234	$ 0.0686	$ 2,932	$ 0.8658
2022	11	0.56	$ 398.3	$ 0.117	$ 222	$ 0.0653	$ 3,155	$ 0.9312
2023	12	0.53	$ 397.4	$ 0.117	$ 209	$ 0.0615	$ 3,364	$ 0.9927
2024	13	0.50	$ 401.4	$ 0.118	$ 199	$ 0.0586	$ 3,563	$ 1.0513
2025	14	0.47	$ 405.7	$ 0.119	$ 190	$ 0.0559	$ 3,754	$ 1.1071
2026	15	0.44	$ 409.3	$ 0.120	$ 181	$ 0.0532	$ 3,935	$ 1.1603
2027	16	0.42	$ 415.9	$ 0.122	$ 174	$ 0.0510	$ 4,108	$ 1.2113
2028	17	0.39	$ 423.3	$ 0.124	$ 167	$ 0.0490	$ 4,275	$ 1.2602
2029	18	0.37	$ 428.9	$ 0.126	$ 159	$ 0.0468	$ 4,434	$ 1.3070
2030	19	0.35	$ 433.9	$ 0.128	$ 152	$ 0.0448	$ 4,586	$ 1.3519
2031	20	0.33	$ 438.9	$ 0.130	$ 145	$ 0.0430	$ 4,731	$ 1.3948

Appendix D

Synopsis of Transformational Programs in PY11

Introduction

Transformational offerings are those which involve education, outreach and other government support activities that may not result in direct quantifiable energy savings in the immediate timeframe of the activity yet are likely to contribute to program savings goals within a five year period. These efforts contribute to development of an infrastructure and mindset that will result in societal changes and increased energy savings in the future. A comprehensive, current definition of Transformation efforts and their linkage to long-term kWh reduction is found in the recent report entitled "Who Should Deliver Ratepayer-Funded Energy Efficiency?" a 2011 Update based on work for the Colorado Public Utilities Commission. In this report, Market Transformation is defined in the following way:

> *Market Transformation …is based upon the understanding that a great deal of cost-effective efficiency does not occur because of certain well known barriers in the markets for efficiency goods and services. These barriers, which have been well described, include (1) high customer discount rates, in which the customer demands a very short payback for what is essentially a capital resource; (2) split incentives such as that between landlord and tenant in which a tenant who pays the energy bills might see savings from an efficiency program but the landlord who would need to make the capital improvement would not realize any savings; (3) lack of awareness and information, including among engineers, architects, customers, the buyers of equipment and services, and equipment distributors; and (4) high upfront costs that prevent customers from making efficient purchases; such customers may understand there are savings to be had over time, but nevertheless don't have the cash to retrofit a household with expensive LED lights or to purchase a $1,000 front-loading efficient washing machine.*

Market Transformation programs seek to understand barriers to adoption for a specific device, appliance, process, or measure and to use funds to permanently alter or remove the barrier so that a particular market will function on its own in the future with no further investment of ratepayer funds.

Although Transformation initiatives have not been a required part of the Program prior to PY11, all across the country, Market Transformation has grown in importance and is considered to be essential to the long term reduction in energy use necessary to achieve state energy goals. As an example, the ACEEE recently supported the linkage between building efficiency through appliances and the education of building occupants in commercial buildings to conservation of energy use.

Energy research community, energy efficiency professionals, and policy decision makers should work together to develop an improved evaluation framework to better document, study, and evaluate energy behavior programs. Program administrators should consider the integration of energy behavior (transformation) programs into their building efficiency initiatives, which would help promote the development and deployment of advanced technologies in a more conservation-conscious environment. Moreover, government and utilities at every level should consider leading by example by implementing their own energy behavior programs, as such efforts would promote a culture of energy conservation in their workplaces and beyond.

PY11 Successes

During PY11, Transformation initiatives were developed in the following categories, which are considered foundational and important, and will be continued or expanded:

- **Government** – Education of policy makers and public servants at the state and county level, as well as energy audits and activities such as education of government employees about energy and energy efficient behaviors – to reduce kWh usage and increase energy efficient behaviors in government or public buildings. For example, University of Hawaii Manoa Dormitories where hundreds of students participated in the Kukui Cup; a program offering field trips, lectures, online activities to reduce energy consumption within their dormitory facilities aided by electrical monitoring.

- **Business & Industry** – Education of decision makers in private businesses, professionals who interface with business and consumers regarding energy efficiency, and education of employees about energy efficient behaviors. For example, in PY11, Hawaii Energy supported training by EEFG – Business education for professionals in energy professions to encourage consumers to purchase energy efficient appliances and lighting, as well as CEM certification for professionals. In addition the Program collaborated with Leeward Community College in a Career Fair with a Green Jobs component.

- **Education** – Education in schools, K through University level, which can include learning about energy as well as energy audits, and teaching energy efficient behaviors. For example, in PY11, Hawaii Energy supported KUPU (RISE), an internship program for college level or recent college graduates to learn and perform energy audits in school

and other commercial buildings, as well as NEED, a nationally recognized science curriculum for the Science of Energy, targeted to Middle and High School Students.

- **Residential** – Education and energy audit tools for homeowners and renters, both hard-to-reach communities as well as other demographic groups, to understand energy and how to reduce energy costs in the home. In PY11, Hawaii Energy supported a course called Energy Efficiency and Financial Literacy for hard-to-reach populations.

The approach taken in PY11 was to mirror the population of Hawaii in types of offerings created, and to work collaboratively with existing organizations that have performed or can perform transformational projects. We have termed this approach Vendor/Ally and it has worked well, exceeding targets for the activities mentioned above. The multiple pilot offerings initiated in PY11 mirrored well to the realities in the state of Hawaii. For example, Education offerings reflected the fact that 24% of the state population, which would be 329,081 people as of the 2010 Census, are enrolled in schools, and in addition, the education was of teachers and others non-students as well. Because of efforts to link the learning with immediate energy reductions, several of these efforts could potentially report estimated kWh reductions once our data gathering is complete for PY11. These projects include: Kukui Cup, Pahoa High School's use of Belkin Conserve Insight Monitors, Financial Literacy and Energy Efficiency training, and NEED.

Appendix E

Transformational Project Budget Details

The Business and Residential % Allocation indicates the rate payer funding source from which the Transformational Program, whether business or residential or both, are contributing to each transformational program. In many instances educational experiences provide benefit to both residential individuals and business institutions therefore funding is allocated proportionately to each segment.

These programs may be expanded should surplus PY11 funds be rolled over, notably the few that remain unfunded.

HAWAII ENERGY - PY12 TRANSFORMATIONAL ANNUAL PLAN							
	Market Sector	Budget (Post-Tax)	Budget (Pre-Tax)	Residential % Allocation	Residential Funds	Business % Allocation	Business Funds
Comprensive Transformational Offerings							
Energy Ambassador Development							
State, Federal, Civil Defense, National Guard	Government	**$261,780**	$250,000	30%	$75,000	70%	$175,000
Small Business Workforce Development	Government	**$52,356**	$50,000	30%	$15,000	70%	$35,000
Hawaii State Department of Education	Business & Industry	**$261,780**	$250,000	30%	$75,000	70%	$175,000
Energy Audit & Benchmarking, Tools & Support							
State, Federal, Civil Defense, National Guard	Business & Industry	**$83,770**	$80,000	30%	$24,000	70%	$56,000
Commercial Facilities	Business & Industry	**$83,770**	$80,000	0%	$0	100%	$80,000
Educational	Education	**$20,942**	$20,000	75%	$15,000	25%	$5,000
Workforce Development Training							
Academic Level							
University Targeted Interactive Education, Competition - Kukui Cup	Business & Industry	**$47,120**	$45,000	30%	$13,500	70%	$31,500
Video Programming Net Zero, PSAs, etc. (O'lelo)	Business & Industry	**$47,120**	$45,000	45%	$20,250	55%	$24,750
Vocational / Entry Level							
University of Hawaii Community Colleges - Residential Audit Certifications	Residential	**$188,482**	$180,000	50%	$90,000	50%	$90,000
Professional Development							
Workforce Development - Courses, Certification, Application	Business & Industry	**$418,848**	$400,000	30%	$120,000	70%	$280,000
Teacher Workforce Development - Energy Education Development	Education	**$209,424**	$200,000	75%	$150,000	25%	$50,000
Residential Home Rating System Analysis and Pilot	Residential	**$78,534**	$75,000	75%	$56,250	25%	$18,750
Workforce Development - Internships	Business & Industry	**$104,712**	$100,000	30%	$30,000	70%	$70,000
Outreach & Education							
Sustainable Energy Career Fair(s), Energy Expo, Rebuild Hawaii	Business & Industry	**$78,534**	$75,000	88%	$65,625	13%	$9,375
Energy Efficiency through Financial Literacy	Residential	**$209,424**	$200,000	96%	$192,618	4%	$7,382
Supporting Serivces and Resources							
Energy Resource Centers		**$136,489**	$130,347	30%	$38,913	70%	$91,434
Workforce Development Course Marketing, Project Outreach and Communication(s)		**$0**	$0	45%	$0	55%	$0
Project Assessment, Directed Improvement, Analysis		**$94,241**	$90,000	45%	$40,500	55%	$49,500
Engineering Research, Development, Energy Consumption Analysis		**$0**	$0	45%	$0	55%	$0
Transformational Program Budget		$2,377,326	$2,270,347	45.0%	$1,021,656	55.0%	$1,248,691
Hawaii Energy PY 2012 Appropriated Transformational Budget		$2,377,326	$2,270,347	45.0%	$1,021,656	55.0%	$1,248,691

Appendix F

Proposed Transformational Tasks & Milestones in the Context of PY11

Within this section, numerous offerings are defined with a review of Hawaii Energy PY11 Transformational Program Goals and projected PY11 Status, or accomplishments. These projections are in some cases estimates based on current status within PY11. PY12 Transformational Program goals for each offering are stated with a Minimum, Target and Maximum goal specified.

In PY12, Hawaii Energy will work to accomplish or exceed stated Target goals within offerings that continue execution from PY11. All additional, or NEW goals outlined within Section 8.0 are offerings under consideration, or areas in which offerings are being considered. These offerings will be set out for Request for Information (RFI) or Request for Proposal (RFP) with implementation as a pilot project where appropriate. Goals will be established as pilot execution allows for establishment and analysis of metrics.

Transformation Task Options and Projected Milestones for PY12

Transformational Offering	PY11 Goal	Projected PY11 Status	PY12 Proposed Goal
Government			
Continue EEPS (Energy Efficiency Performance Standards) Support	Provide on-going support through participation in EEPS and HEPF (Hawaii Energy Portfolio Standards) organizations.	EEPS and HEPF participation	Continue EEPS and HEPF participation through PY12.
Continue Energy Efficiency subject matter expert support for Government entities	Respond to requests for data and advice on energy use, while providing feedback on effectiveness on current laws or issues.	Support and expertise provided through response to inquiries.	Continue to provide support as well as expand participation. Provide energy efficiency training opportunities to members of the legislature and other government entities. Provide support for establishing and performing neighborhood energy education programs in partnership with legislators and other government entities.
Continue Energy Efficiency language inclusion in County and State Master Plans	Respond to requests for assistance as appropriate.	Work performed to establish relationships with County and State representatives.	Efforts continue to develop relationships for the purpose of performing projects and assisting with inclusion of energy efficiency standards in County and State master plans.
Expand HCEI (Hawaii Clean Energy Initiative) Collaboration and Support	Support for internships if funds are available.	Internships within and in partnership with DBEDT provided via Kupu – RISE.	Continue to collaborate with DBEDT and other organizations in support for HCEI.
Rebuild Hawaii	Support meetings and overall process funding. Facilitate expanded reach through on-line webinar presentation.	New for PY12	Support meetings and overall process funding. Provide for webinar capabilities. Accept overall organizational management of Rebuild Hawaii and its mailing lists.

Transformational Offering	PY11 Goal	Projected PY11 Status	PY12 Proposed Goal
Government (continued)			
NEW – Education for State and county employees	New for PY12	New for PY12	Identify and hire vendor/ally to teach energy efficiency in the workplace. **PY12 Goal – TBD**
NEW – Energy Audit and efficiency support for State Government Buildings	New for PY12	New for PY12	Hire vendor/ally or collaborate with organizations to teach and implement energy audits and perform energy benchmarking. **PY12 Goal – TBD**

Transformational Offering	PY11 Goal	Projected PY11 Status	PY12 Proposed Goal
Business & Industry			
CEM – Certified Energy Management Courses	Workforce Development Pilot #1 of 2 - Establish 2 collaborative relationships with organizations for energy efficiency training.	5-day CEM course, 70 participants Islands – Oahu, Hawaii Island	**EXPAND** in PY12 **PY12** **Target 5-day Courses / Total Students** Minimum - 2 / 20 Target – 3 / 70 Maximum – 5 / 140 Islands – Oahu, Maui, Hawaii Island
EEFG – Energizing Efficiency™ Courses	Workforce Development Pilot #2 of 2 - Establish 2 or more collaborative relationships with organizations for energy efficiency training.	6 1-day courses, 250 participants 3 classes • Learning to SEE • Role of Energy in Sustainability • Benchmarking Commercial Building, Islands – Oahu, Maui, Hawaii Island	**CONTINUE** in PY12. **PY12** **Target 1-day Courses / Total Students** Minimum - 12 / 300 Target – 18 / 450 Maximum – 24 / 800 Islands – Oahu, Maui, Hawaii Island, (via travel /remote, poss. Molokai, Lanai)

Transformational Offering	PY11 Goal	Projected PY11 Status	PY12 Proposed Goal
Business & Industry (continued)			
KUPU – RISE – Rewarding Internships for Sustainable Employment	Partner with 2 or more green clubs and schools. Workforce development students, interns and professional energy auditors will perform facility wide energy audits.	2 interns – 1 each Pahoa High & Intermediate School Kea'au School Green Clubs email blast to 90 contacts to create network. Islands – Hawaii Island	**EXPAND** - new internships for facility complexes. **PY12 Target Institution and/or Facility Complexes** Minimum – 3 Target – 5 Maximum – 8 Islands – Oahu, Maui, Hawaii Island
NEW – UHCC (University of Hawaii Community Colleges) Green Mechanical Council	New for PY12	New for PY12	Intended to build certification in the energy efficiency building trades. Will begin as pilot at one location, as it shows itself successful, will be expanded to others. **PY12 Goal – TBD**
NEW – Energy Audits and Education in Food Service and Accommodations Industry (Restaurants)	New for PY12	New for PY12	Support energy cost reduction efforts within this industry, which is second largest private industry in state. **PY12 Goal – TBD**
NEW – Energy Efficiency Education for Private Business Employees	New for PY12	New for PY12	Contract with vendor/ally to establish workplace conservation training programs. Possibly collaborate with Chamber of Commerce or other trade organization with significant reach, using curriculum on energy efficiency in the workplace and train-the-trainer model. **PY12 Goal – TBD**

Transformational Offering	PY11 Goal	Projected PY11 Status	PY12 Proposed Goal
Business & Industry (continued)			
Energy Resource Center	Establish 2 energy resource (tool lending) centers. Establish 2 partnerships with organizations acting as energy resource centers.	Performed due diligence – Performed survey based on Pacific Resource Center content. High interest for energy resource centers exist. 98% respondents would find this helpful, 76% stated tools would help grow their business. Target Island - Maui	**PILOT** – Locate at community college(s). Potentially purchase identified tools in PY11, if possible. **PY12 Target Number of Resource Centers** Minimum – 1 Target – 3 Maximum – 5 Islands – Oahu, Maui, Hawaii Island, Molokai
Energy Efficiency Service Sector Career Fair	Partner with 2 or more organizations to host the fair. Connect training programs with interested individuals. 2000 attendees targeted.	Event included 3 partner organizations and 50 participating organizations. Estimate 2000 career fair attendees. 199 responded to evaluation. 60% attended at least one energy efficiency workshop, 82% found fair helpful.	**REPEAT** with different Community College campus' in FY12. **PY12 Target Number** Minimum – 1 Target – 2 Maximum – 3 Islands – Oahu, Maui, Hawaii Island

Transformational Offering	PY11 Goal	Projected PY11 Status	PY12 Proposed Goal
Education			
Teacher Development (NEED)	120 - 200 teachers trained With each teacher teaching 2-3 classes. Reach of 12 – 18K students	Hilo (1: Dec) Oahu (4: Dec, Feb, Mar, April) Maui (2: March, April) Kona (1: 3/29) 289 trained teachers 5 Islands – Oahu, Maui, Hawaii Island (via travel Lanai, Molokai)	**CONTINUE** **PY12 Target # Trained Teachers** Minimum - 150 Target - 250 Maximum - 300 5 Islands – Oahu, Maui, Hawaii Island (via travel Lanai, Molokai)
EAD - Energy Ambassador Development **Train Energy Auditor & Ambassadors**	Pilot Initiated April 2012, not on initial plan	**Target for PY11** 13 facility complexes 100 energy Ambassadors 4 islands, Oahu, Molokai, Lanai, Hawaii Island	**EXPAND** in PY12. **PY12 Target Facility Complexes / Ambassadors** Minimum - 35 / 175 Target - 50 / 250 Maximum – 100 / 500 5 Islands – Oahu, Maui, Hawaii Island, Lanai, Molokai
UH Manoa, Hawaii Pacific University – Kukui Cup	Support pilot with limited equipment - <50 Belkin Conserve Insights, 500 Smart Strips	3 weeks/rounds, 4 residence halls, 1036 eligible students. 418 (40%) actively engaged, in the educational program. Efficiency ranged, best was 16% reduction over 3 weeks. Statistically significant Improvement in knowledge pre-post for participants, not for non-participants. Note: 850 hours of time on game site, with 4000+ unique visitors and 1700 page hits.	**EXPAND** - Plan to expand support for 2nd round at UHM in 2012 and also support HPU project. Plan for intern support for both. **PY12** **Target Institution / Facility Complexes** Minimum – 1 / 2 Target – 2 / 3 Maximum – 3 / 4

Transformational Offering	PY11 Goal	Projected PY11 Status	PY12 Proposed Goal
Education (continued)			
School Belkin Energy Meter Kits	Pilot – identify schools.	Funded 75 Belkin Energy Meter Kits and 300 smart strips at Pahoa. 189 participants in labs, 107 smart strips with 50 distributed. Next lab kit was distributed mid-April, 2011. Added Keeau High School on Hawaii Island. Funded one intern for each school. Islands – Hawaii Island	**CONTINUE –** Expand energy based STEM projects in schools that engage students. With a goal of introducing energy efficiency as science and developing interest in science and energy (EESS) related study and careers. **PY12 Target Schools** Minimum – 4 Target – 6 Maximum – 10 Islands – Oahu, Maui, Hawaii Island, Lanai, Molokai

Transformational Offering	PY11 Goal	Projected PY11 Status	PY12 Proposed Goal
Residential			
Energy Efficiency through Financial Literacy Target Residential Low Income Communities	10 presentations across 5 distinct communities. Number of individuals reached 500 minimum.	45 presentations, 1727 participants, 1549 APS 5 Islands – Oahu, Maui, Hawaii Island, Lanai, Molokai	**EXPAND** - Continue to serve hard-to-reach and Native Hawaiian communities and expand to other demographic groups such as condo owners and apartment dwellers. **PY12 Target** Minimum - 1000 Target - 1500 Maximum - 2500 5 Islands – Oahu, Maui, Hawaii Island, Lanai, Molokai
NEW Landlord/Tenant Incentives and Solutions	New for PY12	New for PY12	Intended to provide methods for landlords and tenants (>40% of Hawaii residents) with feasible methods to reduce energy consumption in units. **PY12 Goal - TBD**
NEW **Energy Efficiency Local Resident Experts**	New for PY12	New for PY12	Create pilot effort to find ways to help residents influence each other within neighborhood community centers to learn about energy efficiency. **PY12 Goal - TBD**
NEW **Documentary about Energy Efficient Homes Video(s)**	New for PY12	New for PY12	Pilot with O'lelo Community Television and/or other group(s) to demonstrate net zero or energy efficient homes. **PY12 Goal - TBD**

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