Hawaii Energy
Conservation and Efficiency Programs
Public Benerfits Fee Administrator

ANNUAL PLAN
PROGRAM YEAR 2011

Submitted to:
Hawaii Public Utilities Commission

Submitted by:
SAIC Energy, Environment, & Infrastructure, LLC
1132 Bishop St., Suite 1800
Honolulu, HI 96813

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1.0 INTRODUCTION

On behalf of **Science Applications International Corporation** ("SAIC") as the Hawaii Public Benefits Fee Administrator (PBFA), the PBFA's proposed Annual Plan for Program Year 2011 (July 1, 2011 – June 30, 2012) is presented below.

1.1 Annual Plan for PY2011

This Annual Plan ("Plan") provides strategies and a roadmap for administration and delivery of the Hawaii Energy *Conservation and Efficiency Program.* This Plan serves the third year of the Hawaii Energy Program and, therefore, will build upon the successes and lessons learned during the first two 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. This year, the PBFA will also continue to promote the Program's new 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 PY2011

The following are some of the key factors that have impacted the Annual Plan developed for PY2011. As the Program Year evolves and these and other factors reveal their true impacts on the Program, the PBFA will make revisions to the Annual Plan for the benefit of the overall Program goals, with the concurrence of the Contract Manager.

1.2.1 *Public Benefits Fee Increase* – The Public Benefits Fee (PBF) increase from 1% to 1.5% of utility revenues will enable expanded Program responsibilities, resources, offerings and savings results for PY2011. This will provide a PY2011 Program Budget of $32,271,390.

1.2.2 *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.

1.2.3 *Expanded Staff* – With the increase in PBF and budget for PY2011, the Program will expand its staff and facilities, including enhanced resources on the neighbor islands. It will also reallign its subcontract requirements to ensure maximum cost-effectiveness of all Program activities. This will include

transfering administratioon of the solar water heater program from subcontractor to Program staff.

1.2.4 *Compact Florescent Lights (CFL) Impacts on Program Savings* – CFLs have historically accounted for approximately 50% of total Program first-year savings. However, for PY2011 the Program will reduce its reliance on CFLs. This, in addition to reduced TRM savings values allowed for CFLs, will drop CFL savings going forward by an estimated 57% from earlier years. 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.

1.2.5 *Increased Transformational Non-Resource Infrastructure Development* – Guidelines in the February 10, 2011 letter from James Flanagan Associates regarding the Renewal Proposal ("JFA Letter") recognize the importance of transformational non-resource infrastructure development such as education, training and other similar transformational activities that do not result in quantifiable energy savings, but do contribute to general energy savings over time. The guidelines will allow the Program to spend budgeted incentive funds to engage in such activities and receive credit towards the Program Performance Incentive Goals without the showing of specific energy savings.

1.2.6 *Added PBFA Responsibilities* – Over the first two program years, the PBFA responsibilities have expanded dramatically over what had originally been defined. Commission docket support, including Integrated Resource Planning (IRP), Energy Efficiency Portfolio Standard (EEPS) and other Commission activities has been added to the PBFA duty list. 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 Symposium (APCES) and others.

1.2.7 *Emphasis on Solar Water Heater (SWH)* – Due to the long-term energy savings achieved by solar water heating, the State desires to place special emphasis on installing solar water heaters in the islands to the maximum extent possible. This will challenge the PBFA to find innovative ways to make solar water heating available to hard-to-reach households such as renters and multi-family housing residents. It will also reduce the overall Program cost-effectiveness due to the high initial cost of solar water heaters.

1.2.8 *Lower Consumer Confidence* – Generally, consumer confidence has been down considerably since the 2008 economic recession, the worst in 80 years and is reflected in customer participation in the Program. The Program has experienced a slowdown in customer willingness to invest in energy efficiency measures, particularly in the business sector. Overcoming this lower consumer

confidence will require enhanced effort and incentives during PY2011.

1.2.9 *Commercial Sector Reluctance to Invest* – Program experience to date has also revealed that the commercial sector, particularly small business is very reluctant to invest in energy saving measures without substantially higher incentives than before the economic downturn. In order to keep small businesses participating in the Program at a good pace going forward, the enhanced incentive packages that will be required will greatly reduce cost-effectiveness as compared with past years. 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 PY2010 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.

1.2.10 *Equity Within Rate Class* – In PY2011, 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 our particular circumstances.

1.2.11 *Expand Energy Usage Evaluation & Customer Targeting 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.

1.2.12 *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:

1.2.12.1 Recycling and Disposal Programs for:

- Residential CFL
- Commercial lamps
- Refrigerant recovery and disposal

1.2.12.2 Water and Wastewater Department Programs to provide:

- Low flow devices
- Conservation program development

1.2.13 *Turn-Key Programs*– The Program plans to purchase turn-key programs and services from specialty vendors. The following are examples of programs and purchases under consideration:

- OPOWER Residential Peer Group Comparison - Expansion of territory currently under pilot with ARRA funding
- Educational and Training – Teaching modules from the National Energy Education Development Project (NEED.org); 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 lighting, energy audit and other simple Program retrofits and offerings
- Restaurant Exhaust Fan Demand Ventilation Control – Direct install of exhaust fan demand ventilation control for small restaurants
- Real-Time Metering Loan/Purchase Program – Direct install of whole-house metering to loan customers with an option to purchase
- 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.

1.2.14 Island Equity - Particularly for 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 PY2011, Hawaii Enegy 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 Specialist on the Big Island, 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.

2.0 PROGRAM STRATEGIES & INITIATIVES FOR PY2011

2.1 Program Strategy

With the significant increase in budget for PY2011, the Program's overarching strategy will be to accelerate its efforts to educate and motivate ratepayers to implemenmt more aggressive energy conservation and efficiency measures in their personal and business lives. The Program will do this in part by introducing a broad "transformational" education effort aimed at teaching conservation and efficiency practices and instilling a sense of personal awareness and responsibility for individual energy-related behavior. The Program will also significantly increase the rebate incentive amounts paid per kWh saved in the first year.

Besides continuing most of the operational initiatives utilized in the first two Program Years, the Program will expand its emphasis on the use of peer comparisons to motivate increased conservation and efficiency behavior. Through enhanced kindergarten through twelfth grade (K-12) education initiatives, the Program will also enlist schoolchildren as allies in improving conservation and efficiency awareness among family members, particularly adults.

In addition, at the Commission's suggestion, the business program will be allocated a larger portion of the overall budget than in any of the past years, 55% versus 45% during the last year. This budget increase will be directed to special new programs and enhanced incentive values for existing programs in order to achieve greater energy savings for busineses, particularly small businesses.

2.2 Transformational Infrastructure Development Initiatives

At the suggestion of the Commission through the JFA Letter, Transformational Infrastructure Development efforts are being introduced into the Annual Plan for this year. Transformational efforts are those which involve education, training and other legislative support activities that may not result in direct quantifiable energy savings. These efforts contribute to development of an infrastructure and mindset that will result in societal changes and increased energy savings in the future, but have not been a required part of the Program in past years. Many activities the Program has supported during the past two program years do fall into this category and will be continued. These will be expanded and new activities will be added.

For purposes of Program implementation, tracking and credit for Performance Incentive goals, Transformational Infrastructure Development efforts will be divided into two broad areas: i) Government Clean Energy Strategy and Support and ii) Clean Energy Educational and Training Support. Each of these two areas will have a series of specific transformational task options that may be implemented to meet the transformational performance incentive goals. These task options are listed in the charts at Section 8.1 and Section 8.2. Some or all of these task options may be implemented by the Program as determined by the PBFA. However, a minimum of two task options from each chart in Section 8.0 must be implemented during PY2011 in order for the Program to receive credit for the Transformational Incentive Goal.

2.3 Outreach & Marketing Initiatives

Hawaii Energy's outreach and marketing inititives will partner with our transformational infrastructure development activities to achieve the maximum impact in communicating the mission and offerings of our program.

2.3.1 *Outreach* – The Program will continue to expand our 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 increase the number of community presentations promoting the Program goals to Clubs, professional organization, community boards, retirement groups, military groups, and labor unions.

- *Outreach Through Community Allies* - Hawaii Energy will work with groups such as large retailers, chain restaurants, the Board of Water Supply, cable and phone utilities, labor unions, and health insurance providers to develop alliances to communicate the message of energy conservation and efficiency to reduce oil consumed within the state and work towards the State's goals.

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:

- *Advertising* - Television, print and radio advertising will provide the base of our advertising that our other more targeted advertising and marketing tools will build upon to reach smaller, niche markets. For example, the Program will increase advertising placement and contribute to content when requested for newsletters for community, business chambers, nonprofit organizations, and military publications to raise the awareness of the State's energy goals and the Program's offerings. to the Program will target "hard to reach" demographics by creating posters and booklets for distribution around public housing, low income units, free community medical clinics, local school sports events and faith-based organizations. We realize the great value of repetition in adoption and change. Therefore, the base marketing messages will be designed to increase public awareness of energy conservation in the State and begin the process of behavior change.

- *Public Relations* - Hawaii Energy will increase our public relations efforts in conjunction with HCEI's efforts to achieve greater impact. Our Public Relations firm will work with our advertising firm to ensure effective, cohesive messaging to help us exponentially increase Program awareness for the residents and businesses of Hawaii. We will seek feedback from the community as to effectiveness of our new approach.

- *Survey Emails* - Hawaii Energy will be enhancing the functionally of our tracking system by adding a survey feature that will send a targeted survey to approved rebate applicants. 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.

- *Mass Emails* – Our Efficiency Program Management Information System (EPMIS) has been enhanced to track mass emails announcing new offerings and Program information. Now we have the capability to report and take action based on targeted information to and from our customers.

- *Hawaii Energy Website* - For PY2011, we will be refining the usability of the website, adding interactive functionally, as well as additional energy related widgets. An emphasis will be placed on developing a trade ally resource referral system that will help our trade alley outreach through increasing consumer confidence in choosing a vendor. 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.

- *Peer Group Online Tools* - Hawaii Energy will continue to work with our OPOWER subcontractor for the first half of PY2011 and review the results of the OPOWER services before deciding on possible expansion of the services going forward. The Program will also jointly release an online tool with Blue Planet Foundation for residential peer comparison that we hope will generate community competition to save energy. Once the online tool has been evaluated as a pilot, a campaign will be created announcing the availability of this new tool.

2.4 Residential Market Initiatives

Hawaii Energy has continued to modify the Residential offerings from the legacy program that was taken over by Hawaii Energy for PY2009.

For PY2011 we will make the following programmatic changes:

- The category of "New" program has been eliminated and the programs "Custom Energy Solutions for the Home (CESH)" and "Residential Energy Services & Maintenance (RESM)" have been added.
- "*Residential Low Income"* will evolve to "Residential Hard to Reach (RHTR)" to expand the coverage and intent of the program.

A summary listing of the new Residential Program offerings can be found in the table below and a detailed description of the Residential Program can be found in Section 4.0 . A summary of additions and changes by program follow. 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	

2.4.1 *New Program Offerings of Residential Energy Efficiency Measures (REEM)*

High Efficiency Lighting

- Daylighting – The daylighting incentives for light tubes and skylights are to provide high occupancy homes (during the daylight hours) with incentives to bring interest to these higher cost measures.

High Efficiency Air Conditioning

- Variable Refrigerant Volume Air Conditioners – This is a refinement to the existing split-system air conditioning program that adds the energy savings benefits of inverter drives, ECM motors, zone control and increased humidity control. The program is working with a local consulting engineer to perform modeling studies and will follow up with metered field verification to develop new incentive levels, messages and examples of the benefits of this technology.

- Window AC – This incentive will be retired. The incentive was not a major driver in the purchases of higher efficency units and the energy savings from this measure were small.

High Efficiency Appliances

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

- Dishwasher – This incentive will be retired. The incentive was not a major driver in the purchase of higher efficency units and the energy savings from this measure were small once disaggregated from the combined refrigerator, clothes washer, dishwasher used by the previous programs.

2.4.2 *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 the contractor, home auditors, and energy vendors to 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 be sub-metered if required to ensure savings performance.

2.4.3 *New Program Offerings of Residential Energy Services Direct Installation (RESM)*

Residential Design and Audits

- Efficiency Inside Home Design – This program provides incentives to utilize energy modeling, construction inspections and final as-built testing of new homes. This will be a full year implementation with the intent to test newly built and occupied homes to see how they compare against energy models as well as determine the most cost effective measures to incorporate into new homes.

- Trade Wind Design Support – This program provides designers and builders an incentive to pursue and execute minimal AC designs using trade wind capturing designs.

- Hawaii Energy Hero Audits – This incentive provides for grass roots and energy auditors to provide quick energy audits to residential homes. Data will be collected on the success and incorporated with the Kanu Hawaii EPA home auditing and whole house metering grant work.

Residential System Tune-Ups

- Solar System Tune Up – This program will be modified based on the results of the Solar Tune Up Pilot which identified the most problematic areas that cause solar systems to underperform. The solar system tune up will include timer education and warning devices for backup element operation. Improperly operating water heater element timers can cause increased energy use in solar systems. Power outages, changing the time settings, on/off pins loosening and falling out, and over-rides not being turned back to automatic operation all lead to the electric resistance elements operating in a manner that does not allow the solar system to provide the maximum amount of solar energy into the system. Hawaii Energy has introduced both the timer education and warning devices to the Solar TAG and will implement programs to educate and get the warning devices in the field.

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

Landlord/Tenant, Associations of Apartment Owners (AOAO) Measures

- 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.

- Tiered and/or Split Incentives – This program will develop a trial tiered and/or split incentive to attract renters and/or landlords to consider solar water heating. This offering will attract renters and landlords who are energy conscious as well as those looking to save money.

- Townhome Targeted Programs – Townhomes are prime candidates for Solar Water Heaters with high unit density, low-rise construction and dedicated roofs over the individual units. This market has its challenges that have prevented high penetration of solar water heating. The PBFA will develop programs targeted at addressing the challenges such as renter/owner, AOAO approvals, and cost effectiveness of sales for contractors. The program will include developing RFPs for entire building units to lower costs through volume, participating in energy education at neighbor meetings using peer group comparisons, working with financing institutions to bring lenders to the neighborhood, and providing sub-metering assistance where master meters are in place.

2.4.5 *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. After launching a successful program with ARRA SEP and PBFA funds during PY10, Hawaii Energy will continue to work with local financing institutions to develop ways to provide affordable financing through the PBFA. 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.

Peer Comparison to Encourage Behavior Change – Hawaii Energy plans to continue the OPOWER program we have piloted with our ARRA funds as well as Hawaii Energy has been working with the Blue Planet Foundation (BPF) the past year to launch our own variations of the peer comparison strategy for other peer groups (for example, office buildings, hotels, community groups.). This process will use data mining among commercial and residential customers. Our strategy will look for ways to affect measurable energy savings through behavior change.

Point of Purchase (POP) Rebates – During PY2010, 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.

2.5 Business Market Initiatives

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

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	

2.5.1 *New Program Offerings of Business Energy Efficiency Measures (BEEM)*

High Efficiency HVAC

- Garage Demand Ventilation Control – Garage ventilation is often a 24/7 operation and there are opportunities to reduce runtimes 60% to 90% with active CO monitoring systems. This measure will be in the $0.10/kWh range

- Variable Refrigerant Flow (VRF) – These units combine variable speed compressors, air handler fans and condenser fans to provide 20-35% reduction in energy use. A new incentive of $250/ton will be implemented for the new program year.

- 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.)

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. This measure will be in the $0.10/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 $0.10 to $0.16/kWh range

- Commercial Kitchen Equipment – This program will start with direct installation of variable exhaust ventilation systems that adjust to the cooking exhaust loads. This program will be implemented through specialty contractors on a dollar per kWh capture basis. This measure will be in the $0.25 to $0.30/kWh range.

Energy Star Business Equipment

- Refrigerators with Recycling – This program will seek to remove the old second hand refrigerators that have been introduced into office environments and replace with an Energy Star unit.

Energy Awareness, Measurement and Control Systems

- Small Business Submetering – This pilot program will provide incentives and education for the installation of billing submeters for tenants within a master metered facility. The use of these submeters will provide the tenants with the motivation and ability to directly benefit from energy efficiency improvements and behaviors. Once savings are established, this program may be expanded.

2.5.2 *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 program will be in the $0.20 to $0.30/kWh range

2.5.3 *New Program Offerings of Building Energy Services and Maintenance (BESAM)*

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.

- Cooling Tower Optimization - 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.

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

Energy Efficiency Equipment Grants

- Small Business Direct Lighting Retrofits – This program will identify small businesses that are hard-to-reach due to geographic or economic reasons. We will work with contractors and grass roots organizations to directly replace lighting systems. In PY2010 we performed a project that provided over 100 businesses on Molokai with full lighting retrofits at no cost using a single lighting contractor that held community meetings, performed door-to-door audits and recruited businesses. These retrofits would not otherwise happen without this direct installation grant approach.

- 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. The project cost effectiveness is TBD.

3.0 TRANSFORMATIONAL INFRASTRUCTURE DEVELOPMENT DETAILS PY2011

The Transformational Infrastructure Development initiatives will be divided into two distinct implementation areas: 1) Government Clean Energy Strategy and Implementation Support and 2) Clean Energy Education and Training Institution Support. The detailed approach is set out below. Specific Transformational Task Options being considered for PY2011 implementation are set out in Section 8.0.

3.1 Government Clean Energy Strategy and Implementation Support

In addition to direct support provided to the Commission, including active involvement with Docket proceedings, Hawaii Energy will provide tranformational support to Legislative, State Energy Office, County Government, Department of Energy, Department of Defense, Environmental Protection Agency and other similar government energy conservation and efficiency infrastructure organizations. Hawaii Energy will provide support for the development of strategies and pursuit of initiatives that are needed to push the envelope on clean energy. This falls under transformational non-resource infrastructure development programs that will have energy savings impacts in the long term but may not be easily measured in the short term.

3.1.1 *County Energy Office & Program Support* - Hawaii Energy will increase efforts to work with County in support of Hawaii Clean Energy goals. Efforts will focus on:

- Building code upgrades, training, implementation and inspection
- Coordinating with county building departments, architects and builders
- Establishing county employee training curriculum to save energy in the workplace
- Potentially partnering with county programs that perform outreach and implementing projects that result in energy efficiency or demonstrate sustainability within the state.

3.1.2 *State Energy Office and Program Support* - Hawaii Energy will increase efforts to work with State in support of Hawaii Clean Energy goals. Efforts will focus on:

- Encouraging and supporting the Loan-Loss Reserve Program, the ENERGY STAR Building Benchmarking Program and the Green-Built Initiative
- Coordinating Energy Public Relation Activities
- Establishing county employee training curriculum to save energy in the workplace
- Potentially partnering with state programs that perform outreach and implementing projects that result in energy efficiency or demonstrate sustainability within the state.

3.1.3 *State Legislative Technical Support* - The Program will continue to support legislative requests for information or data on energy use, while providing feedback on the effectiveness on current laws or issues. Support will include technical evaluation of impacts and costs for energy legislation and evaluation of market potential and implementation methods.

3.1.4 *Federal Clean Energy Programs Support* - Hawaii Energy will explore the possibility of identifying Federal and State Grants that may be available for the pursuit of sustainability projects within the state. Connecting partner organizations with available grants and providing assistance with the grant writing process Hawaii Energy may expand sustainability programs and funding applied.

3.1.5 *Hawaii Clean Energy Initiative (HCEI) Collaboration and Support* - Hawaii Energy will consider support for internship programs that bridge organizational boundaries and facilitate development of energy efficiency programs within target groups. It will also continue direct support of HCEI activities, including active leadership in the HCEI Steering Committee, the HCEI Plenary Sessions and the End Use Efficiency Working Group (EUEWG).

3.2 Educational & Training Institution Support

Hawaii Energy will significantly expand its energy conservation and efficiency educational outreach and collaboration with formal educational and training institutions, grass-roots organizations, energy related professional groups, community organizations and media/public appearances. These programs will clearly have energy savings impacts in the long run that may not be easily measured in the short run.

3.2.1 *Educational & Training Institutional Support* – Hawaii Energy will provide an interface and query industry as to their staffing skill set needs to assist in tailoring existing energy training programs and energy auditor certifications at universities and community colleges. Funding, Internships and Grants will be offered for individuals with the focus on providing on-the-job training with a direct energy savings benefit for the state.

3.2.1.1 K-12 Institutions - Educational programs within the K – 12 institutions will work to teach students and teachers about sustainability, renewable energy resources and energy efficiency measures. Energy Club style programs will be encouraged with a focus on energy savings within the school and energy savings within homes from the surrounding neighborhood.

Hawaii Energy will leverage the knowledge and skills of organizations that already provide outreach to K-12 institutions. Through the program, they will train teachers as well as provide curriculum for teachers to use within

their classrooms. Organizations under consideration include the National Energy Education Development Project (NEED.org) and locally The Maui Economic Development Board (MEDB). These programs provide services that develop local trainers through "train the trainer" educational programs. Trainers will provide training for teachers. The organizations provide on-going "Help Line" support for the energy programs. Materials that support the curriculum will be available for use by K-12 students within the classrooms. In addition, the Program will promote clubs that work to achieve energy reductions within the schools and neighboring communities. Funding will be made available for grants in support of these programs.

3.2.1.2 University of Hawaii, Community Colleges and Private Institutions - Hawaii Energy will collaborate with State's universities and community colleges to support and enhance existing educational programs. Establishment of Certification and Accreditation programs for local individuals will be explored. The Certification and Accreditation programs will be pursued with an eye towards establishing them as beneficial to individuals nationwide and internationally. Involvement of individuals and organizations from outside of Hawaii will help to fill courses that may otherwise benefit a limited number of local participants. The mixture of backgrounds will help improve coursework and materials.

3.2.1.3 Department of Hawaiian Home Land (DHHL)

Hawaii Energy will collaborate with DHHL to support and enhance the existing education program about energy conservation, by working with people and organizations that can directly help Hawaiian homesteaders.

3.2.2 *Organizational Education and Direct-to-Consumer* – Hawaii Energy will increase and further develop partnerships with organizations dedicated to energy efficiency and conservation within the state. Through these partnerships, the Program will seek to extend the reach of these organizations. The Program will seek to promote 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. Examples include:

- *Grass Roots Organizations – Blue Planet, Kanu Hawaii, Kohala Center, Kupu, CNHA*
- *Professional Organizations – BOMA, ASHRAE, AIA, BIA, HHA, Rebuild Hawaii, HEPF*
- *Community – Neighborhood Boards, AOAOs & Faith-Based*
- *Small Business – Electric Utility rate schedule "G = general use"*
- *Consumer Manufacturers – Belkin, TrickleStar, Feit*

3.2.3 *Energy Resource Centers* - All programs will be pursued with a focus on long-term independence with the ideal program establishing itself without need for on-going financial support from Hawaii Energy. The program will work to engage organizations like the State of Hawaii Libraries, Business Development organizations or community resource groups to lend books, videos, testing equipment to the general public.

3.2.4 *Green Workforce Development & Training Support* - In the upcoming program year, additional emphasis will be placed on the development of a statewide focus on sustainability and efforts to reduce oil consumed within the state. Hawaii Energy will provide support in the form of participation, presentation and contribution to program initiatives. Hawaii Energy will participate in, sponsor and host events, throughout the state, that help to further achievement of Hawaii sustainability. Efforts may include:

- Providing businesses, organizations, unions with information and training materials to establish workplace conservation training programs.
- Providing training for the energy efficiency service sector which includes building operations and other certification training.
- Creating a State Energy Event that will invite large to small business and organization on energy saving educational program for the workforce and Hawaii's Visitor Industry.

4.0 RESIDENTIAL PROGRAM DETAILS FOR PY2011

Program Category	**4.0 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 11,114 kW Energy 68,077,920 kWh Incentive Budget $8,988,491 Cost per kWh $0.132 /kWh TRB $67,816,219
Technologies	**Incentivized Measures** — **Incentive Forecast** **Residential Energy Efficiency Measures** $7,731,438 **Custom Energy Solutions for the Home** $10,500 **Residential Energy Services & Maintenance** $597,500 **Residential Hard to Reach** $649,053 $8,988,491 • Solar Water Heating Systems $750 • Solar Water Heater Interest Buy Down $1,000 • Solar Water Heater Hero Giftpacks $25 • Heat Pumps $200 • CFL's $ 0.95 • LED $10 • Split System AC $110 • VRF Split System AC $200 • Ductless Split Systems $110 • Solar Attic Fans* $25 • Whole House Fans* $100 • Ceiling Fans $40 • Clothes Washers $75 • Refrigerator $50 • Refrigerator with Recycling* $125 • Garage Refrigerator/Freezer Bounty* $75 • Pool VFD Controller Pumps $150 • AC Tune Up $100 • Solar Water Heater Tune Up $100 • Room Occupancy Sensors $5 • Peer Group Comparison $14 • Whole House Energy Metering $100 *New or expanded measures

REEM

Program Category	**4.1 Residential Energy Efficiency Measures** **4.1.1 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 1,360 kW Energy 6,077,068 kWh Incentive Budget $2,997,500 (15%) Cost per kWh $0.493 /kWh TRB $14,571,983
Technologies	**Incentivized** — **Incentive** — **Units** • Solar Water Heater (SWH) Incentive — $750 — 2,500 • Solar Water Heater Interest Buydown — $1,000 — 1,100 • Solar Water Heater Energy Hero Gift Packs — $25 — 100 • Heat Pumps — $200 — 100 **Under Review for Potential Incentives** • Waste heat recovery from HVAC system • Peak demand reduction timers for water heater (The following Solar Water Heater Systems are included in the plan under the Landlord/Tenant, AOAO Measures. See section 4.4.2) • Tiered/Split Incentives — $1,200 — 100 • Townhome Targeted — $1,500 — 100 ***Total Solar Water Heating Systems*** — ***$2,997,500*** — ***4,000*** 36% of Residential Budget
Market Barriers	**General** • Trust and credibility of technology providers • Quality of system design, equipment and installation • Knowledge operation and maintenances of technologies • Large up-front cost **Owner Occupant** • Access to and/or understanding of financial options • Time between purchase and tax refunds (carrying cost) **Landlords and Property Managers** • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the hot water system • Renter lease term shorter than simple payback

Description & Implementation Strategies	**Solar Water Heating** *Solar Water Heater (SWH) Incentive* The program will provide a $750 rebate for solar hot water systems installed by qualified contractors. The process is: • Customers contact a contractor from a list of participating contractors on Hawaii Energy's website • Contractor comes to the home, reviews site conditions, interviews the customer to analyze the hot water usage and then provides a written proposal for complete installation; Contractor's proposed sale price reflects the inclusion of the $750 rebate • Contractor fills out the Program's system sizing form • Contractor provides rebate form and helps customer to fill it out • Contractor provides Hawaii Energy with building permit number • Contractor installs solar water heating system • Contractor reviews system operation and maintenance with customer • Hawaii Energy will conduct 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 will provide an incentive that will buy down the interest charges for a solar water heater loan from a participating lending institution made on solar hot water systems that are installed by qualified contractors. This incentive will cover the first 6 points of the loan interest up to a total maximum of $1,000. The 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

Description & Implementation Strategies (cont'd)	**Heat Pumps** Residential heat pump rebates are available at $150. Rebate applications for water heaters are provided by the retailers at the time of purchase or a customer can visit our website and download the form. Rebate applications must include an original purchase receipt showing brand and model number. **Trade Allies** The program will conduct outreach with key allies including the Solar Technical Advisory Group, solar contractors, suppliers, government and housing agencies; financial institutions; and housing, apartment, and contractor associations. This team will promote the program, solicit feedback for more efficient program operation, and identify opportunities for implementation and coordination of efforts. The program currently inspects 100% of all solar systems in Maui and Hawaii Counties and 25% of systems on Oahu.
Key Changes	• Contractor or customers may request the inspection if one is not selected to be done • Work to require systems to incorporate backup element active light warning system • Leveraged loan interest buy down incentive • Recognizing the growing product availability and sales efforts regarding residential heat pumps, increase educational efforts
Marketing Strategies	• Direct contact with participating solar contractors • Community event promotion of High Efficiency Water Heating • Utility bill stuffers • Listing of participating contractors on our website • Print advertising and Social media

REEM Cont.

Program Category	**4.1 Residential Energy Efficiency Measures** **4.1.2 High Efficiency Lighting**
Target Market	• Homeowners, Landlords, Tenants, and Property Managers • Manufacturers, Distributors, Dealers, and Retailers
Impacts	Demand 7,135 kW Energy 48,009,618 kWh Incentive Budget $2,795,238 (14%) Cost per kWh $0.058 /kWh TRB $39,857,797
Technologies	**Incentive** / **Units** • CFL's $0.95 1,615,971 • LED $10.00 125,000 • Daylighting $75.00 100
Market Barriers	**General** • Lack of understanding about how energy is used in the home • Lack of information about product energy efficiency • Lack of understanding as to which technology is the most effective to reduce energy consumption • Product availability of specialty and dimmable CFLs within the customer shopping area **Owner Occupant** • Ability to self-install • Ability to find appropriate CFLs for fixture or ceiling fan • Disposal concerns • May not pay for electricity cost (condominiums) **Landlords and Property Managers** • No control over the hours used for lighting • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the lighting fixtures • May not pay for electricity

Description & Implementation Strategies	The CFL rebates will be offered using 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, and coupons for instant rebates for the CFLs to customers • Retailers signing the MOU agree to display signage showing the rebate has been provided by the Program, provide assistance in ordering and stocking qualifying products, and provide sales staff training • Retailers agree to promote consumer education, undergo staff training and follow proper coupon redemption procedures. • Retailers with the ability to track incentives using sales data are given the option for issuing rebates without the use of coupons, provided they can demonstrate the ability of providing accurate, timely data on point of purchase information by store by SKU **Trade Allies** The program is implemented through strong working relationships between the program, the major CFL manufacturers, and the national retailers. The participating CFL manufacturers are: GE, FEIT, Sylvania, TCP and Philips. The participating national retailers are: COSTCO, Sam's Club, Home Depot and Walmart who have all utilized their buying power to offer a better blend of quality, affordable CFLs across the State.
Key Changes	• Start reducing the incentive levels for CFLs. • Provide for increased recycling options for CFLs.
Marketing Strategies	• Advertisements to explain how to select a CFL • Educational information online and in the media • Leverage allies to share CFL information and increase participation • Encourage an increase in selection of CFLs available • Social media

Program Category	**4.1 Residential Energy Efficiency Measures** **4.1.3 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 163 kW Energy 856,023 kWh Incentive Budget $177,300 (1%) Cost per kWh $0.207 /kWh TRB $1,461,146
Technologies	**Incentive / Units** • Split System AC — $110 — 180 • VRF Split System AC — $200 — 500 • Ceiling Fans — $40 — 1,000 • Whole House — $100 — 125 • Solar Attic Fans — $25 — 200
Market Barriers	**General** • Lack of understanding of how energy is used in the home • Lack of information about product energy efficiency • Lack of understanding as to which are the most effective ways to reduce energy consumption **Owner Occupant** • Inability to self install • Existing air conditioning opening prevents the proper selection for energy savings • Home owner association rules **Landlords and Property Managers** • No control over the hours used for air condition. • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the HVAC system • May not pay for electricity

REEM Cont.

Description & Implementation Strategies	The program will continue to provide prescriptive incentives to residential customers who purchase and install energy efficiency measures that meet or exceed ENERGY STAR® standards. The process includes: • The customer purchases a qualified high efficiency air conditioner. • The customer obtains an application through the program's website, in hard copy from Hawaii Energy, or through point of sale retailer displays. **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	• Encourage variable refrigerant flow (VRF) inverter split system units • Addition of solar attic fans and whole house fans rebates
Marketing Strategies	• Provide cost of ownership information on rebate application forms Provide more information on the website explaining how to properly use HVAC systems • Advertise to explain how to select an HVAC system • Find organizations to assist with HVAC outreach • Add advertisements to utility bills • Social media

Program Category	**4.1 Residential Energy Efficiency Measures** **4.1.4 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 395 kW Energy 4,891,952 kWh Incentive Budget $1,262,500 (6%) Cost per kWh $0.258 /kWh TRB $6,394,664
Technologies	**Incentive / Units** • Refrigerator $50 6,400 • Refrigerator with Recycling $125 2,500 • Garage Refrigerator/Freezer Bounty $75 1,800 • Clothes Washer $75 6,200 • Pool VFD Controller Pumps $150 200
Market Barriers	**General** • Lack of understanding of how energy is used in the home • Lack of information about energy efficient products • Lack of understanding as to which are the most effective ways to reduce energy consumption • Lack of understanding of the importance of size and operation for energy savings • Large up-front cost • Ease of receiving a rebate **Owner Occupant** • Ability to self install • Home owner association rules • Availability of product when needed **Landlords and Property Managers** • No control over the hours of use • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the appliances • May not pay for electricity

REEM Cont.

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

REEM Cont.

Program Category	**4.1 Residential Energy Efficiency Measures** **4.1.5 Energy Awareness, Measurement and Control Systems**
Target Market	**General** • Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers **Residential Energy Awareness and Action Competitions** • Public-Private Military Housing • Faith-Based Community Groups • Neighborhood Community Associations
Impacts	Demand 1,215 kW Energy 3,815,057 kWh Incentive Budget $498,900 (2%) Cost per kWh $0.131 /kWh TRB $785,907
Technologies	Room Occupancy Sensor $5 300 Units Peer Group Comparisons $14 30,000 Homes Whole House Energy Metering Pilot $100 774 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 OPOWER program we have piloted with our ARRA funds as well as Hawaii Energy has been working with BPF over PY10 to launch our own variations of the peer comparison strategy for other peer groups (Office Buildings, Hotels, Community Groups, Etc.). This process will use data mining among commercial and residential customers. 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 wirelessly transmit the information to a display unit which can be carried anywhere throughout the house. **Implementation** The program will be implemented through strong working relationships between the program and the major manufacturers of occupancy sensors. As well as encourage national retailers to utilize their buying power to offer quality, affordable sensors across the State.
Key Changes	• Addition of Real-Time Metering Loan/Purchase
Marketing Strategies	• Provide POP signage and information • Provide cost of ownership information on rebate application forms and benefits of ownership on our website

CESH

Program Category	**4.2 Custom Energy Solutions for the Home** **4.2.1 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 - kW Energy 28,284 kWh Incentive Budget $10,500 (<1%) Cost per kWh $0.371 /kWh TRB $13,329
Technologies	**Incentive** **Units** Custom Packaged Proposals $0.30 35,000 kWh
Market Barriers	There were previously no mechanism 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

RESM

Program Category	**4.3 Residential Energy Services & Maintenance** **4.3.1 Residential Direct Installation**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers. • Mechanical and Solar Service Contractors
Impacts	Demand 4 kW Energy 27,508 kWh Incentive Budget $72,500 (<1%) Cost per kWh $2.64 /kWh TRB $22,137
Technologies	**Incentive** / **Units** Real-Time Metering $750 80 Homes TBD $0.50 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. **Real-Time Metering** This program will be implemented to target residential properties that can influence the energy usage. A whole house meter will be installed by either a grassroots organization or a participating electrical contractor. **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

RESM Cont.

Program Category	**4.3 Residential Energy Services & Maintenance** **4.3.2 Residential Design and Audits**
Target Market	• Residential Home Developers
Impacts	Demand 139 kW Energy 809,726 kWh Incentive Budget $450,000 (2%) Cost per kWh $0.556 /kWh TRB $1,367,040
Technologies	**Incentive** / **Units** Efficiency Inside Home Design $1,000 400 Homes Tradewind Design (minimal A/C) $2,000 10 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 they are not designed with A/C • Prior prescriptive components were not typically developer installed.
Description & Implementation Strategies	• The program will hold military home developments to the same Code Standards and State Laws as private developers are held to. • Based on the use of computer energy modeling programs to compare a code-built home to the developer's home design offerings • Modeling allows the developer maximum flexibility in designing their homes and dovetail with the existing federal tax credits and Energy Star programs • Encourage interaction with the developer to maximize utilization of incentives through comparing model scenarios • Allow a limited number of developer constructed net-zero homes with PV systems to be considered as an efficiency measure.

RESM Cont.

Key Changes	• Elimination of prescriptive measure packages in favor of the use of energy models to make comparisons between enhanced and energy code compliant designs.
Marketing Strategies	• Direct contact with home developers and the BIA • Promotion of the participating developers in trade-publications such as the BIA, Parade of Homes, and Hawaii Home Remodeling and Design • Recognition of the awardees and description of the changes made to the homes on the Hawaii Energy website • Energy Hero Awards to be placed in the model homes and available for use in the developer's marketing materials

RESM Cont.

Program Category	**4.3 Residential Energy Services & Maintenance** **4.3.3 Residential System Tune-Ups**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers • Mechanical and Solar Service Contractors
Impacts	Demand 198 kW Energy 688,712 kWh Incentive Budget $75,000 (<1%) Cost per kWh $0.109 /kWh TRB $536,114
Technologies	**Incentive** **Units** AC Annual Tune-Up $100 250 Tune-Ups Solar Water Heater Tune-Up $100 500 Tune-Ups
Market Barriers	**General** • Awareness of need for maintenance • Resistance to engage unknown contractors
Description & Implementation Strategies	Home AC Annual Tune-up and Solar Water Heater Tune-up • Demonstrate the benefits of tune-ups • Educate customer of potential savings and system longevity • Utilize the participating contractors to contact the customers and have them arrange for the service work • Participating contractors will use the Hawaii Energy Checklist to inspect and record the pre and post conditions • Participating contractor's invoice must show that checklist requirements have been met and signed by the servicing technician • Customers can have two incentives per location annually
Key Changes	• Split Systems addition to central systems for AC tune-up
Marketing Strategies	• Direct contact with Mechanical and Solar Contractors • Provide POP signage and information • Distribute educational materials at community events, neighborhood board meetings and homeowners association meetings • Provide cost of ownership information on rebate application forms and benefits of ownership on our website

RHTR

Program Category	**4.4 Residential Hard to Reach** **4.4.1 Energy Efficiency Equipment Grants**
Target Market	• Low income, physically isolated and underserved Residential Markets
Impacts	Demand 431 kW Energy 2,535,849 kWh Incentive Budget $377,750 (2%) Cost per kWh $0.149 /kWh TRB $2,007,602
Technologies	**Incentive** / **Units** Solar Inspections (WAP) $95 450 Inspections Energy Hero Gift Packs $40 2,000 Packs CFL Exchange $3 60,000 Lamps Hawaii Energy Hero Audits $100 750 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
Key Changes	• Increased focus and penetration of direct install and educational outreach
Marketing Strategies	• Continue to target low-income and hard-to-reach customers through existing state and local agencies who service the needs of low income families • Develop working relationships with more community action and similar local groups to increase market penetration

RHTR Cont.

Program Category	**4.4 Residential Hard to Reach** **4.4.2 Landlord/Tenant, AOAO Measures**
Target Market	• Associations of Apartment Owners • Landlord/Tenants
Impacts	Demand 75 kW Energy 338,123 kWh Incentive Budget $271,303 (1%) Cost per kWh $0.802 /kWh TRB $811,829
Technologies	**Incentive** / **Units** Hawaii Energy Hero Landlord $0.25 5,212 kWh Tiered/Split Incentives $1,200 100 SWH Systems Townhome Targeted $1,500 100SWH Systems
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. • Tiered and/or Split Incentives – The program will develop a trial tiered and/or split incentive to attract renters and/or landlords to consider solar water heating. The very fact that there is a "better deal" will bring energy conscious renters and landlords to the table. • Townhome Targeted Programs – Townhomes are prime candidates for Solar Water Heaters with high unit density, low-rise construction and dedicated roofs over the individual units. This market has its challenges that have prevented high penetration of solar watering heating. The PBFA will develop programs targeted at addressing the challenges such as renter/owner, AOAO approvals, and cost effectiveness of sales for contractors etc. These will include developing RFPs for entire building units to lower costs ("Groupon" model), participation in energy education at neighbor meetings using peer group comparisons (OPOWER model), work with financing institutions to bring lenders to the neighborhood, and submetering assistance where master meters are in place.

RHTR Cont.

RHTR Cont.

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 • Utility bill stuffers • Listing of participating contractors on our website • Print advertising and Social media

5.0 BUSINESS PROGRAM DETAILS FOR PY2011

Program Category	**5.0 All Business Programs** **Overview of All Business Programs**
Target Markets	**Competitive Commercial** o Office Buildings o Retail **Governmental** o State o City o Federal **Industrial Sector** o Warehousing o Cold Storage o Water Pumping **Multi-Site** o Convenience Stores o Restaurants **High Load Factor Customers** o Hospitals o Hotels o Super Markets o Data Centers
Projected Impacts	Demand 7,317 kW Energy 47,911,417 kWh Incentive Budget $ 10,985,933 Cost per kWh $0.229 /kWh TRB $60,787,173
Incentives	**Measure Categories** — **Incentives** 5.1 Business Energy Efficiency Measures $ 5,697,100 5.2 Custom Business Energy Efficiency Measures $ 1,459,833 5.3 Business Service and Maintenance $ 3,027,000 5.4 Business Hard to Reach $ 802,000 $ 10,985,933

Market Barriers	**General** • Lack of familiarity with availability of energy efficient technology • Trust and creditability of technology providers • Unaware of business benefits of reducing exposure to cost of energy changes • High initial up-front cost • Life Cycle Cost vs. Simple Payback decision analysis • Need for a cash positive investment • Access to and/or understanding of financial options • Lack of knowledge of operation and maintenance of technologies **Landlords and Property Managers** • May not pay for electricity cost • Reluctance to invest without a financial return • 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
Program Description & Implementation Strategies	**Technology Based Categories** **High Efficiency Lighting, HVAC Water Heating Water Pumping Motors Building Envelope Improvements, Energy Star Business Equipment** The technology based incentives are provided for energy efficiency products that provide reliable energy savings for a wide array of customers. These incentives are developed to be based on fixed amounts per technology with performance adjustments to reflect the savings potential to ensure program cost-effectiveness set based on expected savings. Measures are selected and reviewed to determine that the energy savings can be reliably deemed, or calculated using simple threshold criteria. The implementation process includes: • Program performs outreach and promotions to inform customers of incentive opportunities. • Customer selects and approves purchase and installation of energy efficiency measures • Customer sends in completed application forms with scheduling and supporting documentation • Customer provides evidence of installation and/or program will verify the installation • Hawaii Energy processes the incentive on approved applications on an as-funds available basis

Program Description & Implementation Strategies Cont.	**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 • Eliminate incentives for standard 32W T8 to promote low-wattage 25/28W T8s • Start prescriptive for LED items that achieve ENERGY STAR status.
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.

BEEM

Program Category	**5.1 Business Energy Efficiency Measures** **BEEM Programs Overview**

Projected Impacts

Demand	5,174	kW
Energy	37,757,387	kWh
Incentive Budget	$ 5,697,100	(24%)
Cost per kWh	$0.151	/kWh
TRB	$48,747,183	

Incentives

	Incentives
High Efficiency Lighting	$3,371,100
High Efficiency HVAC	$1,675,500
High Efficiency Water Heating	$8,250
High Efficiency Water Pumping	$167,700
High Efficiency Motors	$10,800
Commercial Industrial Processes	$82,500
Building Envelope Improvements	$100,000
Energy Star Business Equipment	$93,750
Energy Awareness, Measurement and Control Systems	$187,500

BEEM

Program Category	5.1 Business Energy Efficiency Measures 5.1.1 High Efficiency Lighting

Projected Impacts

Demand	3,309	kW
Energy	27,977,188	kWh
Incentive Budget	$ 3,371,100	(17%)
Cost per kWh	$0.120	/kWh
TRB	$31,097,476	

Incentives

	Incentive	Units	
CFL	$5.00	47,000	Lamps
T12 to T8 (2&3 foot lamps)	$6.00	10,000	Lamps
T12 to T8 Low Wattage	$15.00	100,000	Lamps
T8 to T8 Low Wattage	$7.50	110,000	Lamps
Delamp	$7.50	5,000	Lamps Removed
Delamp/Reflector	$15.00	16,000	Lamps Removed
LED Refrigerated Case Light	$35.00	5,000	Lamps
LED	$35.00	1,200	Lamps
LED Exit Signs	$37.50	1,000	Signs
HID Pulse Start	$60.00	1,200	Lamps
Induction	$60.00	750	Lamps
Sensors	$20.00	5,000	Sensors
Daylighting	$0.140	15,000	kWh

BEEM Cont.

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.2 High Efficiency HVAC**
Projected Impacts	Demand 1,451 kW Energy 6,555,510 kWh Incentive Budget $ 1,675,500 (4%) Cost per kWh $0.256 /kWh TRB $13,285,569

Incentives

	Incentive	Units	
Chillers	$50	9,000	Tons
VFD – HVAC Pump Applications	$80	750	hp
VFD – HVAC Fan Applications	$50	1,000	hp
Garage Active Ventilation Control	$45	900	hp
Package Units	$150	3,000	Tons
VFR Split Systems	$250	2,500	Tons

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.2 High Efficiency HVAC** **5.1.2.1 Chillers**
Projected Impacts	Demand 400 kW Energy 1,947,707 kWh Incentive Budget $ 450,000 (2%) Cost per kWh $0.23 /kWh TRB $4,532,517
Incentives	**Incentive** **Units** Chillers $50 9,000 Tons
Program 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 efficent than older machines. Much of the savings is at part-load conditions where chillers operate the majority of the time. TARGET AUDIENCE Who – Property Managers, Facilities Directors, Chief Engineers and Governmental Facilities Departments What – Large Commercial facilities INCENTIVE & TARGETED ECONOMICS The chiller incentive provides a base incentive of $20 per ton to be at 15% over IECC 2006 efficiency levels and a kicker of $250 per kW/ton for exceeding the efficiecy It is the intention that the incentive provide 100% of the cost premium to achieve these high effiency 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	**5.1 Business Energy Efficiency Measures** **5.1.2 High Efficiency HVAC** **5.1.2.2 VFD – HVAC Pump Applications** **5.1.2.3 VFD – HVAC Fan Applications**
Projected Impacts	Demand 374 kW Energy 1,380,252 kWh Incentive Budget $ 110,000 (<1%) Cost per kWh $0.08 /kWh TRB $3,017,976
Incentives	**Incentive** **Units** VFD – HVAC Pump Applications $80 750 hp VFD – HVAC Fan Applications $50 1,000 hp
Program 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. 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. • HP per motor • Motor quantity

Program Description & Implementation Strategies Cont.	**5.1 Business Energy Efficiency Measures** **5.1.2 High Efficiency HVAC** **5.1.2.2 VFD – HVAC Pump Applications** **5.1.2.3 VFD – Fan Applications** COMPLEMENTARY PROGRAMS • High Efficiency HVAC • Customized Project Measures • Central Plant Optimization

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.2 High Efficiency HVAC** **5.1.2.4 Garage Active Ventilation Control**

Projected Impacts

Demand	255	kW
Energy	436,379	kWh
Incentive Budget	$ 40,500	(<1%)
Cost per kWh	$0.09	/kWh
TRB	$915,245	

Incentives

	Incentive	Units	
Garage Active Ventilation Control	$45	900	hp

Program 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 offering of a prescribed $45 per fan hp controlled incentive.

This level of incentive should move the projects from 2 year to 1.5 year paybacks by providing 15-20% of the project cost.

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	**5.1 Business Energy Efficiency Measures** **5.1.2 High Efficiency HVAC** **5.1.2.5 Package Units**
Projected Impacts	Demand 230 kW Energy 1,367,080 kWh Incentive Budget $ 450,000 (<1%) Cost per kWh $0.33 /kWh TRB $2,451,110
Incentives	**Incentive** **Units** Package Units $150 3,000 Tons
Program 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	**5.1 Business Energy Efficiency Measures** **5.1.2 High Efficiency HVAC** **5.1.2.6 VRF Split Systems**
Projected Impacts	Demand 192 kW Energy 1,324,092 kWh Incentive Budget $ 625,000 (<1%) Cost per kWh $0.44 /kWh TRB $2,368,721
Incentives	**Incentive** **Units** VFR Split Systems $250 2,500 Tons
Program 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. 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

BEEM Cont.

Program Category	5.1 Business Energy Efficiency Measures 5.1.3 High Efficiency Water Heating		
Projected Impacts	Demand	3	kW
	Energy	26,264	kWh
	Incentive Budget	$ 8,250	(<1%)
	Cost per kWh	$0.314	/kWh
	TRB	$37,147	

Incentives	**Incentive**	**Units**
Commercial Solar Water Heaters	$50	5,000 BTU's
Heat Pumps	$65	50 Tons

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.3 High Efficiency Water Heating** **5.1.3.1 Commercial Solar Water Heaters**
Projected Impacts	Demand 2 kW Energy 10,101 kWh Incentive Budget $ 5,000 (<1%) Cost per kWh $0.49 /kWh TRB $19,337
Incentives	**Incentive** **Units** Commercial Solar Water Heaters $50 5,000 BTU's
Program 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 $50 / 5,000 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 $0.49/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. 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.

BEEM Cont.

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.3 High Efficiency Water Heating** **5.1.3.2 Heat Pumps**
Projected Impacts	Demand 1 kW Energy 16,162 kWh Incentive Budget $ 3,250 (<1%) Cost per kWh $0.20 /kWh TRB $17,811
Incentives	**Incentive** **Units** Heat Pumps $65 50 Tons
Program 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 efficienct when used to supplement the heat rejection from chilled water return loops and condenser water systems to heat a facilitie's 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 $65 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. This level of incentive will lower the payback for the system the

BEEM Cont.

Program Description & Implementation Strategies Cont.	**5.1 Business Energy Efficiency Measures** **5.1.3 High Efficiency Water Heating** **5.1.3.2 Heat Pumps** 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 inspection s COMPLEMENTARY PROGRAMS • Water saving showerheads, spray-rinse valves, and fixtures. • VFD Pool Pump Packages

BEEM Cont.

Program Category	5.1 Business Energy Efficiency Measures 5.1.4 High Efficiency Water Pumping - Summary of Programs
Projected Impacts	Demand 118 kW Energy 1,058,808 kWh Incentive Budget $ 167,700 (1%) Cost per kWh $0.158 /kWh TRB $1,664,768
Incentives	VFD Dom. Water Booster Packages – VFD **Incentive/Unit** $3,000 14 each VFD Dom. Water Booster Packages – added HP Reduction **Incentive/Unit** $80 40 hp reduced VFD Pool Pump Packages **Incentive/Unit** $350 350 hp

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.4 High Efficiency Water Pumping** **5.1.4.1 VFD Dom. Water Booster Packages – VFD** **5.1.4.2 VFD Dom. Water Booster Packages – added HP Reduction**
Projected Impacts	Demand 34 kW Energy 320,464 kWh Incentive Budget $ 45,200 (<1%) Cost per kWh $0.14 /kWh TRB $495,218
Incentives	VFD Dom. Water Booster Packages – VFD **Incentive/Unit** $3,000 /system 14 each VFD Dom. Water Booster Packages – added HP Reduction **Incentive/Unit** $80 40 hp reduced
Program 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 $3,000 The incentive is targeted to achieve a 10 to 15% reduction in the system cost. All pump motors must meet NEMA Premium Efficiency standards.

Program Description & Implementation Strategies Cont.

5.1 Business Energy Efficiency Measures

5.1.4 High Efficiency Water Pumping

5.1.4.1 VFD Dom. Water Booster Packages – VFD

5.1.4.2 VFD Dom. Water Booster Packages – added HP Reduction

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.

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 NEMA 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	**5.1 Business Energy Efficiency Measures** **5.1.4 High Efficiency Water Pumping** **5.1.4.3 VFD Pool Pump Packages**
Projected Impacts	Demand 84 kW Energy 738,344 kWh Incentive Budget $ 122,500 (<1%) Cost per kWh $0.17 /kWh TRB $1,169,549
Incentives	VFD Pool Pump Packages **Incentive/Unit** $350 350 hp
Program 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	**5.1 Business Energy Efficiency Measures** **5.1.5 High Efficiency Motors** **5.1.5.1 CEE Premium Efficiency Motors**
Projected Impacts	Demand 10 kW Energy 58,329 kWh Incentive Budget $ 10,800 (<1%) Cost per kWh $0.185 /kWh TRB $105,949
Incentives	NEMA Premium Efficiency Motors — Incentive: $6 — Unit: 1,800 HP
Program Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY 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 opertational hours and are often out of sight and mind until they fail. 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 Commercial INCENTIVE & TARGETED ECONOMICS This year we will be transitioning to the new June 2011 CEE Premium Efficiency Specification. 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. The current $6/hp incentive will be transformed with the intention to eliminate the cost premium for the listed CEE Premium efficiency motors. 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

BEEM Cont.

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.6 Commercial Industrial Processes – Summary of Programs**
Projected Impacts	Demand 61 kW Energy 303,041 kWh Incentive Budget $ 82,500 (<1%) Cost per kWh $0.272 /kWh TRB $451,021
Incentives	Waste Water $0.10 /kWh 50,000 kWh Compressed Air $0.10 /kWh 75,000 kWh Commercial Kitchen Equipment $0.28 /kWh 250,000 kWh

BEEM Cont.

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.6 Commercial Industrial Processes** **5.1.6.1 - Waste Water Process Improvements**
Projected Impacts	Demand 8 kW Energy 40,406 kWh Incentive Budget $ 5,000 (<1%) Cost per kWh $0.12 /kWh TRB $77,346
Incentives	**Incentive** **Unit** Waste Water Process Improvements $0.10 /kWh 50,000 kWh
Program 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 develop by direct discussions with the effected customers. COMPLEMENTARY PROGRAMS • Target Cost per kWh Request for Proposals • Air Compressor Technologies and Operations

BEEM Cont.

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.6 Commercial Industrial Processes** **5.1.6.2 - Air Compressor Technologies and Operations**
Projected Impacts	Demand 12 kW Energy 60,608 kWh Incentive Budget $ 7,500 (<1%) Cost per kWh $0.12 /kWh TRB $86,233
Incentives	**Incentive** **Unit** **Air Compressor Tech. and Ops.** $0.10 /kWh 75,000 kWh
Program 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

BEEM Cont.

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.6 Commercial Industrial Processes** **5.1.6.3 - Commercial Kitchen Equipment**
Projected Impacts	Demand 40 kW Energy 202,028 kWh Incentive Budget $ 70,000 (<1%) Cost per kWh $0.35 /kWh TRB $287,442
Incentives	**Incentive** **Unit** Commercial Kitchen Equipment $0.28 /kWh 250,000 kWh
Program 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 TBD 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

BEEM Cont.

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.7 Building Envelope Improvements**		
Projected Impacts	Demand	81	kW
	Energy	395,974	kWh
	Incentive Budget	$ 100,000	(1%)
	Cost per kWh	$0.253	/kWh
	TRB	$567,995	
Incentives		**Incentive**	**Unit**
	Window Tinting	$1/sq.ft.	50,000 sq.ft.
	Cool Roof Technologies	$1/sq.ft	50,000 sq.ft.

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.7 Building Envelope Improvements** **5.1.7.1 Window Tinting**
Projected Impacts	Demand 40 kW Energy 355,568 kWh Incentive Budget $ 50,000 (<1%) Cost per kWh $0.14 /kWh TRB $418,335
Incentives	**Incentive** **Unit** Window Tinting $1/sq.ft. 50,000 sq.ft.
Program 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) < 0.34. • *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.

BEEM Cont.

Program Description & Implementation Strategies Cont.	**5.1 Business Energy Efficiency Measures** **5.1.7 Building Envelope Improvements** **5.1.7.1 Window Tinting** 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	**5.1 Business Energy Efficiency Measures** **5.1.7 Building Envelope Improvements** **5.1.7.1 Cool Roof Technologies**
Projected Impacts	Demand 40 kW Energy 40,406 kWh Incentive Budget $ 50,000 (<1%) Cost per kWh $1.24 /kWh TRB $149,660
Incentives	**Incentive** **Unit** Cool Roof Technologies $1/sq.ft 50,000 sq.ft.
Program 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 $1 / 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 Description & Implementation Strategies Cont.	**5.1 Business Energy Efficiency Measures** **5.1.7 Building Envelope Improvements** **5.1.7.1 Cool Roof Technologies** APPLICATION PROCESS 1. A prescriptive worksheet will be competed and submitted for review • Square footage of Roofing • HVAC system Information • Site Layout 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 • Window Tinting

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.8 Energy Star Business Equipment** **5.1.8.1 Energy Star Refrigerators w/Recycling**
Projected Impacts	Demand 21 kW Energy 498,200 kWh Incentive Budget $ 93,750 (<1%) Cost per kWh $0.188 /kWh TRB $619,692
Incentives	**Incentive** **Unit** Energy Star Refrigerators w/Recycling $125/unit 750 units
Program Description & Implementation Strategies	ENERGY REDUCTION OPPORTUNITY There is a 32 to 62% energy reduction opportunity in the replacement of the "old" office refridgerator 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 3. A retailer submitted application and recycling verification worksheet. • Unit size, model, • Confirmation of Pickup and Recycling. • Unit location description 4. A sample of sites will have post inspections COMPLEMENTARY PROGRAMS • High Efficiency HVAC and Lighting Measures

BEEM Cont.

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.9 Energy Awareness, Measurement and Control Systems**			
Projected Impacts	Demand	121	kW	
	Energy	884,072	kWh	
	Incentive Budget	$ 187,500	(1%)	
	Cost per kWh	$0.212	/kWh	
	TRB	$917,566		
Incentives		**Incentive**	**Unit**	
	Condominium Submetering	$150	1,000	units metered
	Small Business Submetering	$150	250	units metered

BEEM Cont.

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.9 Energy Awareness, Measurement and Control Systems** **5.1.9.1 Condominium Submetering**
Projected Impacts	Demand 105 kW Energy 762,856 kWh Incentive Budget $ 150,000 (1%) Cost per kWh $0.2 /kWh TRB $792,844
Incentives	Condominium Submetering — Incentive: $150 — Unit: 1,000 units metered
Program Description & Implementation Strategies	**Condominium Submetering** • Association of Apartment Owners (AOAO) ongoing efforts to reduce energy consumption and support the current submetering proposal as one that will insure both fairness in allocating energy costs as well as encouraging energy conservation through direct feedback of personal energy use to the tenants. • Combining the submetering program with education and audits as proposed will complete developing the tenant's newfound desire for energy conservation with the how to achieve it. • $150 per unit metered, payable to the AOAO for distribution to owners on a percentage of ownership basis to comply with condo regulations. • The payment of the incentive will be based on AOAO securing the approval, installing and utilizing the submeters for billing purposes as well as participating in the actions proposed below. • It is expected there will be at least 10% reduction in energy use, however, there is no minimum reduction in electrical use to be required by AOAO to retain the incentive. • We do require that the system remain in place and billing to occur for a period of at least five years or a pro-rated portion of the incentive will be recovered by Hawaii Energy. • A joint educational and monitoring program will be undertaken with AOAO to assist in the verification of savings and development of an ongoing energy incentive offering for other condominiums in Hawaii.

Program Description & Implementation Strategies Cont.

5.1 Business Energy Efficiency Measures

5.1.9 Energy Awareness, Measurement and Control Systems

5.1.9.1 Condominium Submetering

- Components of the Pilot Program:
  - Physical verification review of meters serving the building.
  - AOAO to provide two months of individual data collection after meter installation when providing tenants with mock billing data prior to actual billing.
  - Tenant participation in paper Energy Audit survey.
  - Identification of top and bottom 5 energy users. Hawaii Energy will perform on-site energy audits that may include metering of AC and Appliances.
  - AOAO to host Tenant Energy Education meetings presented by Hawaii Energy (Second month of mock billing).
  - CFL Special Purchase program in second month of mock billings (details to be determined).
  - Smart Strip Special Purchase program in second month of mock billings (details to be determined).
  - Energy Star Appliance Special Purchase program (details to be determined).
  - AOAO to provide building and/or unit domestic water usage information.
  - Building to perform solicitation of Common area lighting audit/proposal with Hawaii energy assistance.
  - Building to perform solicitation of Central Air Conditioning / Condenser water system audit/proposal with Hawaii energy assistance.
  - Building to perform solicitation for Domestic Water Pumping review audit/proposal with Hawaii Energy assistance.
  - Building to perform solicitation for Domestic Water Heating review audit/proposal with Hawaii Energy assistance.

Program Category	**5.1 Business Energy Efficiency Measures** **5.1.9 Energy Awareness, Measurement and Control Systems** **5.1.9.2 Small Business Submetering**
Projected Impacts	Demand 16 kW Energy 121,217 kWh Incentive Budget $ 37,500 (<1%) Cost per kWh $0.31 /kWh TRB $124,721
Incentives	Small Business Submetering — Incentive: $150 — Unit: 250 units metered
Program Description & Implementation Strategies	**Small Business Submetering** • 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 2011 Programs.

CBEEM

Program Category	5.2 Custom Business Energy Efficiency Measures Customized Programs Overview

Projected Impacts

Demand	1,058	kW
Energy	4,302,057	kWh
Incentive Budget	$1,459,833	(7%)
Cost per kWh	$0.339	/kWh
TRB	$6,685,466	

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	$.12	2,123,601 kWh
Customized Project Measures – ARRA	$.40	2,450,002 kWh
Target Cost Request for Proposals	$.30	750.000 kWh

CBEEM Cont.

Program Category	**5.2 Custom Business Energy Efficiency Measures** **5.2.1 Customized Project Measures** **5.2.1.1 Customized Project Measures**
Projected Impacts	Demand 343 kW Energy 1,716,104 kWh Incentive Budget $254,832 (1%) Cost per kWh $0.15 /kWh TRB $2,441,651
Incentives	Customized Project Measures — Incentive: $0.12 — Units: 2,123,601 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
Program Description & Implementation Strategies	**Customized Application Process** This program will provide a custom application and granting process for participants to receive incentives for installing non-standard energy efficiency technologies. The intent of this structure is to enable customers to invest in energy efficiency processes and technology measures that may require calculations of energy savings for specific, unique applications. Incentive awards will be based on calculated savings that ensure program cost-effectiveness. The process includes: • Program performs outreach and promotions to inform customers of incentive opportunities • Customer learns about the program offerings through various channels • Customer may call the program to request assistance. Customer or his agent must submit a brief proposal that describes the project and includes estimates of energy savings and payback

Program Description & Implementation Strategies

- Engineering calculations are required and may be reviewed either internally or with a third-party engineering firm
- Program provide feedback on the project to clairify if needed
- Program provides pre-inspection and/or arranges for pre-metering of existing equipment if required
- Customers select and approve purchase and installation of energy efficiency measures

Customized Project Criteria

- Payback of greater than one year 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
- LED Traffic Lights and Exterior Lighting
- Advanced Energy Management Controls
- Variable Refrigerant Flow Air Conditioning
- High Performance Commercial Lighting
- Bi-Level Stairwell and Parking Garage Lighting
- EC Motors and Controllers

CBEEM Cont.

Key Changes

Tiered Incentives by Payback

- Projects that have longer life measures often have longer paybacks that businesses have a harder time winning approval for. These projects can be pushed into reality by offering increases in the incentive levels in order to enhance feasibility and get them to a point where the customers will implement them.

Energy Efficiency with Day Peak Demand Reduction Incentive

- Office buildings often have the ability to reduce their day time peak demand through energy projects however the existing Customized programs did not recognize the value of this demand reduction.
- This day peak demand is often met with the least efficient generational sources and if lowered could result in a higher system load factor and reduced fossil fuel consumption.
- We propose that customized projects should be given the ability to claim demand credit during the Utility's day peaks between 12 p.m. and 2 p.m.
- Reducing load and energy consumption at this daily peak period reduces the fuel consumption of the least efficient generators "peaker" units.

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

Marketing Strategies

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

Program Category

5.2 Custom Business Energy Efficiency Measures
5.2.1 Customized Project Measures
5.2.1.2 Customized Project Measures - ARRA

Projected Impacts

Demand	594	kW
Energy	1,979,871	kWh
Incentive Budget	$980,001	(5%)
Cost per kWh	$0.49	/kWh
TRB	$3,381,488	

Incentives

	Incentive	Units
Customized Project Measures – ARRA	$0.40	2,450,002 kWh

Program Description & Implementation Strategies

ENERGY REDUCTION OPPORTUNITY
The purpose of this program is to invest in energy efficiency projects that would not have been implemented.

This measure utilizes the use of government stimulus funds from the American Recovery and Reinvestment Act (ARRA) to augment and enhance the existing custom program to provide incentives up to a total of 25% of the cost to purchase and install customized energy efficiency measures.

TARGET AUDIENCE
Who – Government and Non-Profit organizations
What – Government and Non-Profit facilities

INCENTIVE & TARGETED ECONOMICS

Measure Life	Reduction in Energy Use Incentive	Evening Peak Demand Reduction (5:00 p.m. to 9:00 p.m. weekdays)	Day Peak Demand Reduction (12:00 p.m. to 2:00 p.m. weekdays)
< 5 years	$0.05 /kWh	$125 / kW	*$100 / kW
> 5 years	$0.08 /kWh	$125 /kW	*$100 /kW
* HVAC application only			

Incentive Program	Incentive Amount	% of Total Project Cost
Custom (PBF)		
Supplemental Custom (ARRA)		
Total		25%

CBEEM Cont.

Program Description & Implementation Strategies Cont.	CUSTOMER QUALIFICATIONS • Program approval is required prior to the start of work • Total Resource Cost Ratio (>= 1) • Incremental simple payback greater than 1 year or six months for LED projects • Total project cost must exceed $60,000 APPLICATION PROCESS • Initial meeting and qualification is required • Customer or his agent must submit a brief proposal that describes the project and includes estimates of energy savings and payback • Submit completed application and Custom ARRA Rebate Work sheet. • Applicant to provide supporting information and documentation which can include the following: o Layouts o Energy Models o Drawings o Technical attachments o Vendor literature COMPLEMENTARY PROGRAMS • Customized Project Measures

CBEEM Cont.

Program Category	**5.2 Custom Business Energy Efficiency Measures** **5.2.1 Customized Project Measures** **5.2.1.2 Target Cost Request for Proposals**
Projected Impacts	Demand 121 kW Energy 606,083 kWh Incentive Budget $225,000 (1%) Cost per kWh $0.37 /kWh TRB $862,327
Incentives	Target Cost Request for Proposals — Incentive: $0.30 — Units: 750,000 kWh
Program Description & Implementation Strategies	**Target Cost per KWh Request for Proposals** 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 call for projects that meet a total dollar per kWh savings target and allow the market to be creative in how to get there. The projects will use utility metered data and if needed, will be submetered to insure savings performance.

BESM

Program Category	5.3 Business Energy Services & Maintenance BESM Program Overview

Projected Impacts

Demand	900	kW
Energy	4,934,320	kWh
Incentive Budget	$3,027,000	(21%)
Cost per kWh	$0.613	/kWh
TRB	$3,823,692	

Incentives

	Incentive	Units
5.3.1 Business Direct Installation		
Small Business Direct Lighting Retrofits	$0.52	850,000 kWh
5.3.2 Business Design, Audits & Commissioning		
Central Plant Performance Competition	$0.65	1,200,000 kWh
Building Engineer Challenge	$0.25	350,000 kWh
Cooling Tower Optimization	$0.15	250,000 kWh
Decision Maker – Real-Time Submeters	$3,500	50 groups
Package & Split Annual tune-up	$50	2,600 Tons
Energy Study Assistance	$15,000	18Studies
Design Assistance	$15,000	5 Studies
Energy Project Catalyst	$0.80	350,000 kWh
Technology & Project Demonstration	$1.00	750,000 kWh

Program Category	**5.3 Business Energy Services & Maintenance** **5.3.1 Business Direct Installation** **5.3.1.1 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 tehnologies.

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

Projected Impacts

Demand	137	kW
Energy	686,894	kWh
Incentive Budget	$ 442,000	(2%)
Cost per kWh	$0.643	/kWh
TRB	$1,254,023	

Incentives

	Incentive	**Units**
Small Business Direct Lighting Retrofits	$.52	850,000 kWh

BESM Cont.

Technologies

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

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

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

BESM Cont.

Program Description & Implementation Strategies	• Provide complete process to provide direct installation of lighting retrofits for small business customers. • Participating Hawaii Energy Participating contractors will offer four month payment plans for the lighting retrofits • Use of workforce development groups and grass roots volunteer organizations to generate leads and perform initial audits to lower cost of sales for Lighting contractors • Quick Inventory worksheet to ID potential targeting for future mechanical measures (AC/Water heating) • Incentive measures included: o 4 foot T12 to Low Wattage T8 o 4 foot T12 delamping o 8 foot T12 to 4 foot Low Wattage T8 o LED Case Lighting o CFLs o Exit Signs • 25% bonus over standard lighting incentives.
Marketing Strategies	• Direct contact with participating lighting contractors • Direct contact with Small Business Administration • Direct contact and printed materials to Property Management groups • Door-to-Door contact through Grassroots Action Groups • Utility Bill Newsletter Article • Website listing of participating lighting contractors

Program Category

5.3 Business Energy Services & Maintenance
5.3.2 Business Design, Audits and Commissioning
5.3.2.1 Central Plant Optimization Competition

Projected Impacts

Demand	194	kW
Energy	969,732	kWh
Incentive Budget	$ 780,000	(7%)
Cost per kWh	$0.80	/kWh
TRB	$758,297	

Incentives

	Incentive	Unit
Central Plant Optimization Competition	$0.65/kWh	1,200,000 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

Program Description & Implementation Strategies

1. Develop criteria for plant efficiency measurement to determine Top 10 Central Plants in Hawaii Competition based on:
   - o Requirement for permanent monitoring equipment installed and recorded.
   - o Points for Retro-Commissioning Report in Hawaii Energy Format
   - o Points for Lowest kW/Ton Chilled Water delivered.
   - o Points for allowing Hawaii Energy access to EMCS data.
   - o Completeness and equipment level detail of Input Data (Flows, approach temperatures, pump curve etc.)

BESM Cont.

Program Description & Implementation Strategies Cont.	• 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

BESM Cont.

Program Category	**5.3 Business Energy Services & Maintenance** **5.3.2 Business Design, Audits and Commissioning** **5.3.2.2 Building Engineer Challenge**
Projected Impacts	Demand 57 kW Energy 282,839 kWh Incentive Budget $ 87,500 (<1%) Cost per kWh $0.31 /kWh TRB $91,523
Incentives	Building Engineer Challenge — Incentive: $0.25/kWh — Units: 350,000 kWh
Program Description & Implementation Strategies	**Building Engineer Challenge** This is an extension of the Central Plant Optimization program. The program will provide a challenge for building engineers to bring in proposed projects that meet cost per kWh cost criteria and the PBFA will provide the incentives. The intention is to identify projects that the Building Engineers know will work but never get funded through the traditional processes within their systems.

Program Category	**5.3 Business Energy Services & Maintenance** **5.3.2 Business Design, Audits and Commissioning** **5.3.2.3 Cooling Tower Optimization**
Projected Impacts	Demand 40 kW Energy 202,028 kWh Incentive Budget $ 37,500 (<1%) Cost per kWh $0.19 /kWh TRB $32,635
Incentives	**Incentive** **Units** Cooling Tower Optimization $0.15/kWh 250,000 kWh
Program Description & Implementation Strategies	**Cooling Tower Optimization** 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	**5.3 Business Energy Services & Maintenance** **5.3.2 Business Design, Audits and Commissioning** **5.3.2.4 Decision Maker – Real-Time Submeters**
Projected Impacts	Demand 0 kW Energy 202,028 kWh Incentive Budget $ 175,000 (4%) Cost per kWh $0.87 /kWh TRB $20,286
Incentives	**Incentive** **Units** Decision Maker – Real-Time Submeters $3,500/group 50 Groups
Program 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 2011 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

BESM Cont.

Program Category	**5.3 Business Energy Services & Maintenance** **5.3.2 Business Design, Audits and Commissioning** **5.3.2.5 Package and Split Annual Tune Up**
Projected Impacts	Demand 294 kW Energy 1,701,880 kWh Incentive Budget $ 130,000 (1%) Cost per kWh $0.08 /kWh TRB $260,790
Incentives	**Incentive** **Units** Package and Split Annual Tune Up $50 /ton 2,600 tons
Program Description & Implementation Strategies	**Package & Split System Annual Tune-up** • Demonstrate the benefits of tune-ups • Educate customer on savings potential • Utilize the Participating contractors to contact the customers and have them arrange for the service work. • Participating contractors will use the Hawaii Energy PTAC / Split AC Maintenance Checklist to inspect and perform the pre and post conditions of their maintenance work • Participating Hawaii Energy's invoice must show that checklist requirements have been met and signed by the servicing technician • Customers can have 2 incentives per location annually

Program Category	**5.3 Business Energy Services & Maintenance** **5.3.2 Business Design, Audits and Commissioning** **5.3.2.5 Energy Study Assistance**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 270,000 (4%) Cost per kWh n/a TRB n/a
Incentives	**Incentive** **Units** Energy Study Assistance $15,000/study 18 studies
Program Description & Implementation Strategies	**Energy Study Assistance** • 50% match up to $15,000 • Load / Existing Performance Measurements • Modeling new systems • Actionable recommendations

BESM Cont.

Program Category	**5.3 Business Energy Services & Maintenance** **5.3.2 Business Design, Audits and Commissioning** **5.3.2.6 Design Assistance**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 75,000 (1%) Cost per kWh n/a TRB n/a
Incentives	**Incentive** **Units** Energy Study Assistance $15,000/study 5 studies
Program Description & Implementation Strategies	**Design Assistance** • 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, mechanical engineers and HAWAII ENERGY • Promote measure information on the website • Promote successful projects in the media and events

Program Category	**5.3 Business Energy Services & Maintenance** **5.3.2 Business Design, Audits and Commissioning** **5.3.2.7 Energy Project Catalyst**
Projected Impacts	Demand 57 kW Energy 282,839 kWh Incentive Budget $ 280,000 (1%) Cost per kWh $0.81 /kWh TRB $299,647
Incentives	**Incentive** **Units** Energy Project Catalyst $0.80/kWh 350,000 kWh
Program Description & Implementation Strategies	**Energy Project Catalyst** The objective of the catalyst program is to accelerate stalled high impact energy efficiency projects from an idea to reality as follows: • *Full Cost Incentives* - Provide a 100% cost incentive to proposals that fulfill program needs • *Commitment to Implement* - Recipients must commit to implementing all projects with less than a 1 year payback including incentives. • *Desired Project Profiles* 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.

BESM Cont.

Program Category	**5.3 Business Energy Services & Maintenance** **5.3.2 Business Design, Audits and Commissioning** **5.3.2.8 Technology & Project Assistance**
Projected Impacts	Demand 121 kW Energy 606,083 kWh Incentive Budget $ 750,000 (1%) Cost per kWh $1.24 TRB $1,106,491
Incentives	**Incentive** Technology & Project Assistance $TBD per Project
Program Description & Implementation Strategies	**Technology & Project Assistance** • This program budget is provided to utilize towards project cost assistance and demonstration projects that prove technology application, demonstrate the technology / process benefits. • Meet targeted energy efficiency levels • Actionable results & recommendations
Marketing Strategies	• Direct interaction with potential customers, design community, contracting community and HAWAII ENERGY • Promote measure and project information on the website • Promote successful projects in the media and events

Program Category	**5.4 Business Hard to Reach** **BHTR Program Overview**
Target Market	Market conditions are poor for • Lower income residential customers lacking tax liabilities and lacking capital • Rental property owners lacking tax liabilities and lacking capital • Non profit and governmental customers It is recommended that a new incentive program target 1 kW to 10 kW systems owned by nonprofit organizations and governmental entities. Given that the average size of net metering systems is 8.7 kW this should include the majority of the market.
Projected Impacts	Demand 184 kW Energy 917,654 kWh Incentive Budget $802,000 (3%) Cost per kWh $0.874 /kWh TRB $1,530,832
Incentives	**Incentive** **Units** **5.4.1 Energy Efficiency Equipment Grants** • Small Business Direct Installation $0.90 702,222 kWh **5.4.2 Landlord, Tenant, AOAO Measures** • Energy Hero Landlord $0.30 233,333 kWh

Program Category	**5.4 Business Hard to Reach** **5.4.1 Energy Efficiency Equipment Grants** **5.4.1.1 Community and Grass Roots Project Support**
Target Market	Property Managers, Landlords, BOMA
Projected Impacts	Demand 32 kW Energy 161,662 kWh Incentive Budget $100,000 (1%) Cost per kWh $0.50 /kWh TRB $295,964
Incentives	**Incentive** **Units** **Community & Grass Roots Project Support** $0.50 200,000 kWh
Market Barriers	• Organizational access to capital for energy improvements • Understanding of energy efficiency opportunities available • Small business management time and motivation for making changes that result in realized savings where demonstrated savings may be shown as example.
Description & Implementation Strategies	**Community and Grass Roots Project Identification, Analysis and Support** Transformational programs will strive to identify programs where energy savings will be realized. Transformational program support engages organizations that will provide energy education, audit, training and support in implementation of energy savings projects. These projects will be used in outreach as demonstration of opportunities that may be applied in similar businesses.

BHTR Cont.

Program Category	**5.4 Business Hard to Reach** **5.4.1 Energy Efficiency Equipment Grants** **5.4.1.2 Small Business Direct Installation**
Target Market	• Small businesses that are hard-to-reach due to geographic, demographic or economic reasons. • Examples o Lanai - All o Maui - Hana, o Oahu - Chinatown, North Shore, Waianae
Projected Impacts	Demand 113 kW Energy 567,473 kWh Incentive Budget $632,000 (3%) Cost per kWh $1.11 /kWh TRB $1,036,003
Incentives	**Incentive** **Units** Small Business Direct Installation $0.90 702,222 kWh
Market Barriers	• Customer lack of access to capital for energy improvements • Economic, language or physical isolation prevents service contractors from providing services. • Renter and Lessee reluctance to invest in non-owned property
Description & Implementation Strategies	**Small Business Direct Lighting Retrofits** This program will identify small businesses that are hard-to-reach due to geographic or economic reasons. We will work with contractors and grass roots organizations to directly replace lighting systems. In PY2010 we performed a project that provided over 100 businesses on Molokai with full lighting retrofits at no cost using a single lighting contractor that performed community meetings and door-to-door audits and recruitment of businesses. These retrofits would not otherwise happen without this direct installation grant approach.

Program Category	**5.4 Business Hard to Reach** **5.4.2 Landlord, Tenant, AOAO Measures** **5.4.2.1 Energy Hero Landlord**
Target Market	Property Managers, Landlords, BOMA
Projected Impacts	Demand 38 kW Energy 188,559 kWh Incentive Budget $70,000 (<1%) Cost per kWh $0.37 /kWh TRB $199,765
Incentives	**Incentive** **Units** • Energy Hero Landlord $0.30 233,333 kWh
Market Barriers	The landlord/tenant relatioship provides challenges to making energy efficency 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 major 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.

6.0 PROGRAM BUDGET

In Program Year 2010, Hawaii Energy streamlined the budget to enable Hawaii Energy, the Contract Manager and the PUC to put greater focus on effective implementation rather than line item budget constraints and change requests while also providing a necessary level of visibility to our expenses. Below is a summary of the Program Year 2011 Budget.

Hawaii Energy Efficiency Program Annual Plan Budget – July 5, 2011
July 1, 2011 through June 30, 2012

	Activity	Non-Incentive	Incentive	Total
Residential Programs				
	REEM	1,968,983	7,731,438	9,700,421
1	RESM	116,146	608,000	724,146
	RHTR	136,861	649,053	785,914
	Total Residential Programs	**2,221,990**	**8,988,491**	**11,210,481**
Residential Market Evaluation		**55,100**	**0**	**55,100**
Residential Outreach		**1,065,950**	**0**	**1,065,950**
Total Residential Services and Initiatives		**3,343,040**	**8,988,491**	**12,331,531**
Business Programs				
	BEEM	917,882	5,697,100	6,614,982
	CBEEM	866,259	1,459,833	2,326,092
	BESM	397,373	3,027,000	3,424,373
	BHTR	375,005	802,000	1,177,005
	Total Business Programs	**2,556,519**	**10,985,933**	**13,542,452**
Business Market Evaluation		**152,475**	**0**	**152,475**
Business Outreach		**1,376,945**	**0**	**1,376,945**
Total Business Services and Initiatives		**4,085,939**	**10,985,933**	**15,071,872**
Total Residential and Business Services and Initiatives		**7,428,979**	**19,974,424**	**27,403,403**
Transformational Programs				
	Residential Transformational Programs	0	987,504	987,504
	Business Transformational Programs	0	1,206,950	1,206,950
Total Transformation Services and Initiatives		**0**	**2,194,454**	**2,194,454**
Total Supporting Services		**2,091,909**	**0**	**2,091,909**
Total Tax on Non-Incentive		**448,624**	**0**	**448,624**
Estimated Contractor Costs		**9,969,512**	**22,168,878**	**32,138,390**

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

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 2010.

7.0 PERFORMANCE INCENTIVE GOALS AND INCENTIVE FRACTIONS PY2011

7.1 Performance Incentive Goals

The following table shows the PY2011 Program Performance Goals and Incentives as contained in the supplemental contract covering the PY2011-PY2012 budget. The transition between Minimum, Target and Maximum shall be calculated on a linear basis for both goals and awards where appropriate.

PY2011 PERFORMANCE GOALS AND INCENTIVES										
	Performance Goals				Performance Incentives Awards					
Performance Target Item		Minimum	Target	Maximum		% of Target	Minimum	Target	Maximum	
Energy		81,375,319	108,500,425	119,350,468	kWh	35%	$ 183,750	$ 245,000	$	308,188
Peak Demand		12,301	16,401	18,041	kW	5%	$ 26,250	$ 35,000	$	43,313
Total Resource Benefit		$ 92,984,671	$ 116,230,842	$ 139,477,007	$	40%	$ 224,000	$ 280,000	$	346,500
Transformation Infrastructure Development	Substantially accomplish at least two Annual Plan Transformational Tasks in both the Government Support and Education - Training categories. 2% of the Target Incentive will be awarded for each Task accomplished up to 10%.					10%	n/a	$ 70,000	n/a	
Broad Participation (Equity across each Island)	Maui	$ 2,311,577	$ 2,889,472	$ 3,467,366	Incentives	10%	n/a	$ 70,000	n/a	
	Hawaii	$ 2,217,620	$ 2,772,025	$ 3,326,430	Incentives					
	Honolulu	$ 13,205,905	$ 16,507,381	$ 19,808,858	Incentives					
Total			$ 22,168,878	Incentives		100%		$ 700,000		

7.2 Performance Incentive Fractions

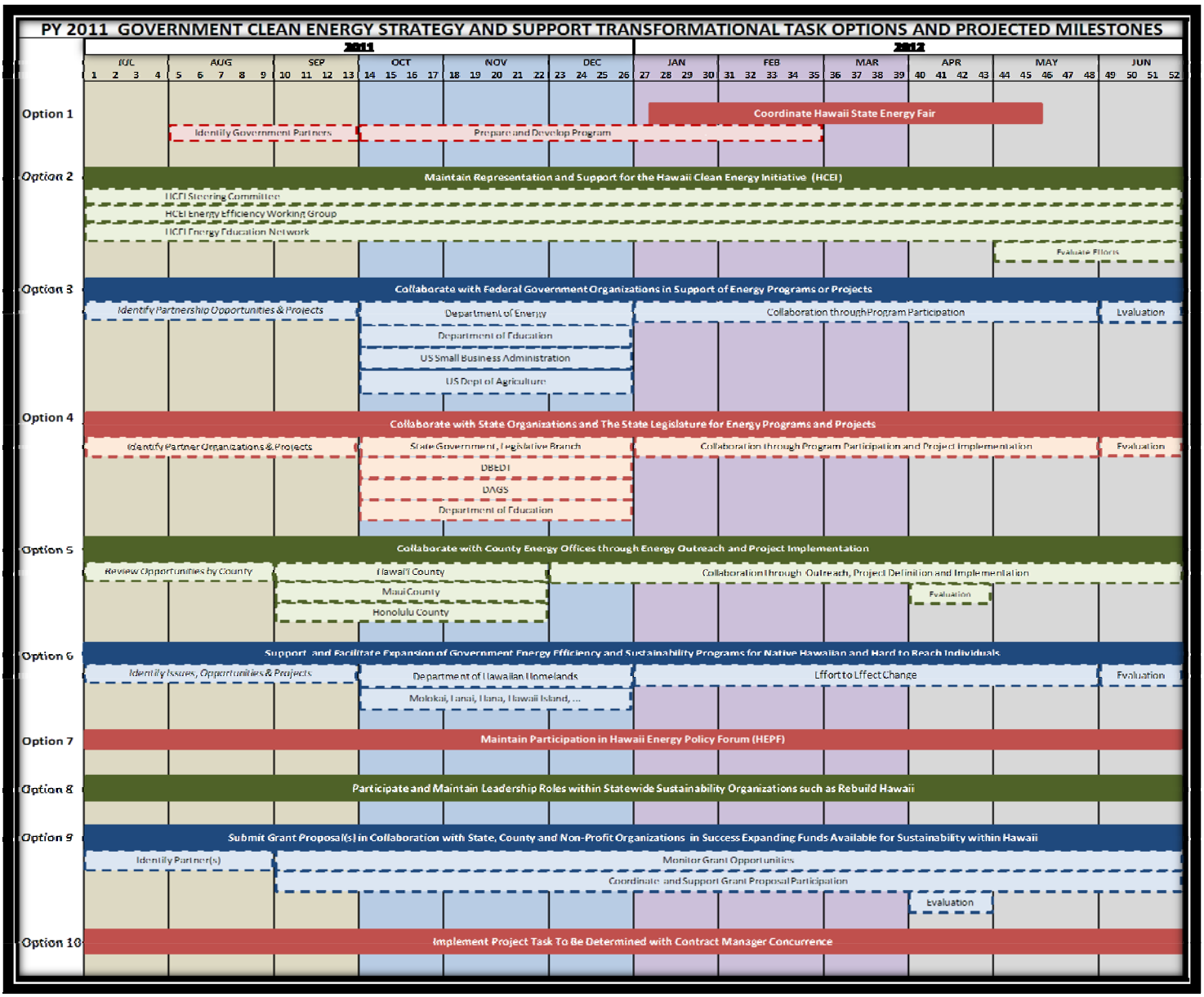
The following table shows the PY2011 and PY2012 Performance Incentive Fractions as contained in the supplemental contract covering the PY2011-PY2012 budget.

PERFORMANCE INCENTIVE FRACTIONS		
Performance Target Goal	Fraction of Incentive	
	PY2011	PY2012
Energy (kWh)	35%	35%
Peak Demand (kW)	5%	5%
Total Resource Benefits ($)	40%	40%
Transformation Infrastructure Development	10%	10%
Broad Participation (Equity across each island)	10%	10%

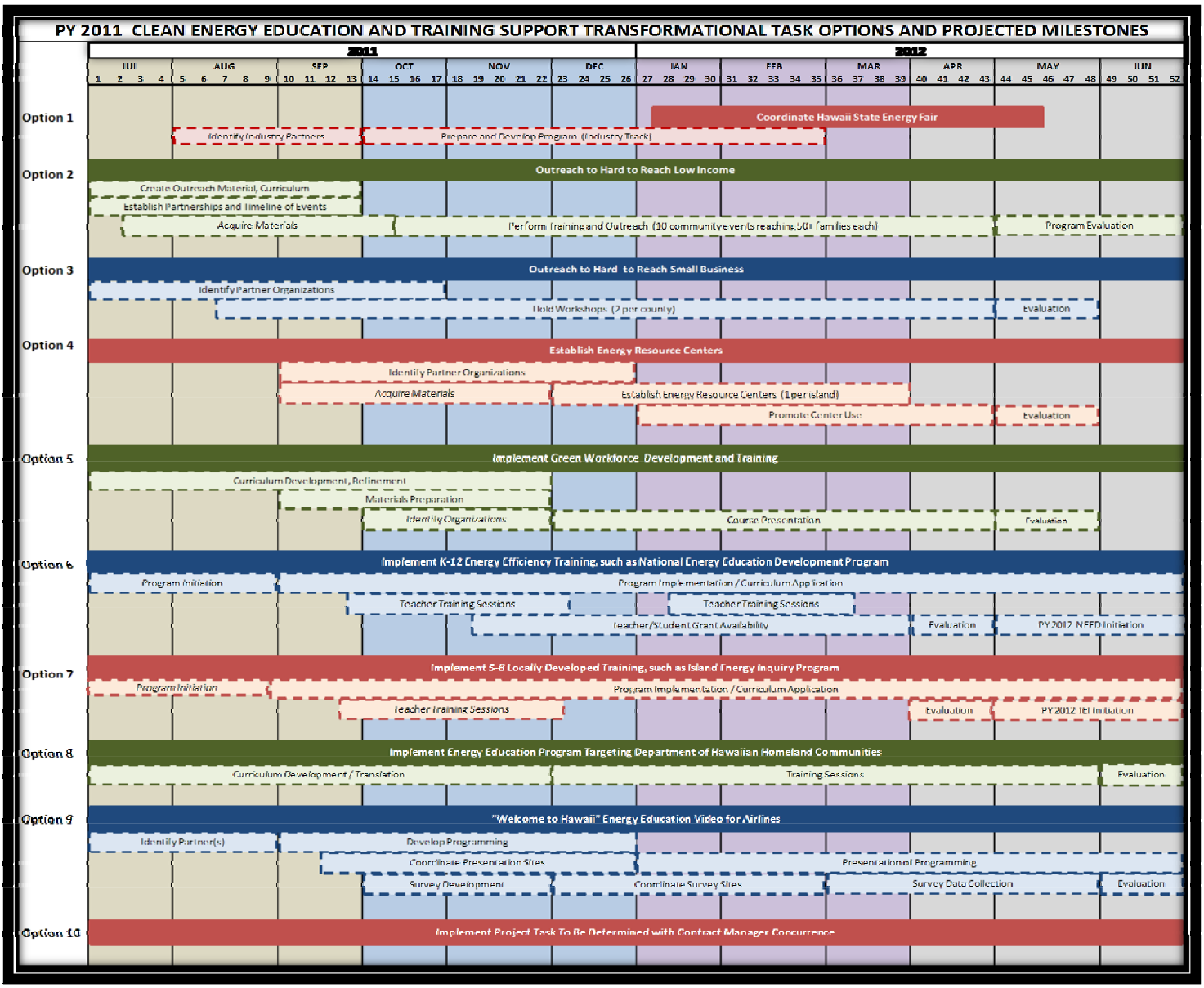
8.0 TRANSFORMATIONAL TASK OPTIONS AND PROJECTED MILESTONES

In order to meet the Transformational Performance Incentive Goals established for PY2011, the following two lists of specific Task Options are being considered for implementation. Some or all of these Task Options may be implemented during PY2011. A minimum of two Tasks from each list must be fully implemented in order to meet the minimum Transformational Performance Incentive Goal for PY2011.

8.1 Government Clean Energy Strategy and Support Task Options



8.2 Clean Energy Education and Training Support Task Options



9.0 CONCLUSION

The increased budget and expanded responsibilities that come with it for PY2011 signify the importance of Hawaii Energy's critical role in ensuring that Hawaii achieves it clean energy goals. The Hawaii Energy Team is passionate about its mission and proud of its accomplishments thus far. However, the Team knows that the road ahead will present significant challenges for the state's clean energy efforts and require the best performance from each Team member. Each Team member stands ready and eager to engage these challenges and is proud to do so for the benefit of all the people of Hawaii.

10.0 APPENDIX

Appendix A – Program Budget PY2011 (Full Version)

Appendix B – Summary Presentation of Programs

Appendix C – TRB Utility Benefit Values

Hawaii Energy Efficiency Program Annual Plan Budget – July 5, 2011	**PY11 Budget**
Residential Programs	
Residential Program Ops and Management	
REEM	1,968,983
1 RESM	116,146
RHTR	136,861
Total Residential Programs	2,221,990
Residential Market Evaluation	55,100
Residential Outreach	1,065,950
Total Residential Non-Incentive	3,343,040
Residential Incentives	
REEM	7,731,438
1 RESM	608,000
RHTR	649,053
Total Residential Incentives	8,988,491
Total Residential Programs	**12,331,531**
Business (C&I) Programs	
Business Programs Ops and Management	
BEEM	917,882
CBEEM	866,259
BESM	397,373
BHTR	375,005
Total Business Programs	2,556,519
Business Evaluation	152,475
Business Outreach	1,376,945
Total Business Non-Incentive	4,085,939
Business Incentives	
BEEM	5,697,100
CBEEM	1,459,833
BESM	3,027,000
BHTR	802,000
Total Business Incentives	10,985,933
Total Business Programs	**15,071,872**
Transformational Programs	
Residential Transformational Program	987,504
Business Transformational Program	1,206,950
Total Transformational Services and Initiatives	**2,194,454**
Supporting Services	
Supporting Services	2,091,909
Total Supporting Services	**2,091,909**
Subtotal Non-Incentive (Prior to Tax)	9,520,888
Less Performance Incentives (Prior to Tax)	(700,000)
Subtotal Non-Incentive Less Performance Incentives (PI)	8,820,888
Total Tax on Non-Incentive Without PI	448,624
Performance Incentive Award (Inclusive of Tax)	700,000
Subtotal Non-Incentive Billed	*9,969,512*
Subtotal Residential and Business Customer Incentives	*19,974,424*
Subtotal Customer Incentives Plus Transformational	*22,168,878*
Sub-Total Estimated Contractor Costs	*32,138,390*
Performance Awards in Excess of Target Levels	133,000
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels	**32,271,390**

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

Appendix A - Program Budget PY2011 (Expanded Version)

Hawaii Energy - PY2011 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS BY MEASURE

Combined Programs		Budget	Plan					kW	kWh	$/kWh	TRB
Residential	45%	$ 8,988,491	$ 8,988,491	$ 0	SWH	3,800		11,114	68,077,920	$ 0.132	
Business	55%	$ 10,985,933	$ 10,985,933	$ 0	CFL	1,615,971		7,317	47,911,417	$ 0.229	
Bottom Up Program Impacts		$ 19,974,424	$ 19,974,424	$ 0				18,431	115,989,337	$ 0.172	$ 128,603,392
Top Down from Budget Table		$ 19,974,424					Target Impact Levels	16,401	108,500,425	$ 0.184	$ 116,230,842

Residential Programs

		Residential Target				$ 8,988,491																		
		Difference				$ 0																		
		Residential Plan				$ 8,988,491							$ 0.132	11,114		68,077,920						$ 67,816,219		
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**		
REEM	***Residential Energy Efficiency Measures***					$ 7,731,438	39%						$ 0.121	10,268	56%	63,649,718	55%				$ 63,071,497	49%		
	High Efficiency Water Heating					**$ 2,997,500**	**15%**						$ 0.493	**1,360**	**7%**	**6,077,068**	**5%**				**$ 14,571,983**	**11%**		
		Solar Water Heater (SWH) Incentive	2,500	systems	$ 750	$ 1,875,000	9%	0.460	2,066.0	10.7%	0.73	1,669.56	$ 0.45	929	5%	4,173,888	4%	20.0	$ 4,632	$ 1.38	$ 10,047,078	8%		
		Solar Water Heater Interest Buydown	1,100	systems	$ 1,000	$ 1,100,000	6%	0.460	2,066.0	10.7%	0.73	1,669.56	$ 0.60	409	2%	1,836,511	2%	20.0	$ 4,632	$ 1.38	$ 4,420,714	3%		
		Solar Water Heater Energy Hero Gift Packs	100	kits	$ 25	$ 2,500	0%	0.080	210.0	10.7%	0.73	169.70	$ 0.15	6	0%	16,970	0%	5.0	$ 1,554	$ 0.47	$ 18,041	0%		
		Heat Pumps	100	units	$ 200	$ 20,000	0%	0.190	615.0	10.7%	0.73	496.99	$ 0.40	15	0%	49,699	0%	10.0	$ 2,851	$ 0.85	$ 86,150	0%		
	High Efficiency Lighting					$ 2,795,238	14%						$ 0.058	7,135	39%	48,009,618	41%				$ 39,857,797	31%		
		CFLs	1,615,971	lamps	$ 0.95	$ 1,537,738	8%	0.005	32.7	10.7%	0.73	26.43	$ 0.04	6,529	35%	42,702,356	37%	6.0	$ 1,842	$ 0.56	$ 35,772,082	28%		
		LED	125,000	lamps	$ 10.00	$ 1,250,000	6%	0.006	52.3	10.7%	0.73	42.28	$ 0.24	606	3%	5,285,039	5%	6.0	$ 1,842	$ 0.56	$ 4,055,142	3%		
		Daylighting	100	units	$ 75	$ 7,500	0%	-	275.0	10.7%	0.73	222.23	$ 0.34	-		22,223	0%	20.0	$ 4,632	$ 1.38	$ 30,574			
	High Efficiency Air Conditioning					$ 177,300	1%						$ 0.207	163	1%	856,023	1%				$ 1,461,146	1%		
		Split System AC	180	units	$ 110	$ 19,800	0%	0.190	373.0	10.7%	0.73	301.43	$ 0.36	28	0%	54,257	0%	15.0	$ 3,847	$ 1.14	$ 168,433	0%		
		VRF Split System AC	500	units	$ 200	$ 100,000	1%	0.190	680.0	10.7%	0.73	549.51	$ 0.36	77	0%	274,757	0%	15.0	$ 3,847	$ 1.14	$ 609,887	0%		
		Ceiling Fans	1,000	units	$ 40	$ 40,000	0%	0.010	395.0	10.7%	0.73	319.20	$ 0.13	8	0%	319,203	0%	5.0	$ 1,554	$ 0.47	$ 162,979	0%		
		Whole House Fans	125	units	$ 100	$ 12,500	0%	0.500	1,254.0	10.7%	0.73	1,013.37	$ 0.10	51	0%	126,671	0%	20.0	$ 4,632	$ 1.38	$ 408,226	0%		
		Solar Attic Fans	200	units	$ 25	$ 5,000	0%	-	502.0	10.7%	0.73	405.67	$ 0.06	-	0%	81,134	0%	20.0	$ 4,632	$ 1.38	$ 111,621	0%		
	High Efficiency Appliances					$ 1,262,500	6%						$ 0.258	395	2%	4,891,952	4%				$ 6,394,664	5%		
		Refrigerator	6,400	units	$ 50	$ 320,000	2%	0.017	105.0	10.7%	0.73	84.85	$ 0.59	88	0%	543,050	0%	14.0	$ 3,667	$ 1.09	$ 915,547	1%		
		Refrigerator with Recycling	2,500	units	$ 125	$ 312,500	2%	0.034	822.0	10.7%	0.73	664.27	$ 0.19	69	0%	1,660,666	1%	14.0	$ 3,667	$ 1.09	$ 2,065,639	2%		
		Garage Refrigerator / Freezer Bounty	1,800	units	$ 75	$ 135,000	1%	0.034	859.0	10.7%	0.73	694.17	$ 0.11	49	0%	1,249,500	1%	14.0	$ 3,667	$ 1.09	$ 1,546,041	1%		
		Clothes Washer	6,200	units	$ 75	$ 465,000	2%	0.028	224.0	10.7%	0.73	181.02	$ 0.41	140	1%	1,122,303	1%	11.0	$ 3,072	$ 0.92	$ 1,460,344	1%		
	New	Pool VFD Controller Pumps	200	units	$ 150	$ 30,000	0%	0.298	1,957.9	10.7%	0.73	1,582.17	$ 0.09	48	0%	316,433	0%	10.0	$ 2,851	$ 0.85	$ 407,094	0%		
	Energy Awareness, Measurement and Control Systems					$ 498,900	2%						$ 0.131	1,215	7%	3,815,057	3%				$ 785,907	1%		
		Room Occupancy Sensors	300	units	$ 5	$ 1,500	0%	0.010	45.0	10.7%	0.73	36.36	$ 0.14	2	0%	10,909	0%	8.0	$ 2,374	$ 0.71	$ 13,527	0%		
		Peer Group Comparison	30,000	homes	$ 14	$ 420,000	2%	0.050	154.0	10.7%	0.73	124.45	$ 0.11	1,212	7%	3,733,468	3%	1.0	$ 306	$ 0.10	$ 745,363	1%		
		Whole House Energy Metering	774	units	$ 100	$ 77,400	0%	-	113.0	10.7%	0.73	91.32	$ 1.10	-	0%	70,679	0%	4.0	$ 1,251	$ 0.38	$ 27,017	0%		
CESH	**Custom Energy Solutions for the Home**					$ 10,500	0%						$ 0.371	-		28,284					$ 13,329	0%		
	Target Cost Request for Proposals					$ 10,500	0%						$ 0.371	-	0%	28,284	0%				$ 13,329	0%		
	New	Custom Packaged Proposals	35,000	kWh	$ 0.30	$ 10,500	0%	-	1.0	10.7%	0.73	0.81	$ 0.37	-	0%	28,284	0%	5.0	$ 1,554	$ 0.47	$ 13,329	0%		

Hawaii Energy - PY2011 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS BY MEASURE

Residential 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
RESM	**Residential Energy Services & Maintenance**					$ 597,500	3%						$ 0.392	340	2%	1,525,946	1%				$ 1,925,291	1%
	Residential Direct Installation					$ 72,500	0%						$ 2.636	4		27,508					$ 22,137	
	New	Real-Time Metering	80	homes	$ 750	$ 60,000	0%	-	113.0	10.7%	0.73	91.32	$ 8.21	-	0%	7,305	0%	1.0	$ 306	$ 0.10	$ 734	0%
		TBD	25,000	kWh	$ 0.50	$ 12,500	0%	0.0002	1.0	10.7%	0.73	0.81	$ 0.62	4	0%	20,203	0%	7.0	$ 2,116	$ 0.64	$ 21,403	0%
	Residential Design and Audits					$ 450,000	2%						$ 0.556	139	1%	809,726	1%				$ 1,367,040	1%
		Efficiency Inside Home Design	400	Homes	$ 1,000	$ 400,000	2%	0.400	2,200.0	10.7%	0.73	1,777.84	$ 0.56	129	1%	711,137	1%	15.0	$ 3,847	$ 1.14	$ 1,311,552	1%
	New	Tradewind Design	10	Homes	$ 2,000	$ 20,000	0%	0.550	3,200.0	10.7%	0.73	2,585.95	$ 0.77	4	0%	25,860	0%	15.0	$ 3,847	$ 1.14	$ 46,704	0%
		Hawaii Energy Hero Audits	300	Audits	$ 100	$ 30,000	0%	0.020	300.0	10.7%	0.73	242.43	$ 0.41	5	0%	72,730	0%	1.0	$ 306	$ 0.10	$ 8,785	0%
	Residential System Tune-Ups					$ 75,000	0%						$ 0.109	198	1%	688,712	1%				$ 536,114	0%
		AC Annual Tune Up	250	Tune Ups	$ 100	$ 25,000	0%	0.138	809.0	10.7%	0.73	653.76	$ 0.15	28	0%	163,440	0%	1.0	$ 306	$ 0.10	$ 24,932	0%
		Solar Water Heater Tune Up	500	Tune Ups	$ 100	$ 50,000	0%	0.420	1,300.0	10.7%	0.73	1,050.54	$ 0.10	170	1%	525,272	0%	5.0	$ 1,554	$ 0.47	$ 511,182	0%
RHTR	***Residential Hard to Reach***					$ 649,053	3%						$ 0.226	506	3%	2,873,972	2%				$ 2,819,430	2%
	Energy Efficiency Equipment Grants					$ 377,750	2%						$ 0.149	431		2,535,849					$ 2,007,602	
		Solar Inspections (WAP)	450	Inspections	$ 95	$ 42,750	0%	0.130	500.0	10.7%	0.73	404.06	$ 0.24	47	0%	181,825	0%	5.0	$ 1,554	$ 0.47	$ 159,130	0%
		Energy Hero Gift Packs	2,000	Packs	$ 40	$ 80,000	0%	0.080	210.0	10.7%	0.73	169.70	$ 0.24	129	1%	339,406	0%	5.0	$ 1,554	$ 0.47	$ 360,820	0%
		CFL Exchange	60,000	Lamps	$ 3.00	$ 180,000	1%	0.005	37.8	10.7%	0.73	30.55	$ 0.10	242	1%	1,832,793	2%	6.0	$ 1,842	$ 0.56	$ 1,465,690	1%
		Hawaii Energy Hero Audits	750	Audits	$ 100	$ 75,000	0%	0.020	300.0	10.7%	0.73	242.43	$ 0.41	12	0%	181,825	0%	1.0	$ 306	$ 0.10	$ 21,962	0%
	Landlord/Tenant, AOAO Measures					$ 271,303	1%						$ 0.802	75		338,123					$ 811,829	1%
	New	Hawaii Energy Hero Landlord Program	5,212	kWh	$ 0.25	$ 1,303	0%	0.0002	1.0	10.7%	0.73	0.81	$ 0.31	1	0%	4,212	0%	15.0	$ 3,847	$ 1.14	$ 8,062	0%
	New	Tiered / Split Incentives	100	SWH Systems	$ 1,200	$ 120,000	1%	0.460	2,066.0	10.7%	0.73	1,669.56	$ 0.72	37	0%	166,956	0%	20.0	$ 4,632	$ 1.38	$ 401,883	0%
	New	Townhome Targeted Program	100	SWH Systems	$ 1,500	$ 150,000	1%	0.460	2,066.0	10.7%	0.73	1,669.56	$ 0.90	37	0%	166,956	0%	20.0	$ 4,632	$ 1.38	$ 401,883	0%

Hawaii Energy - PY2011 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS BY MEASURE

Business Programs

			Business Target				$ 10,985,933																	
			Difference				$ (0)																	
			Business Plan				$ 10,985,933							$ 0.229	7,317		47,911,417					$ 60,787,173		
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**		
BEEM	**Business Energy Efficiency Measures**						$ 5,697,100	29%						$ 0.151	5,174	28%	37,757,387	33%				$ 48,747,183	38%	
	High Efficiency Lighting						$ 3,371,100	17%						$ 0.120	3,309	18%	27,977,188	24%				$ 31,097,476	24%	
		CFL	47,000	lamps	$	5.00	$ 235,000	1%	0.029	246.0	10.7%	0.73	198.80	$ 0.03	1,101	6%	9,343,368	8%	3.0	$ 939	$ 0.29	$ 3,752,230	3%	
		T12 to T8 (2 & 3 foot lamps)	10,000	lamps	$	6.00	$ 60,000	0%	0.007	56.4	10.7%	0.73	45.58	$ 0.13	57	0%	455,774	0%	14.0	$ 3,667	$ 1.09	$ 705,237	1%	
		T12 to T8 Low Wattage	100,000	lamps	$	15.00	$ 1,500,000	8%	0.012	105.1	10.7%	0.73	84.93	$ 0.18	970	5%	8,493,236	7%	14.0	$ 3,667	$ 1.09	$ 12,832,424	10%	
		T8 to T8 Low Wattage	110,000	lamps	$	7.50	$ 825,000	4%	0.006	51.0	10.7%	0.73	41.21	$ 0.18	533	3%	4,533,497	4%	14.0	$ 3,667	$ 1.09	$ 6,907,351	5%	
		Delamp	5,000	lamps removed	$	7.50	$ 37,500	0%	0.017	96.9	10.7%	0.73	78.31	$ 0.10	69	0%	391,529	0%	14.0	$ 3,667	$ 1.09	$ 679,526	1%	
		Delamp/Reflector	16,000	lamps removed	$	15.00	$ 240,000	1%	0.017	149.0	10.7%	0.73	120.41	$ 0.12	220	1%	1,926,534	2%	14.0	$ 3,667	$ 1.09	$ 2,910,213	2%	
		LED Refrigerated Case Lighting	5,000	lamps	$	35.00	$ 175,000	1%	0.035	250.0	10.7%	0.73	202.03	$ 0.17	141	1%	1,010,138	1%	10.0	$ 2,851	$ 0.85	$ 1,264,389	1%	
		LED	1,200	lamps	$	35.00	$ 42,000	0%	0.035	393.6	10.7%	0.73	318.07	$ 0.11	34	0%	381,687	0%	10.0	$ 2,851	$ 0.85	$ 422,166	0%	
		LED Exit Signs	1,000	signs	$	37.50	$ 37,500	0%	0.035	307.0	10.7%	0.73	248.09	$ 0.15	28	0%	248,090	0%	16.0	$ 4,018	$ 1.20	$ 410,112	0%	
		HID Pulse Start	1,200	lamps	$	60.00	$ 72,000	0%	0.035	196.0	10.7%	0.73	158.39	$ 0.38	34	0%	190,067	0%	14.0	$ 3,667	$ 1.09	$ 332,059	0%	
		Induction	750	lamps	$	60.00	$ 45,000	0%	0.035	302.0	10.7%	0.73	244.05	$ 0.25	21	0%	183,037	0%	2.0	$ 625	$ 0.20	$ 49,605	0%	
		Sensors	5,000	sensors	$	20.00	$ 100,000	1%	0.025	200.0	10.7%	0.73	161.62	$ 0.12	101	1%	808,110	1%	8.0	$ 2,374	$ 0.71	$ 815,487	1%	
		Daylighting	15,000	kWh	$	0.140	$ 2,100	0%	-	1.0	10.7%	0.73	0.81	$ 0.17	-	0%	12,122	0%	20.0	$ 4,632	$ 1.38	$ 16,676	0%	
	High Efficiency HVAC						$ 1,675,500	8%						$ 0.256	1,451	8%	6,555,510	6%				$ 13,285,569	10%	
		Chillers	9,000	tons	$	50	$ 450,000	2%	0.055	267.8	10.7%	0.73	216.41	$ 0.23	400	2%	1,947,707	2%	20.0	$ 4,632	$ 1.38	$ 4,532,517	4%	
		VFD - HVAC Pump Applications	750	hp	$	80	$ 60,000	0%	0.350	1,200.0	10.7%	0.73	969.73	$ 0.08	212	1%	727,299	1%	15.0	$ 3,847	$ 1.14	$ 1,648,692	1%	
		VFD - HVAC Fan Applications	1,000	hp	$	50	$ 50,000	0%	0.200	808.0	10.7%	0.73	652.95	$ 0.08	162	1%	652,953	1%	15.0	$ 3,847	$ 1.14	$ 1,369,284	1%	
	New	Garage Active Ventilation Control	900	hp	$	45	$ 40,500	0%	0.350	600.0	10.7%	0.73	484.87	$ 0.09	255	1%	436,379	0%	8.0	$ 2,374	$ 0.71	$ 915,245	1%	
		Package Units	3,000	tons	$	150	$ 450,000	2%	0.095	563.9	10.7%	0.73	455.69	$ 0.33	230	1%	1,367,080	1%	15.0	$ 3,847	$ 1.14	$ 2,451,110	2%	
	New	VFR Split Systems	2,500	tons	$	250	$ 625,000	3%	0.095	704.9	10.7%	0.73	569.64	$ 0.44	192	1%	1,424,092	1%	15.0	$ 3,847	$ 1.14	$ 2,368,721	2%	
	High Efficiency Water Heating						$ 8,250	0%						$ 0.314	3	0%	26,264	0%				$ 37,147	0%	
		Commercial Solar Water Heating	100	5000 BTUs	$	50	$ 5,000	0%	0.025	125.0	10.7%	0.73	101.01	$ 0.49	2	0%	10,101	0%	15.0	$ 3,847	$ 1.14	$ 19,337	0%	
		Heat Pump	50	tons	$	65	$ 3,250	0%	0.035	400.0	10.7%	0.73	323.24	$ 0.20	1	0%	16,162	0%	10.0	$ 2,851	$ 0.85	$ 17,811	0%	
	High Efficiency Water Pumping						$ 167,700	1%						$ 0.158	118	1%	1,058,808	1%				$ 1,664,768	1%	
		VFD Dom. Water Booster Packages - VFD	14	each	$	3,000	$ 42,000	0%	2.620	25,500.0	10.7%	0.73	20,606.81	$ 0.15	30	0%	288,495	0%	15.0	$ 3,847	$ 1.14	$ 444,318	0%	
		VFD Dom. Water Booster Packages - added HP Reduction	40	hp reduced	$	80	$ 3,200	0%	0.115	989.0	10.7%	0.73	799.22	$ 0.10	4	0%	31,969	0%	15.0	$ 3,847	$ 1.14	$ 50,900	0%	
		VFD Pool Pump Packages	350	hp	$	350	$ 122,500	1%	0.298	2,610.5	10.7%	0.73	2,109.55	$ 0.17	84	0%	738,344	1%	15.0	$ 3,847	$ 1.14	$ 1,169,549	1%	
	High Efficiency Motors						$ 10,800	0%						$ 0.185	10	0%	58,329	0%				$ 105,949	0%	
		CEE Listed Premium Efficiency Motors	1,800	HP	$	6.0	$ 10,800	0%	0.007	40.1	10.7%	0.73	32.41	$ 0.19	10	0%	58,329	0%	15.0	$ 3,847	$ 1.14	$ 105,949	0%	
	Commercial Industrial Processes						$ 82,500	0%						$ 0.272	61	0%	303,041	0%				$ 451,021	0%	
	New	Waste Water Process Improvements	50,000	kWh	$	0.10	$ 5,000	0%	0.0002	1.0	10.7%	0.73	0.81	$ 0.12	8	0%	40,406	0%	15.0	$ 3,847	$ 1.14	$ 77,346	0%	
	New	Air Compressor Technologies and Operations	75,000	kWh	$	0.10	$ 7,500	0%	0.0002	1.0	10.7%	0.73	0.81	$ 0.12	12	0%	60,608	0%	10.0	$ 2,851	$ 0.85	$ 86,233	0%	
	New	Commercial Kitchen Equipment	250,000	kWh	$	0.28	$ 70,000	0%	0.0002	1.0	10.7%	0.73	0.81	$ 0.35	40	0%	202,028	0%	10.0	$ 2,851	$ 0.85	$ 287,442	0%	
	Building Envelope Improvements						$ 100,000	1%						$ 0.253	81	0%	395,974	0%				$ 567,995	0%	
		Window Tinting	50,000	square feet	$	1.00	$ 50,000	0%	0.001	8.8	10.7%	0.73	7.11	$ 0.14	40	0%	355,568	0%	10.0	$ 2,851	$ 0.85	$ 418,335	0%	
		Cool Roof Technologies	50,000	square feet	$	1.00	$ 50,000	0%	0.001	1.0	10.7%	0.73	0.81	$ 1.24	40	0%	40,406	0%	10.0	$ 2,851	$ 0.85	$ 149,660	0%	
	Energy Star Business Equipment						$ 93,750	0%						$ 0.188	21	0%	498,200	0%				$ 619,692	0%	
	New	Energy Refrigerators w/Recycling	750	units	$	125	$ 93,750	0%	0.034	822.0	10.7%	0.73	664.27	$ 0.19	21	0%	498,200	0%	14.0	$ 3,667	$ 1.09	$ 619,692	0%	
	Energy Awareness, Measurement and Control Systems						$ 187,500	1%						$ 0.212	121	1%	884,072	1%				$ 917,566	1%	
		Condominum Submetering Pilot	1,000	units metered	$	150	$ 150,000	1%	0.130	944.0	10.7%	0.73	762.86	$ 0.20	105	1%	762,856	1%	8.0	$ 2,374	$ 0.71	$ 792,844	1%	
	New	Small Business Submetering Pilot	250	units metered	$	150	$ 37,500	0%	0.080	600.0	10.7%	0.73	484.87	$ 0.31	16	0%	121,217	0%	8.0	$ 2,374	$ 0.71	$ 124,721	0%	

Hawaii Energy - PY2011 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS BY MEASURE

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
CBEEM	**Custom Business Energy Efficiency Measures**					$ 1,459,833	7%						$ 0.339	1,058	6%	4,302,057	4%				$ 6,685,466	5%
	Customized Project Measures					$ 1,459,833							$ 0.339	1,058		4,302,057					$ 6,685,466	
		Customized Project Measures	2,123,601	kWh	$ 0.12	$ 254,832	1%	0.0002	1.0	10.7%	0.73	0.81	$ 0.15	343	2%	1,716,104	1%	10.0	$ 2,851	$ 0.85	$ 2,441,651	2%
		Customized Project Measures - ARRA	2,450,002	kWh	$ 0.40	$ 980,001	5%	0.0003	1.0	10.7%	0.73	0.81	$ 0.49	594	3%	1,979,871	2%	10.0	$ 2,851	$ 0.85	$ 3,381,488	3%
		Target Cost per kWh Request for Proposals	750,000	kWh	$ 0.30	$ 225,000	1%	0.0002	1.0	10.7%	0.73	0.81	$ 0.37	121	1%	606,083	1%	10.0	$ 2,851	$ 0.85	$ 862,327	1%
BESM	**Business Energy Services and Maintenance**					$ 3,027,000	15%						$ 0.613	900	5%	4,934,320	4%				$ 3,823,692	3%
	Business Direct Installation					$ 442,000	2%						$ 0.643	137	1%	686,894	1%				$ 1,254,023	1%
		Small Business Direct Lighting Retrofits	850,000	kWh	$ 0.52	$ 442,000	2%	0.0002	1.0	10.7%	0.73	0.81	$ 0.64	137	1%	686,894	1%	14.0	$ 3,667	$ 1.09	$ 1,254,023	1%
	Business Design, Audits and Commissioning					$ 2,585,000	13%						$ 0.609	763	4%	4,247,426	4%				$ 2,569,669	2%
		Central Plant Optimization Competition	1,200,000	kWh	$ 0.65	$ 780,000	4%	0.0002	1.0	10.7%	0.73	0.81	$ 0.80	194	1%	969,732	1%	5.0	$ 1,554	$ 0.47	$ 758,297	1%
	New	Building Engineer Challenge	350,000	kWh	$ 0.25	$ 87,500	0%	0.0002	1.0	10.7%	0.73	0.81	$ 0.31	57	0%	282,839	0%	2.0	$ 625	$ 0.20	$ 91,523	0%
	New	Cooling Tower Optimization	250,000	kWh	$ 0.15	$ 37,500	0%	0.0002	1.0	10.7%	0.73	0.81	$ 0.19	40	0%	202,028	0%	1.0	$ 306	$ 0.10	$ 32,635	0%
	New	Decision Maker - Real-Time Submeters	50	Groups	$ 3,500	$ 175,000	1%	-	5,000.0	10.7%	0.73	4,040.55	$ 0.87	-	0%	202,028	0%	1.0	$ 306	$ 0.10	$ 20,286	0%
		Package & Split Annual tune-up	2,600	tons	$ 50	$ 130,000	1%	0.140	810.0	10.7%	0.73	654.57	$ 0.08	294	2%	1,701,880	1%	1.0	$ 306	$ 0.10	$ 260,790	0%
		Energy Study Assistance	18	studies	$ 15,000	$ 270,000	1%			10.7%	0.73	-		-	0%	-	0%					0%
		Design Assistance	5	studies	$ 15,000	$ 75,000	0%			10.7%	0.73	-		-	0%	-	0%					0%
		Energy Project Catalyst	350,000	kWh	$ 0.80	$ 280,000	1%	0.0002	1.0	10.7%	0.73	0.81	$ 0.99	57	0%	282,839	0%	7.0	$ 2,116	$ 0.64	$ 299,647	0%
	New	Technology & Project Demonstration	750,000	kWh	$ 1.00	$ 750,000	4%	0.0002	1.0	10.7%	0.73	0.81	$ 1.24	121	1%	606,083	1%	14.0	$ 3,667	$ 1.09	$ 1,106,491	1%
BHTR	**Business Hard to Reach**					$ 802,000	4%						$ 0.874	184		917,654					$ 1,530,832	
	Energy Efficiency Equipment Grants					$ 732,000							$ 1.004	146		729,095					$ 1,331,068	
	New	Community and Grass Roots Project Support	200,000	kWh	$ 0.50	$ 100,000	1%	0.0002	1.0	10.7%	0.73	0.81	$ 0.62	32	0%	161,622	0%	14.0	$ 3,667	$ 1.09	$ 295,064	0%
	New	Small Business Direct Installation	702,222	kWh	$ 0.90	$ 632,000	3%	0.0002	1.0	10.7%	0.73	0.81	$ 1.11	113	1%	567,473	0%	14.0	$ 3,667	$ 1.09	$ 1,036,003	1%
	Landlord, Tenant, AOAO Measures					$ 70,000	0%						$ 0.371	38		188,559					$ 199,765	0%
	New	Energy Hero Landlord	233,333	kWh	$ 0.30	$ 70,000	0%	0.0002	1.0	10.7%	0.73	0.81	$ 0.37	38	0%	188,559	0%	7.0	$ 2,116	$ 0.64	$ 199,765	0%

Hawaii Energy

Hawaii Energy - PY2011/PY2012 ANNUAL PLAN
PY2011 Proposed TRB Utility Benefit Values

		Discount Rate						
		6%	HECO IRP4 Avoided Cost		NPV for each Year		NPV Cumulative from Final Year	
Year	Period	NPV Multiplier	$/kW/yr.	$/kWh/yr.	$/kW/yr.	$/kWh/yr.	$/kW/yr.	$/kWh/yr.
2011	1	1.00	$ 305.6	$ 0.100	$ 306	$ 0.1004	$ 306	$ 0.1004
2012	2	0.94	$ 338.6	$ 0.104	$ 319	$ 0.0982	$ 625	$ 0.1986
2013	3	0.89	$ 353.2	$ 0.104	$ 314	$ 0.0923	$ 939	$ 0.2908
2014	4	0.84	$ 370.6	$ 0.109	$ 311	$ 0.0914	$ 1,251	$ 0.3822
2015	5	0.79	$ 382.5	$ 0.112	$ 303	$ 0.0890	$ 1,554	$ 0.4712
2016	6	0.75	$ 386.2	$ 0.113	$ 289	$ 0.0848	$ 1,842	$ 0.5560
2017	7	0.70	$ 387.7	$ 0.114	$ 273	$ 0.0803	$ 2,116	$ 0.6363
2018	8	0.67	$ 389.1	$ 0.114	$ 259	$ 0.0760	$ 2,374	$ 0.7123
2019	9	0.63	$ 391.9	$ 0.115	$ 246	$ 0.0722	$ 2,620	$ 0.7846
2020	10	0.59	$ 390.7	$ 0.115	$ 231	$ 0.0679	$ 2,851	$ 0.8525
2021	11	0.56	$ 394.6	$ 0.116	$ 220	$ 0.0647	$ 3,072	$ 0.9172
2022	12	0.53	$ 398.3	$ 0.117	$ 210	$ 0.0616	$ 3,282	$ 0.9789
2023	13	0.50	$ 397.4	$ 0.117	$ 198	$ 0.0580	$ 3,479	$ 1.0369
2024	14	0.47	$ 401.4	$ 0.118	$ 188	$ 0.0553	$ 3,667	$ 1.0922
2025	15	0.44	$ 405.7	$ 0.119	$ 179	$ 0.0527	$ 3,847	$ 1.1449
2026	16	0.42	$ 409.3	$ 0.120	$ 171	$ 0.0502	$ 4,018	$ 1.1950
2027	17	0.39	$ 415.9	$ 0.122	$ 164	$ 0.0481	$ 4,181	$ 1.2431
2028	18	0.37	$ 423.3	$ 0.124	$ 157	$ 0.0462	$ 4,339	$ 1.2893
2029	19	0.35	$ 428.9	$ 0.126	$ 150	$ 0.0441	$ 4,489	$ 1.3335
2030	20	0.33	$ 433.9	$ 0.128	$ 143	$ 0.0423	$ 4,632	$ 1.3758

Appendix C - TRB Utility Benefit Values