Hawaii Energy

YOUR CONSERVATION & EFFICIENCY PROGRAM

ANNUAL PLAN • Program Year 2014

June 30, 2014

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1.0 INTRODUCTION

On behalf of Leidos Engineering, LLC ("Leidos") and the Hawaii Energy Efficiency Program, operating as the Hawaii Public Benefits Fee Administrator (PBFA) under contract with the Hawaii Public Utilities Commission (PUC), we are pleased to present the PBFA Annual Plan for Program Year 2014 [July 1, 2014 through June 30, 2015] (PY14).

1.1 Annual Plan

This PY14 Annual Plan provides strategies, budget, goals and a roadmap for administration and delivery of the Hawaii Energy Program based on enhanced PBFA statutory authority, our experience to date, PUC directives and the State's clean energy goals.

Key features of this PY14 Annual Plan include:

a. Efficiency Program scope expansion to facilitate acceleration of Hawaii's transformation to more efficient, clean-energy-tolerant and customer-accommodating electric grids;
b. Aggressive energy savings goal of 134,816,230 kilowatt hours (kWh), exceeding the highest level of achieved annual savings to date and providing customers with $526M in savings over life of measures;
c. $0.03 per kWh average lifetime Program costs to achieve the above savings;
d. 72% of the total Program budget devoted to direct customer incentives and offerings, above our contractual requirement of 70%;
e. $39.7M PY14 budget, representing an 18% increase from PY13 (including Transformational program targeted increases). This budget is below the estimated PBF 1.5% collection value of $42.6M;
f. Increased support of codes and standards to help the State reach its EEPS goals faster;
g. Increased customer incentives averaging $0.294 per kWh for first-year savings (up from $0.273 per kWh in PY12 actual) to ensure energy efficiency is driven deeper into Hawaii's infrastructure;
h. Collaborative engagement with utilities and others to identify and integrate Energy Efficiency and Demand Response (DR) capabilities, including identification of controllable loads, support for energy storage, Electric Vehicle (EV) charging infrastructure and effective Time-of-Use (TOU) rates;
i. Progressive expansion of Transformational offerings to lead markets and promote general awareness that will yield savings in future program years;
j. Increased use of customer-friendly web-based services and tools to improve customer experience and increase access to and participation in the programs;
k. $2M in incentives for efficiency auctions aimed at both residential and business sectors to encourage innovative third-party offerings at or below the program average cost per kWh; and
l. Geographically targeted offerings to respond to unique customer or locational needs, including: Central AC Retrofit program for Ewa Plain and Kihei-targeted initiatives to avoid new T-lines.

1.2 Key Factors Impacting and Actions Basis for Annual Plan

The following are some of the key factors and actions that have impacted the Annual Plan developed for PY14.

1.2.1 *Increased Program Aggressiveness* – The PUC guidance has been to push the Program to achieve:

- expanded offerings and services for the Public,
- increased incentive rates on cost effective and longer life measures,
- provide the potential for most savings ever for the Hawaii Energy program,
- integration of Demand Response capability into energy efficiency projects,
- provide statewide energy benchmarking using Hawaii-specific data,
- expand transformational offerings to drive change and awareness,
- increase web services participant interaction

Table 1 PY14 Program Performance Targets and Impacts

Proposed PY14	First Year $/kWh	Lifetime $/kWh	Average Life yrs.	Incentives	Program Level First Year Energy kWh	Program Level Lifetime Energy kWh
Business	$ 0.211	$ 0.017	12.4	$ 13,519,581	64,137,168	797,418,359
Residential	$ 0.157	$ 0.021	7.6	$ 11,061,475	70,679,061	536,693,431
Direct Incentives Only	$ 0.182	$ 0.018	9.9	$ 24,581,056	134,816,230	1,334,111,790
Transformational Programs				$ 3,883,364		
Program Cost	**$ 0.294**	**$ 0.030**		**$ 39,666,917**	**134,816,230 kWh**	**1,334,111,790 kWh**

Economic Benefits		Annual	Lifetime
Program Level Savings		134,816,230 kWh	1,334,111,790 kWh
Average Program Attribution Factor	÷	80.7%	81.0%
Customer Level Savings		167,107,353 kWh	1,646,106,515 kWh
Average Cost per kWh	x	$ 0.32	$ 0.32
Potential Participant Cost Savings		**$ 53,474,353**	**$ 526,754,085**
Average Project Simple Payback		3.0 years	
Potential Participant Capital Investment		**$ 160,423,058**	
Direct Incentives		$ 24,581,056	
Average Project Incentive as a % of Project Cost		15%	

1.2.2 *Ensure Competitive Cost-Effectiveness* – The benchmark measurements of the Energy Efficiency programs is the "Program Cost Test" that takes into account all program related costs as compared to the energy reductions achieved. For PY14 the "All-In" cost per kWh is $0.03. Efficiency is truly the lowest cost source of energy.

The PY14 program energy figures are provided in the table below:

- First Year Energy Impact of 134M kWh
- 1,334,111,790 kWh savings over the life of the measures
- $39,666,917 Overall Program Budget "Program Cost"
- Lifetime cost per kWh of $0.030/kWh
- Annual Cost Savings to Participants of $43 Million

- Lifetime project cost savings of $410 Million
- Economic generation of $164 Million in facility improvements

1.2.3 *"How & What to Buy" Participant Advocacy* – Hawaii Energy has sustained a focused review of the inclusion of new measures and equipment into the program over the past five years and this has proven to have protected participants from "bleeding edge" and "here today, gone tomorrow" offerings. The program has always offered customized incentives that would encompass any energy savings action and perform reviews of post energy usage to confirm claimed energy savings. The Program has also stayed contractor/vendor neutral to the extent that no promotions of available companies were done in order to avoid the appearance of endorsement.

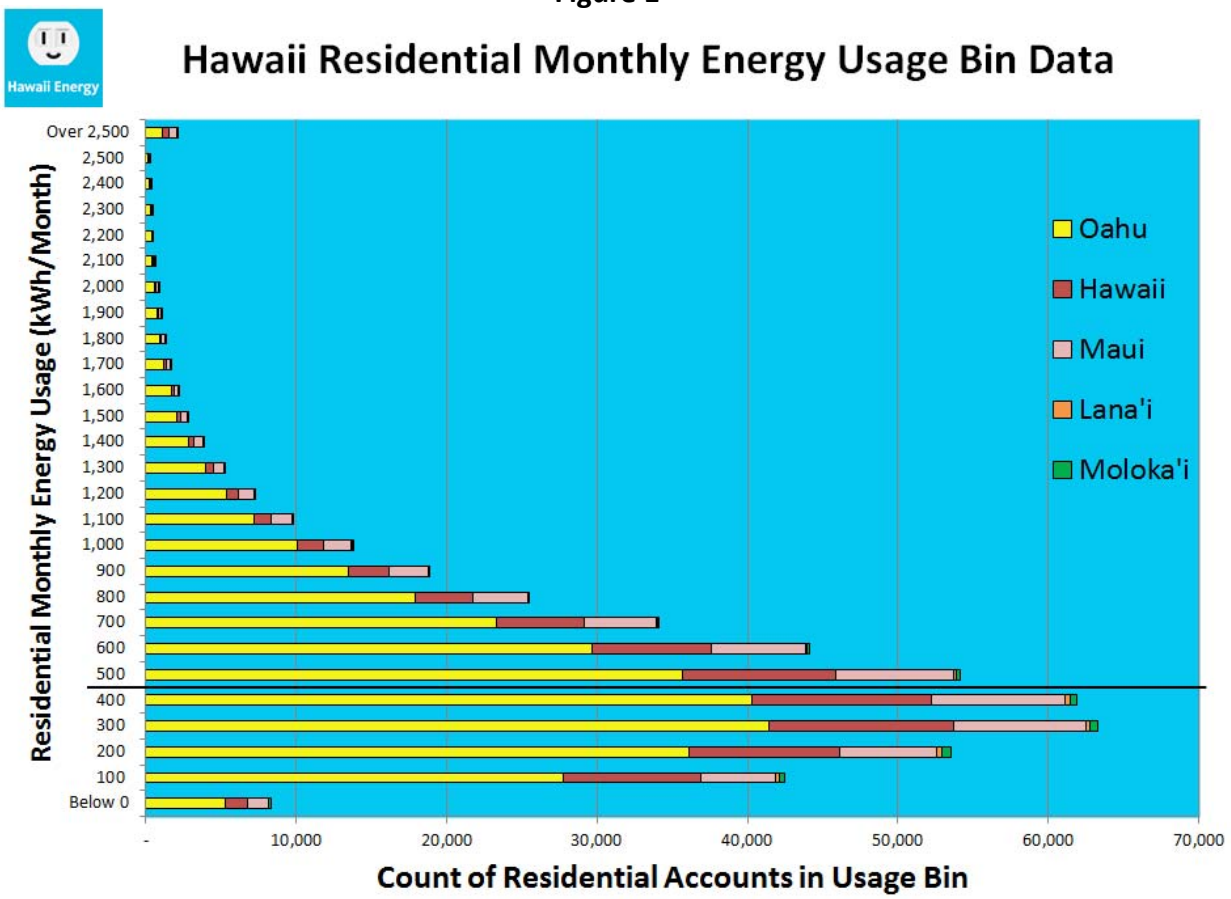
In PY14 Hawaii Energy will take a different tack with the roll out of a Clean Energy Ally program to create a program to identify and create awareness of all the companies that are providing energy efficiency goods and services. This along with "how-to-buy" discussions will address a common hurdle of indecision to starting energy projects.

1.2.4 *Creative and Innovative Programs by Inviting Others* – Hawaii Energy believes there are always more creative or innovative ways to apply the basic energy efficiency and conservation principles. In PY14, Hawaii energy will run an "Energy Efficiency Auction" to invite contractors and participants to compete for funding of their independent, cost-effective projects or program delivery mechanisms. These offerings will be compared against each other for cost-effectiveness. This first year pilot will be limited to awarding quick to implement measures and projects that fall within the program year, with the desire to evaluate and put into the planning cycle longer term projects that will be revealed by the process.

1.2.5 *Increased Benchmarking to Drive Awareness* – Hawaii Energy gained experience and saw the success of using peer group comparisons to drive behavior in both the business and residential sectors. Graphs such as the one on the next page, which show the energy use per month for residential customers, can show participants where their energy consumption compares with others in the community so they can make informed decisions where they want to be in the spectrum. There are also the demonstration of myths and trends in the data. As is shown in the graph below, there were over 7,000 homes with a less than zero energy consumption average over a year's time, this trend of over-production of PV leads to the identification of the need to determine and address causes.

In PY14, Hawaii Energy will run a benchmarking program to provide a common web-based benchmarking tool tied to ENERGY STAR® Portfolio Manager as well as direct assistance to get all the information needed to complete the benchmarking.

Figure 1



1.2.6 *Address Maturing Light Emitting Diode (LED) Lighting Market – We have been lowering the dependence on Compact Fluorescent Lamps (CFLs) for both the desire to drive longer lived savings as well as addressing the change in the marketplace to cost-competitive and maturing LED lighting offerings. To this end,*

- the CFL count in the residential programs has been lowered to 1.3M lamps from the 1.5M lamps in the PY13 plan (13% reduction)
- Prescriptive LED Street and Parking Lot Lighting offers will be implemented.

1.2.7 *On-Bill Financing (OBF) Program Support – Solar Water Heating* – Hawaii Energy has lowered the overall SWH count to 2,200 units and split the Solar Water Heating measures into the three categories of delivery.

- Direct Incentive to Contractor (1,800 units)
- Incentive to OBF Entity (350 units)
- Incentives provided to Financing Institutions (50 units)

Spreadsheet values for all technology-based incentives are estimates and subject to change based on market conditions and participant response. In the event the OBF program exceeds goals stated herein, Leidos (Hawaii Energy) can adjust budget to accommodate up to an additional 350 units without modifying program goals. If OBF solar water heater response exceeds this amount, Hawaii Energy will work with the Contract Manager to revise goals to accommodate revised portfolio efficacy.

1.2.8 *Constant Evolution to Meet Participant Feedback* – Hawaii Energy has demonstrated over the past five years to be able to identify and adjust focus on opportunities to drive participation such as AOAO Submetering and Garage CO Exhaust Controls.

The other method of evolution is to clarify and streamline programs. In PY14 the business chiller incentive will be again modified to drive more active management of these large energy consuming systems by separating the current offering into three fixed incentives. One for the chiller installation, another for installing permanent kW/ton metering for use in continuous commissioning, and a third for optimized selection of the chiller based on estimated or real building loads and chiller curve reviews. This offering provided additional incentives for these measures in the past, however they were offered in a combined $/ton manner that the market found confusing.

Customized Incentives have been adjusted upward to reflect the values needed to drive participation. The program last year reduced the incentive levels for over 5 year life projects to $0.12/kWh in order to reach the aggressive goals assigned. This level of incentive did not materially change project paybacks so, the values have been increased to $0.15 for Lighting Projects and $0.20/kWh for all other projects to get the incentive to levels that will drive projects.

These incentive levels can be adjusted higher on a case-by-case basis to get projects to move.

1.2.9 *Increased Transformational Program* – During PY11 and PY12, the Program demonstrated the value of Transformational Program activities. The Program will continue to expand on these efforts as proposed in this Plan. These activities include education, training and other similar transformational activities that may not result in immediate quantifiable energy savings, but are likely to contribute to energy savings over time.

1.2.10 *Equity Among Rate Classes and Among Islands* – In PY14, the Program will continue to expand its efforts to bring Program benefits to small businesses, landlord-tenant situations and other hard-to-reach (HTR) customers. Additionally, the Program will review available mechanisms that promote Island Equity and implement pilot programs where feasible to test for the best equity enhancers for each island's particular circumstances.

1.2.11 *Turn-Key and Direct Install Programs* – The Program demonstrated success in procuring turn-key programs and services from specialty vendors, including OPOWER peer comparison in PY10/11/12/13 and NEED.org teaching modules PY11/12/13. These turn-key programs have proven to be cost effective methods to secure highly skilled, top-notch services that the Program will continue into PY14. The following are examples of programs to be continued for PY14:

- *Educational and Training* – Programs to drive capabilities for the Building Operators and decision makers such as Building Operator Certification (BOC) training, International Facility Management Association (IFMA) local technical training seminars, Association of Energy Engineers (AEE) certification classes and testing for Certified Energy Managers (CEM) and Certified Energy Auditor (CEA), Energy Efficiency Funding Group (EEFG) Selling Energy Efficiency seminars.

- *Small Business and Residential Direct Install Measures* – Direct install and audit services from small local energy firms and community-based service organizations to provide energy audit and retrofits will expand beyond lighting. In the residential sector, we will be targeting multi-family residents for turn-key installation of energy-saving kits, including energy efficient lighting, advanced power strips, low-flow showerheads and faucet aerators. The incentives will be split between commercial and residential budgets in order to accommodate for master-metered facilities.

1.2.12 *Constant Attention on Island Equity* – In PY14, Hawaii Energy will add two full-time Program Specialists to our existing team in Maui and Hawaii counties. Each island will now have two individuals that leverage other resources in the Counties such as the utilities, County Energy Offices, community organizations, vendors, contractors and educational facilities.

The Program will continue to expand its outreach, education and training for both Maui and Hawaii counties and continue with direct-install efforts for small businesses and residents with enhanced solar and other targeted special incentive initiatives.

2.0 OUTREACH & MARKETING COMMUNICATIONS

2.1 Overview

The primary objective of the Program's Outreach & Marketing Communications (Marcom) is to increase active customer participation in Hawaii Energy offerings (i.e., residential rebates, business incentives and transformational educational/training opportunities).

For PY14, Hawaii Energy has identified significant opportunities to leverage the successes and lessons learned to enhance strategies and tactics already proven effective, as well as explore additional innovative, cost-effective and wide-reaching opportunities. Comprised of a mix of traditional and non-traditional strategies and tactics, Hawaii Energy will reach customers across Hawaii, Honolulu and Maui counties and maximize reach and effectiveness with continuous analysis and refinement.

Key objectives, strategies and tactics are highlighted below.

2.2 Key Objectives

Key PY14 objectives for the Program's Marcom include:

- Increasing awareness of what Hawaii Energy is and our role as the "go-to" resource for energy conservation and efficiency for Hawaii, Honolulu and Maui county customers with emphasis on the fact that Hawaii Energy makes it easy and money-saving to adopt conservation behaviors and invest in energy-efficient equipment.
- Increasing participation in Hawaii Energy's growing family of residential, business and transformational offerings – simply put, Hawaii Energy offers something for everyone whether they're a homeowner, renter, teacher, engineer, energy professional, small business owner or corporate executive.
- Driving traffic to Hawaii Energy's website and call center for information on Hawaii Energy offerings so customers can participate today.

2.3 Outreach

The Program's community outreach efforts continues to play an important role in increasing and maintaining the awareness of Program rebates and offers to the general customer population and business communities. A few highlights of our outreach efforts include:

- *Traditional Outreach* – For PY14, the Program will continue to sponsor and/or participate in the community and trade expo events that proved to be successful. Participation in these events will be determined based on factors including post-event surveys, past history, audience, attendance and location. In addition, the Program will be increasing our presence and participation at 10% more outreach events by continuously working to keep a pulse on new opportunities and partnerships. As a part of our traditional outreach efforts, the Program will develop "brand ambassadors" to help supplement staffing at events.

- *Outreach Through Community Allies & Organizations* - The Program will continue to maintain and align itself with organizations that share a common or similar objective of helping the community through environmental and/or sustainable efforts. These strategic partnerships help us increase our ability to reach more electric customers, as well as "hard-to-reach" populations.

- *Collaborate with Hawaii Businesses and Organizations* - Hawaii Energy will increase collaboration with private businesses to increase reach and distribution of easy-to-understand and apply information about energy efficiency and conservation. In addition, as appropriate, Program personnel will join and participate in professional organizations that are important for the Program to support as an active member, provided there is no actual or appearance of conflict of interest.

2.4 Marketing Communications

Through integrated marketing efforts, Marcom will continue to provide essential and strategic support with a focus on increasing overall awareness of the Program and its mission. Marketing efforts will be implemented through industry-recognized channels including those highlighted below in: (1) website; (2) social media; (3) promotions; (4) videos; (5) email marketing; (6) marketing collateral; (7) direct mail; (8) co-op marketing with Clean Energy Allies;

A. Website

The Program's website serves as a resource for electric customers to learn about how homes and businesses can save energy and money on their electric bills. The redesigned website was launched in 4th quarter of PY13 and to ensure that our site is providing a relevant and positive user experience, Hawaii Energy will continue to review and refine the website. The Program will continue to humanize and keep the website fresh with frequent updates and features including but not limited to adding interactive elements to the site (e.g., savings calculators), residential and business-focused success stories, and a revamped "Tips to Save" Energy page. On average, in PY13 the website received approximately 6,000 unique visitors per month. In PY14, the Program's goal is to increase unique visitors by 10%.

Upon the launch of the Bill $aver program, anticipated this summer, the Program will be integrating the existing Hawaii Energy website with the newly-created Bill $aver program web pages in order to maximize customer awareness of and participation in energy efficiency programs.

B. Social Media

In PY13, the Program expanded its brand presence via active engagement and updates through the following social media channels: Facebook, Twitter, LinkedIn and Instagram. For PY14, the Program will continue to expand our reach and provide interesting and relevant content to keep our "followers" engaged and informed. The Program will work to increase its "followers" by 5% - 10% depending on the social media channel. Social media is a great way for the Program to stay at the forefront of customers minds on a daily basis.

C. *Promotions*

The Program will continue to develop promotions to bring excitement and increase word-of-mouth of Hawaii Energy. Promotions may include a Home Energy Makeover Contest, contests on social media highlighting specific energy efficiency measures and increase followers, and/or success stories/testimonials. The Program will establish and track participation metrics to determine the success of the promotion.

D. *Videos*

To continue to provide engaging content for the community, the Program will explore the strategy of conveying its messages through videos. Video content can range from featuring case studies/success stories, energy-saving tips and "how-to" videos. The videos will be featured on our website and YouTube pages as well as promoted through our e-newsletters and social media channels. The Program's goal is to build a library of resource videos for residential and commercial customers.

E. *Email Marketing*

In PY14, the Program will continue to develop and implement a robust email marketing system to support program communications. The Program will work to maintain and increase email addresses; better integrate/share email marketing communications via web and social media; and maintain high open rates of over 35%. In addition, the Program will work to increase its email subscribers by 10% for the "residential" and "business" e-newsletters.

In addition, the Program will increase the frequency of its email distribution. The "residential" e-newsletter will increase from a bi-monthly to a monthly distribution and the "business" e-newsletter will increase from a quarterly to a bi-monthly distribution.

F. *Marketing Collateral*

To support all Marcom and program objectives, as appropriate for the audience, the Program will continue to:

- Maintain and expand a collateral system to support the offering for the residential, business and transformational programs. This can include, but is not limited to, development of brochures, rack cards, flyers, one-sheets and posters.
- Ensure that important information and messaging is written and organized in an easy-to-understand manner for strategic partners, Clean Energy Allies and customers.
- Highlight the businesses and organizations that have participated and been helped by the Program via case study development.

G. *Direct Mail*

Direct mail to geographically-targeted areas is a new channel that the Program will explore in PY14. The Program will consider implementing targeted direct mail and other integrated marketing efforts to promote various rebates and energy efficiency measures to businesses and residential customers, when applicable. In addition, the Program will continue to work

with Hawaiian Electric to distribute its targeted messaging and inserts through the electric company's business and residential monthly bills across the counties. For any offering promoted via direct mail, the Program will track and analyze the uptake of offers by assigning it a specific website address.

H. Co-Op Advertising with Clean Energy Allies

The Program will continue offering co-op advertising to Clean Energy Allies including solar water heating residential participating contractors. In PY14, we anticipate expanding the offer to manufacturers and financial institutions as appropriate. We will continue to work to refine this offering to make it easy for Clean Energy Allies to participate. Co-op advertising is a cost-effective way for us to partner with our allies, increase our brand awareness and maximize our marketing budget. Co-op advertising launched in 2nd quarter of PY13 and had a slow start, but the Program's goal in PY14 is to further encourage participation by Clean Energy Allies and hopefully increase participation by 10% determined by the number of Clean Energy Allies who submit ads for reimbursement.

In the past program years, the Program's advertising efforts mainly consisted of the development and execution of a short-run integrated advertising campaign comprised of online, TV, radio and print ads to promote a specific residential offering. Pending budget, the Program can continue with that strategy if there is a residential, transformational or business offering that requires a big "push."

In addition to a single advertising campaign push one-time a year; the Program will expand its advertising efforts so that it has an overall presence in the market throughout the year. The Program will continue to review and explore other advertising opportunities that can provide unique, added-value to Hawaii Energy and its brand. For example, having an "Energy Tip of the Month" advertorial column in a print publication or an "Energy Saving Tip of the Day" promoted on a local radio station as cost-effectively done in PY13.

As with all prior advertising campaigns, metrics such as website traffic and online ads are tracked and analyzed to determine impressions and awareness.

2.5 Public Relations

Public relations ("PR") is the strategic communication process that fosters mutually beneficial relationships between organizations and the general public. The news media is the primary medium to shape, articulate and amplify a particular message. Unlike paid-for advertising, news coverage is "earned" (vs. purchased) and validated by a third-party (i.e., the media), which enhances its credibility.

A. Media Relations

The goal is to secure local news coverage throughout the State, as well as "third-party endorsements" (e.g., testimonials or positive, endorsing statements) from key community leaders and stakeholders. Hawaii Energy will target securing one to three media stories per month. Actual media coverage garnered may vary due to factors beyond Hawaii Energy and PR's innate nature.

Local media outreach will include:

- **Mass print media** (e.g., Honolulu Star-Advertiser, Pacific Business News, numerous neighbor island newspapers and magazines, Hawaii Business, Honolulu magazine, Hawaii Home & Remodeling magazine, Green Hawaii magazine)
- **Mass broadcast** (e.g., KHON, Hawaii News Now, Hawaii Public Radio, FM & AM radio talk shows across the State, ʻOlelo and public access TV)
- **Trade publications** (e.g., Building Industry Hawaii, Building Management Hawaii)
- **Community and professional organizations** (e.g., via newsletters, emails, presentations and/or collateral distribution)
- **Online media** (e.g., local blogs, local community-minded websites)

Media and presentation training will be conducted for staff and subcontractors as needed to ensure Hawaii Energy's messaging is consistent and understandable by the various audiences.

In PY14, the goal is to increase the total value of the media coverage by 10%. Publicity value is calculated by multiplying the advertising value by three, which is a factor generally accepted by the marketing industry. Advertising value is defined as the value of media coverage by comparing it to the cost of a similar placement as an advertisement.

B. Program Positioning

The Program will identify opportunities to offer and coordinate informational presentations to various groups to influence energy efficiency decision-makers and buyers; including those groups that serve the "hard-to-reach" This will include leverage existing relationships with state agencies and community service organizations, as well as identifying and making contacts with additional groups as needed. The presentations will be led and/or conducted by the Hawaii Energy staff and/or key subcontractors depending on the audience.

<u>Target groups for the presentations include, but are not limited to:</u>

- Key community stakeholders, including policymakers and geographic district advisory groups
- Property management/AOAOs
- Business professional groups
- Energy industry organizations:
- Large employee meetings

For PY14, the goal is to reach 25 key organizations.

3.0 TRANSFORMATIONAL ACTIONS

3.1 Overview

Market Transformation seeks to identify, assess and help overcome market barriers that inhibit people and business adopting energy efficiency technologies and practices. With limited resources, Hawaii Energy's Transformational programs will strike a balance between creating new offers while supporting existing efforts in Hawaii, Honolulu and Maui counties.

With some key initiatives underway in the state to remove significant market barriers such as financing energy efficiency (i.e. On-Bill Financing), Hawaii Energy will focus on changing behaviors among three major demographics: households in underserved populations, workplace personnel and the technical workforce.

3.2 Key Objectives

The key objectives of the Transformational programs will be to:

- Leverage the effective work of others in the community to reach their niches and assist in implementation of Transformational efforts as part of their missions.
- Seek to ensure that actions are focused on having direct impact in the reduction of energy consumption in the State within a five year period.
- Achieve sustainable change and leverage resources appropriately such as educating teachers and incorporating actions to develop PBFA funded programs into self-sustaining efforts.

3.3 Behavior Modification

Behavior modification will continue to be built upon the foundation of energy literacy and strive to reach the mass market as well as "hard-to-reach" residents in underserved communities in Hawaii, Honolulu and Maui counties. Often English is not necessarily the primary language used in the household. The following outlines the PY14 portfolio of Transformational offerings planned:

- *"Sharing the Aloha" Community Workshops* – This workshop blends financial and energy literacy to connect energy-related behavior and choices to one's electric bill. Workshops will target community organizations, housing and condo associations and organizations that can provide access to a large number of residential customers (e.g. municipalities, hotels, etc.).
- *Creation and Distribution of Transformative Messaging*
    - Hawaii Energy will be executing a communications campaign to increase the availability of energy-saving information using culturally-relevant images, videos, phrases, etc., that is spread via the Internet and often in a creative or humorous way. This content will start discussions among and raising the understanding awareness of users often leading them to other Hawaii Energy offers.

- Hawaii Energy will be piloting energy-saving curriculum to businesses and community groups that feature competitions (e.g. gaming) to inspire groups to help teach and promote energy-saving behaviors, multiplying Hawaii Energy's reach and raising the understanding of the importance of energy efficiency.

- *Access and Use of Simple Energy-Saving Devices* – Hawaii Energy will be piloting a system to distribute simple energy-saving devices via a "pay-it-forward" model. By overcoming barriers to using the right device and correctly installing it, participants will be encouraged to help friends and families take those same steps on their own. This approach holds the promise to scale with limited Program resources and if successful, apply to other energy saving measures.
- *"Hard-to-Reach" Direct Install Support* – Hawaii Energy plans to support incentives offered by the Residential and Business hard-to-reach portfolios with educational workshops.
- *Higher Education Support*
  - Hawaii Energy will continue to sponsor the University of Hawaii's Sustainability Summit, which has been a catalyst for improving energy efficiency education and awareness throughout the UH System as well as other institutions of higher education.
  - Hawaii Energy plans to assist in the development of a long-term Strategic Energy Plan with the University of Hawaii to educate faculty, staff and students in energy efficiency and conservation practices. This effort will be focused on building consensus and momentum.
  - Integrated with the Business Incentive Portfolio, Hawaii Energy plans to support the installation of submetering within the University campuses to allow measurable energy-saving behavioral action to be recognized and provide feedback that supports future initiatives and education.
- *Energy Student Summit* – Hawaii Energy intends to pledge support to the creation of an Energy Student Summit that will provide a showcase event to acknowledge student interest and activities related to energy efficiency and Hawaii Energy's mission.

3.4 Professional Development

Professional development is aimed at professionals who are either new to the working world, new to energy efficiency or both.

3.4.1 *K-12 Educator Development*

- The NEED Project will be engaged to continue with energy efficiency education with multifaceted training and instructional programs on all aspects of energy, including production, consumption, and economic and environmental issues to give educators an understanding of the interrelationship between energy and the environment.
- Hawaii Energy's Teacher Advisory Board (TAB) will continue to provide feedback on the program (e.g. curriculum and materials) and pilot a new Hawaii Energy

offering (slated to be an "energy fair in a box") to connect schools, students, parents and the broader community with Hawaii Energy and its mission.

- Hawaii Energy plans to be a key collaborator with the State of Hawaii's Department of Education "Ka Hei" initiative and Maui Economic Development Board's Island Energy Inquiry that also offers professional development for educators.

3.4.2 *Creating a Career Path starting with Higher Education* – University of Hawaii's West Oahu College and the International Facility Management Association of Hawaii continues to develop a two and four year degree in Facility Management to meet the rising demand for skilled professionals in the field. Hawaii Energy plans to support this initiative with funding as well as technical and industry expertise.

3.4.3 *Professional Development for the Business Community*

- Offered primarily through Hawaii Energy's Clean Energy Ally Program and in support of the Higher Education initiatives, training will be offered to professionals in order to better frame energy efficiency opportunities in a compelling business case to secure project approval and compete more effectively for capital.
- Hawaii Energy plans to retain interns through Rewarding Internships for Sustainable Employment (RISE) and potentially by other means to support Hawaii Energy's operations to foster strong careers in the energy efficiency related field.

3.5 Technical Know How

Technical "know how" is focused on engineers, facility managers, architects, building operators, energy managers and the like who have experience in infrastructure and energy for a substantial portion of their career, but need to enhance their technical skills. This will be a key offering for Clean Energy Allies, but offered to all qualifying participants.

- Building Operator Certification Level I and Level II training sessions with University of Hawaii's Manoa Outreach College and Maui College's SLIM program will be supported.
- Technical training workshops on HVAC, pumps, motors, etc.
- Water/Wastewater Best Practices 2.0 – This focus will continue on in this program year. Hawaii Energy will deliver two, three-hour courses of instruction on energy efficiency in water and wastewater treatment to the Basic Water and Wastewater Operator Training Course sponsored the Sustainable Living institute of Maui (SLIM), UH Maui Campus.

  Hawaii Energy will provide eight hour trainings on energy efficiency in water and wastewater treatment facilities to employees of the Hawaii County Department of Water and Hawaii County Environmental Services, Wastewater Division.

  Hawaii Energy will participate with The Hawaii Rural Water Association in training small, private operators via their circuit rider training process. Details are pending on number of operators and plants serviced in PY14.

3.6 Energy Systems Integration Pilots

3.6.1 *Support for Benchmarking*

- *ENERGY STAR® / Hawaii Energy Benchmarking Program* – This program would have a goal of benchmarking as many as 500 facilities by raising awareness and removing barriers to using the ENERGY STAR® Portfolio Manager program. This would be achieved by automating the uploading of electrical energy data as well as prepopulating portfolio accounts to give participants a head start on completing their portfolio. Hawaii Energy would work closely with the State Department of Business, Economic Development & Tourism's Energy Office (DBEDT) to build on prior benchmarking experience and complement work already completed.

- *Green Button and ENERGY STAR® Partnering* – Direct feed using the Environmental Protection Agency (EPA)'s Portfolio Manager web services to get energy data into ENERGY STAR® Portfolio Manager

- *Hawaii Specific Tax-Map-Key (TMK) data integration* – Acquire and utilize square footage and other facility information for benchmarking and EUI.

- *Accessible by Registration Web Site to allow customers "Utility" Management tools* – This will build upon the OBF contractor site tools to provide a valuable service to track and monitor multiple site energy usage as energy projects are implemented and planned.

- *Provide full cost incentives to targeted Benchmarking Participants* - based on their initial ENERGY STAR® score to encourage participation in the ENERGY STAR® benchmarking. These can include Grants to perform Initial Energy Reviews, ENERGY STAR® Certifications and Decision Maker type metering.

3.6.2 *Codes and Standards*

3.6.2.1 Hawaii Energy 30 by 2030 – 30% Above Code Programs – Hawaii Energy proposes to use market knowledge of the current design practices and levels of code achievement in order to identify and develop concrete incentives or program support for barrier removal. From our work with the new home developers as well as review of new construction plans in the course of incentive reviews, Hawaii Energy believes that most new construction is being built above code already, due in great part to the high cost of energy in Hawaii. We propose to build upon DBEDT's work with the Hawaii Codes Council to move not only the adoption of IECC 2012 in all counties, but to determine realistic targets above the codes to support with PBFA incentives.

3.6.2.2 Assessment of Baseline Compliance – The first step in increasing compliance is to assess a baseline condition determine what the current levels of compliance are and to what extent the typical building meets the code requirements. From there we can design appropriate training and outreach and, more importantly, measure improvements over time to show success or

the need to adjust program offerings.

- Perform a Codes Compliance Survey. Any survey developed will be designed for use in measuring changes in compliance over 3 years.
- Work with the existing codes councils, county agencies, DBEDT and others to conduct a process evaluation to determine the existing level of code compliance and the need for additional support.
- Determine the extent to which the 2006 standard is achieved and what portion of the building industry is already moving towards, or in compliance with, the 2009 standard.

3.6.2.3 Code Compliance Assistance – Hawaii Energy can provide assistance to county codes officials in the review and approval of building plans. By providing expert technical assistance, Hawaii Energy can increase compliance on a local level by helping the reviewers with interpreting the technical requirements of the building code. In addition, we will help identify areas that will be impacted by adoption of the 2009 and 2012 standards. Specific areas of support may include:

- Support to Counties for Code Compliance Reviews such as Staffing Grants
- Identification and training of plan reviews to provide expert technical support
- Two-days per month of on-site assistance in each of the county codes official's offices.
- Telephone and email support to codes officials on an on-going basis.
- Review of up to 10 building plans per month to assist in the assessment of code compliance in each of county offices.

3.6.2.4 Compliance Enhancement – early adoption of IECC 2012 – There are opportunities to enhance the current building code by having more "Upstream" Engagement with the Developer/Design community to encourage builders and designers to exceed the existing code requirements. Activities may include:

- Training for builders, designers, and code officials. Series of one-day classroom sessions that may include:
  - Energy Codes Demystified – What IECC 2012 means in practical terms.
  - Sessions for code officials and builders on how to conduct a site review to determine code compliance. Sessions will use pictures and videos of construction sites.

- Sessions for architects and engineers demonstrating the use of parametrics in building energy simulations that will help to identify the most cost-effective upgrades to a variety of building types to increase building energy performance. Sessions may be broken out by building types (residential, school, retail, etc.) or other considerations.
- Incentivize early compliance

- Work with stakeholder groups to build consensus on techniques for integration of new code requirements.

3.6.3 *Demand Response Pilots*

Hawaii Energy proposes to incorporate Demand Response (DR) capacity acquisition activities to provide the Hawaiian Electric Companies (HECO) greater access to controllable loads in the following manners:

3.6.3.1 Direct Integration – The discussion of DR can be integrated into the ongoing Energy Efficiency (EE) programs as follows:

- Promote DR Capable EE Projects – The discussion and identification of DR opportunities occurs primarily within the CBEEM and BESM measures where Hawaii Energy takes a more involved and earlier role in the project development. The justification of both Building Management Control Systems is supported by both EE and DR benefits. Items such as increased submetering and control circuits can be more cost effectively implemented during major retrofits that may occur every 15 to 20 years, so catching the projects at the right time is critical to DR adoption. Details such as promotion and redirection to existing DR programs or general preparation for future capability will be coordinated with HECO.
- Education promoting Efficiency First, DR Controls Capability, and Renewable Integration – There is an opportunity to perform awareness and education campaigns to demonstrate the "loading" order as well as operational and cost benefits of coordinated project planning.

3.6.3.2 DR Technology Screening – There is a market need to understand the types of technologies that are available and useful to control for DR, as well as a need to identify the types and characteristics of technologies that are compatible controls with HECO systems. Hawaii Energy will work closely with HECO to define compatible DR implementation technologies and specifications. Further, we will survey manufacturer equipment offerings to define a series of available equipment. We will also identify DR loads that are potentially available to be controlled for the main building types in the residential and commercial sectors.

3.6.3.3 Pilot Projects – Several projects can be pursued to determine the technical opportunities and project/program costs of integration of EE and DR acquisition. Every instance would start with working with HECO and others to

determine interoperable DR devices to include in our program.

- Mandate and/or Incentivize DR Capability in SWH Installations – Hawaii Energy can implement integration of DR capable devices into the specifications for the SWH program Approved Products List. This change would impact both EE and OBF SWH installations.
  - The implementation of these devices would be an incremental cost to the overall SWH projects and should be more cost effective to acquire DR capacity.
  - Incorporation into the tune-up programs where 5 year old+ systems are being serviced and contractor is already on-site.
- Limited Incentives to Add DR Capability in EE Projects – Hawaii Energy will assign an incentive budget in the planning process and propose integration of DR capable devices into the standard Commercial Central Plant offerings.
  - Develop and test an Incentive Pilot to test viability of a financial or technical incentive motivation to drive DR acceptance and awareness
    - Budget $75,000 for direct incentives with a targeted $125/kW under DR control. This is the same as the EE customized demand value.
- Water Heater or AC Integrated DR Control Pilot – Develop a project to demonstrate Equipment integrated DR capability.
  - RFI to determine technologies available that are compatible with the planned Smart Grid network and/or identify manufacturers willing to incorporate DR capability built into their equipment.
  - Examples could be Residential Heat Pump Water Heaters and AC units and Commercial Package Rooftop AC seen in many applications.
- EV as DR Source – Hawaii Energy would integrate any EV work with capability to utilize these "rolling batteries" to achieve DR goals work as well take advantage of more static load shifting opportunities that are provided for by large scale EV penetration. Survey local business to determine EV penetration in large parking structures to evaluate the effectiveness of a daytime charging as a load shifting mechanism.
- Kihei and Wailea Maui EE/DR (and potentially other energy system integration) Pilot – There is a planned Ma'alaea-Kamali'i Transmission line on Maui that is a perfect opportunity to demonstrate the combined strength of targeted Energy Efficiency (EE) and Demand Response (DR). There is also the potential to include Smart Grid (SG), Renewable Energy (RE) and Distributed Generation (DG).

The plan would be to meet with the following agencies to determine the

scope of a potential pilot:

1. Maui County Energy Office – The County is involved in overall energy planning. In addition they control large loads in the area such as the new Kihei Police Station, Water and Wastewater facilities.
2. Maui Hotel Engineers Association – Hawaii Energy has been engaged with major hotels in Wailea for several years and there have been major reductions in energy consumption along with greater control capability designed into the projects.
3. MECO – The Utility performing the Transmission Infrastructure planning.
4. State Department of Education (DOE) / Chevron Energy Services – The State DOE has contracted with Chevron Energy Service to develop a Sustainability Master Plan and is looking for opportunities to make a showcase school. The Kamali'i Elementary School and the new Kihei High School (one of the identified drivers for the need for capacity) could be target showcase schools.
5. Wailea 670 – Developer of 1,400 unit Master Planned Community of Honua'ula.

Hawaii Energy can target the SBDIL program in the Kihei area where there is a large concentration of small businesses as well as develop targeted incentives to drive material reductions in energy usage and demand profiles.

3.6.4 *Smart Grid Support: Integration with HECO Smart Grid Project*

Hawaii Energy proposes to dedicate an engineer to the task and coordination of determining how the program can enhance implementation of smart grid project to include EE enhancements and options and coordinating these efforts with HECO. The actions will include:

- *Work with HECO* – There are several technical and coordination details that Hawaii Energy needs to understand and determine how to incorporate into EE enhancements to the initial Smart Grid roll out.
    - Communication Protocols – Understanding the communication protocols to be used is critical to the incorporation of making EE projects DR and Smart Grid ready. Hawaii Energy needs to identify manufacturers and off-the-shelf products to educate EE participants.
    - Tool Evaluations - The Silver Spring Networks customer engagement portal will be evaluated to see how it compares, complements or duplicates efforts such as OPOWER Peer Group Evaluation letters and on-line tools. Changes to the Hawaii Energy programs will be recommended as appropriate to avoid duplication and participant confusion.

- Marketing and Outreach – Hawaii Energy has already participated in HECO Smart Grid customer outreach events and it is expected that this support will continue and may be expanded in PY14.

- Targeted EE Opportunities – ID and take action with customers who are identified and desire to take action based on SG pilot.

- *Energy Usage and Program Participation Data Review* – Evaluate energy use and Hawaii Energy program participation of the initial Smart Grid Initial Phase Participants.

  - Program Participation - It is expected that there will be greater participation as there are higher levels of engagement with HECO, Blue Planet and Hawaii Energy outreach in selected communities. It is proposed that evaluation efforts be put towards the review and reporting of the results.

  - Time-of-Use Data – Hawaii Energy has direct access to the monthly energy consumption of HECO customers and time-of-use data indirectly through the PowerTracks Web Portal for selected customers. The new Smart Grid project will provide time-of-use data for 5,000 customers. Hawaii Energy will use both the coordinating engineer as well as Information Technology and Data Analysis resources to insure that this new information that will be hosted at Silver Spring Networks servers will be available and useful for the Energy Efficiency programs to make maximum use of the Smart Grid infrastructure investment.

3.6.5 *Expanded Electric Vehicle Role*

The ability for EE work to integrate with DR and EV can be used to identify opportunities for EV charging that minimize renewable curtailment and support grid reliability by integrating the three offerings.

3.6.5.1 Net Zero Electric Car Purchase Package – Work with Electric Car Dealers, Manufacturers, Auto Loan Financial institutions, HECO, DBEDT, HCEI and electric vehicle support groups to develop a program to package Energy Efficiency with Electric Vehicle purchases. Hawaii Energy has done some review for the Maui EV Association of what it would take to offset the energy that an Electric Car would consume. The result was that a Nissan Leaf will consume 8 kWh per Day for a 25 mile commute. This is less than a small window AC running for 7 hours a day. A Solar Water Heater could save a family of four around 5.7 kWh per day and with additional savings of LED lighting at almost 2 kWh per day the energy for an electric vehicle is in reach of being offset with efficiency improvements with a much smaller installation of PV required to offset the energy usage of an electric car.

- Tie Energy Efficiency and Electric Vehicles and hit the same demographic of caring and interested persons.
- Incorporate discussions on financing of EE offerings.

- Deliver the messages of the new HECO Load Curves and the ability to use the electric vehicles, water heaters and even AC loads to help shift loads to optimize the energy systems in Hawaii to be more efficient and incorporate more renewables.

3.6.5.2 Raise Awareness – Hawaii Energy can incorporate the Electric Vehicle (EV) messaging into the EE program work and provide marketing and communications support to include but not limited to:

- Outreach engagement at community events and trade shows
- Review and incorporation of Hawaii Energy branding on all public-facing documents
- Marketing promotions via print, broadcast, online, email and social media where needed and applicable
- Collateral and case study development
- Media and public relations support to highlight offer and successes.
- Participate in auto trade shows and work with local car dealerships.

3.6.5.3 Determine motivational and effective Time-of-Use Rates – Current TOU rates do not appear to drive customer investment required to provide the equipment and processes needed to support the effort. TOU rates have to drive project financials from the customer view first and foremost. Hawaii Energy has direct experience in providing technical and financial project review assistance that involved TOU rates to provide the driver. In the past five years, the current TOU rates have not demonstrated that they were factors in driving any projects forward.

Hawaii Energy could provide a review of projects found in the course of EE, EV and SG work proposed that could illuminate where TOU rates need to be to make real world decisions with real projects. This would provide a stake where the TOU rates need to be giving the Utility a target to shoot for.

The work could include a Pilot rate/incentive to demonstrate action with costs supported by the integrated benefit of the EE, DR and SG/RE acceptance benefits.

4.0 RESIDENTIAL PROGRAM STRATEGY & DETAILS

4.1 Overview

For PY14, Hawaii Energy will continue to maintain programmatic changes adopted in PY13, specifically the incentive categories:

- *Residential Energy Efficiency Measures (REEM)* – This incentive category is the core of Hawaii Energy's residential portfolio and undergoes incremental developments responding to market conditions (i.e. retail pricing) and consumer need.
- *Custom Energy Solutions for the Home (CESH)* – This incentive category provides a measure of flexibility within the prescriptive portfolio to accommodate unforeseen market opportunities. The budget and unit cost targets provide financial efficacy guidance to the Program and allies who champion these opportunities.
- *Residential Energy Services & Maintenance (RESM)* - This incentive category targets ally-driven service offerings to enhance energy savings persistence and bootstrap fledgling energy services businesses trying to secure a toehold in Hawaii.
- *Residential Hard-to-Reach (RHTR)* – This incentive category will seek to secure various projects among geographies and demographics that have been traditionally underserved. Efforts in PY14 will address the landlord/tenant barrier through direct installation of home energy saving kits. In PY14 geographic barriers will continue to be an opportunity for program targeting.

A summary listing of the new Residential Program offerings can be found in the table below followed by a brief summary of additions and changes. A detailed description of the Residential Program offerings follows in section 4.1 through 4.6. Appendix B contains a projection of potential energy savings for the planned programs.

Table 2
List of Residential Programs

Residential Programs
REEM - Residential Energy Efficiency Measures
High Efficiency Water Heating
High Efficiency Lighting
High Efficiency Air Conditioning
High Efficiency Appliances
Energy Efficiency Equipment Kits
Energy Awareness, Measurement and Control Systems
CESH - Custom Energy Solutions for the Home
Customized Project Measures
RESM - Residential Energy Services and Maintenance
Residential Design and Audits
Residential System Tune-Ups
RHTR - Residential Hard to Reach
Energy Efficiency Equipment Grants
Direct Installation - Residential Energy Kits

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

High Efficiency Water Heating

- *Solar Water Heater New Technology Pilots and Testing* – Hawaii Energy continually monitors the solar water heating market to track existing system performance and evaluate emerging technologies for inclusion into the Program. New technology pilots and testing efforts provide additional visibility into achieved energy savings and insight into ease of installation, perceived maintenance, and overall customer satisfaction. The ability to test and vet proposed new technologies prior to inclusion into the Program further strengthens the Hawaii Energy's industry knowledge and ability to better educate the end user.

High Efficiency Lighting

- *LED Lighting* – While not new to the residential portfolio, Hawaii Energy has witnessed a surge in the availability of ENERGY STAR® certified LED products while retail prices continue to fall. Thus, LEDS are becoming a more predominant energy saving lighting option for residential consumers. The Program closely follows availability (rising) and pricing (decreasing) in order to maintain adequate incentive levels. In response to current trends, the Program has increased the unit count to 300,000 for PY14 and decreased the average incentive level to $6.00.

High Efficiency Air Conditioning

- *Window Air Conditioning with Recycling* – This initiative targets a broader market than that reached in PY13 when incentives were issued only for inverter driven (VRF) technologies. Window units are generally recognized as more affordable and maintain a wider market penetration. The PY14 offer will extend beyond the Program's historical window air conditioner offering that was discontinued in PY11. In PY14 the Program will require the customer to surrender the old working window air conditioners in order to qualify for the rebate. Hawaii Energy will utilize existing industry partnerships to ensure proper recycling and disposal of old units.

High Efficiency Appliances

- *Set-Top Boxes Pilot* – This pilot will target 100 homes for the replacement of conventional set-top boxes with ENERGY STAR® qualified units. Using available case studies and industry working groups, Hawaii Energy will identify best practices for this type of initiative. The effort will require collaboration with service providers and manufacturers to determine the opportunities and barriers for program success.
- *Advanced Power Strips* – Hawaii Energy has previously distributed advanced power strips specifically as program giveaways. In PY14 the Program will offer

rebates for advanced power strips available at local retail locations. The initiative will be administered in a similar fashion to the upstream lighting program where the incentives will be used to buy down the cost at the point of purchase. The Program will leverage existing relationships with retailers to identify and target potential participating manufacturers.

Energy Efficiency Kits

- *Home Energy Saving Kits- Online Fulfillment* – Hawaii Energy will incentivize residential energy saving kits available for purchase online through a Program controlled web page. The kits will contain a variety of energy saving components including energy efficient light bulbs, advanced power strips, low flow showerheads and faucet aerators. Customers will be verified and kits will only be delivered to residents in the designated service area. Data gathered through the online fulfillment will allow greater insight into customer characteristics for future program targeting.

Energy Awareness, Measurement and Control Systems

- *Peer Comparison* – Hawaii Energy plans to continue the OPOWER Home Energy Report peer comparison program for 132,500 residential recipients. The program was first expanded to the neighbor islands in PY11 and then again to additional Oahu zipcodes during PY13. The market for peer comparison initiatives is evolving in PY14 to include additional analytical capabilities and geographic targeting. Hawaii Energy's strategy will look for ways to affect measurable energy savings through behavior change in both residential and transformational portfolios by evaluating the evolving options arising in the market.
- *Whole House Energy Metering* – While not new to the residential portfolio, the market approach to promoting whole house offers will evolve. Specifically, Hawaii Energy will use data from industry working groups to qualify technologies and explore targeting specific high-use households to consider this measure.
- *Water Cooler Timers* – Originally introduced in PY13 as a business offering, Hawaii Energy will expand the water cooler timer incentive to residential customers as well. This program will utilize the home delivery water services providers to install digital timers on hot/cold water dispensers at no cost to customers, thus saving the stand-by losses in the cold and hot tanks during times that the systems are not being utilized. Self-service customers will also be able to request a timer for their personal water cooler through an online opt-in form linked to the Hawaii Energy website.

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

Customized Project Measures

- *Hawaii Energy Efficiency Project Auction* – Hawaii Energy will issue a call for projects in PY14 to encourage contractors and energy vendors to develop cost-effective projects that focus on high energy consumption and hard-to-reach 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 submetered if required to ensure savings performance.

4.1.3 *New Program Offerings of Residential Energy Services and Maintenance (RESM)*

Residential System Tune-Ups

- *SWH System Tune-Up* – Implemented in PY13, the Tune-Up achieved unprecedented success. As a result, Hawaii Energy will continue the Tune-Up offer on a seasonal basis. This will continue to complement the Solar Water heating marketing push and improve Program insight into system lifetime performance.
- *Central Air Conditioning Retrofit Pilot* – This initiative will look at the effectiveness of replacing mid-life central air conditioning systems. The pilot will target single-family homes (generally 15-20 years of age) with central air conditioners, that are ready to purchase a replacement system. The typical target home type will be equipped with central air conditioning units with EER of 10.0. The retrofit will consist of upgrading the primary unit to one with a higher EER of 13.0. These efforts may also require refrigerant upgrades and duct sealing which would result in higher costs for the customer.

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

Energy Efficiency Equipment Grants

- *CFL Exchange* – While not a new to the residential portfolio, the Program will expand on PY13 successes to offer CFL exchanges targeting large condo associations and community assistance programs. These groups have expressed continual interest in exchanges and have established central points of contact to facilitate the program administration. In the coming year, we will also explore the cost-effectiveness of shifting to LED exchanges.

Direct Installation

- *Multi-family Direct Install* – Multi-family property buildings will be targeted as recipients of turn-key installations of basic energy saving items for individual

units. Proposed installations include CFLs/LEDs, low-flow showerheads, faucet aerators, and advanced power strips. Program development will include market analysis and segmentation using input from state housing agencies, direct property manager outreach and tenant education efforts. All measures will be installed without customer co-pay.

4.1.5 *Residential Program Details Table of Contents*

To follow, in Sections 4.2 through 4.6, is an overview summary of Residential Program Offerings followed by detailed descriptions and energy savings. The Overall Program Details are provided on the following page, preceding the individual Program summaries.

4.2 Residential Programs Overview

Program Category	**4.2 Residential Programs Overview** **Overview of All Categories**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers • Solar Contractors, Plumbing Contractors and General Contractors • Architect and Engineers
Projected Impacts	Demand 10,439 kW Energy 70,679,061 kWh Incentive Budget $11,061,475 Cost per kWh $0.16 /kWh TRB $71,141,903
Technologies	**Incentivized Measures** — **Incentive Forecast** **Residential Energy Efficiency Measures** $8,712,683 **Custom Energy Solutions for the Home** $977,542 **Residential Energy Services & Maintenance** $310,000 **Residential Hard-to-Reach** $1,061,250 $11,061,475 • Solar Water Heating Systems $1,000 • Solar Water Heater Interest Buy Down $1,000 • Solar Water Heater- OBF contribution* $1,000 • Solar Water Heater- New Technology Pilots/Testing* $2,000 • Heat Pumps $200 • CFLs $ 1.10 • LED $6 • VRF Split System AC $200 • Window AC with Recycling* $80 • Ceiling Fans $35 • Solar Attic Fans $50 • Whole House Fans $75 • Refrigerator (Purchase only <$700) $50 • Refrigerator with Recycling $125 • Garage Refrigerator/Freezer Bounty $85 • Clothes Washers (Tier II / III) $50 • Set-Top Boxes – Pilot* $100 • Pool VFD Controller Pumps $150 • Advanced Power Strips* $15

Program Category	4.2 Residential Programs Overview Overview of All Categories

- Home Energy Saving Kits- Online Fulfillment* $15
- Room Occupancy Sensors & Timers $5
- Peer Group Comparison $11.90/HH
- Whole House Energy Metering $100
- Water Cooler Timers* $15
- Hawaii Energy Efficiency Project Auction* $.18/kWh
- Efficiency Inside Home Design $600
- Solar Water Heater Tune-Up $150
- Central Air Conditioning Retrofit Pilot* $1,000
- CFL Exchange(s) $2.50/bulb
- Refrigerator (with recycling) – Lanai and Molokai $250
- Refrigerator (with recycling) – Lanai and Molokai $250
- Solar Water Heater (SWH) Incentive $11,000
- Multi-Family Direct Install* $129/unit

*New or expanded measures

4.3 Residential Energy Efficiency Measures

Program Category	**4.3 Residential Energy Efficiency Measures** **4.3.1 High Efficiency Water Heating**
Target Market	• Homeowners, Landlords, Tenant, and Property Managers • Manufacturers, Distributors, Dealer, and Retailers • Solar Contractors, Plumbing Contractors, and General Contractors • Architect and Engineers
Impacts	Demand 934 kW Energy 4,376,259 kWh Incentive Budget $2,340,000 (9.5%) Cost per kWh $0.535 /kWh TRB $10,473,554
Technologies	**Incentivized** — **Incentive** — **Units** • Solar Water Heater (SWH) Incentive — $1000 — 1,800 • Solar Water Heater Interest Buydown — $1,000 — 50 • Solar Water Heater OBF Contribution — $1,000 — 350 • Solar Water New Technology Pilots/Testing — $2,000 — 40 • Heat Pumps — $200 — 300 (The following Solar Water Heater Systems budgets are included in the plan under the RHTR-Energy Efficiency Equipment Grants. See section 4.6.1) • Solar Water Heater (SWH) Incentive — $11,000 — 75 ***Total Solar Water Heating Systems*** ***$3,105,000***
Market Barriers	**General** • Large up-front cost • Strong demand for PV / Low awareness of cost-effective SWH • Trust and credibility of technology providers • Quality of system design, equipment and installation • Operational knowledge and maintenances of technologies **Owner Occupant** • Access to and/or understanding of financial options • Time between purchase and tax refunds (carrying cost)

Program Category	**4.3 Residential Energy Efficiency Measures** **4.3.1 High Efficiency Water Heating**
Market Barriers (continued)	**Landlords and Property Managers** • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the hot water system • Renter lease term shorter than simple payback
Description & Implementation Strategies	**Solar Water Heating** *Solar Water Heater (SWH) Incentive* The program provides a $1,000 rebate for solar hot water systems installed by qualified participating contractors. The process is: • Customers contact a contractor from a list of participating contractors on Hawaii Energy's website. • Contractor comes to the home, reviews site conditions, interviews the customer to analyze hot water usage then provides a written proposal for a complete installation; Contractor's proposed sale price reflects the inclusion of the $1,000 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 (85%) to make sure the systems have been installed properly. • Upon successful inspection, Hawaii Energy will rebate the contractor $1,000. *Solar Water Heater Interest Buydown* The program works with participating lending institution to provide an incentive to buy down the interest charges for loans made on solar hot water systems that are installed by qualified participating contractors. This incentive will cover 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 works with a participating contractor to complete the standard installation process.

Program Category	**4.3 Residential Energy Efficiency Measures** **4.3.1 High Efficiency Water Heating**
Description & Implementation Strategies (continued)	*Solar Water Heater (SWH) Incentive – OBF Contribution* For PY14, Hawaii Energy has allocated funding specifically for solar hot water systems installed through the upcoming Bill $aver (On-Bill Financing) program. The customer will work the contractor to determine eligibility for the program. Once approved, these systems will be installed in accordance with the specifications for the standard incentives. *Solar Water Heater – New Technology Pilots and Testing* Hawaii Energy continually monitors the solar water heating market to track existing system performance and evaluate emerging technologies for inclusion into the Program. New technology pilots and testing efforts provide additional visibility into achieved energy savings and insight into ease of installation, perceived maintenance, and overall customer satisfaction. The ability to test and vet proposed new technologies prior to inclusion into the Program List further strengthens the Program's industry knowledge and ability to better educate the end user. **Heat Pumps** Residential heat pump rebates are available at $200. Rebate applications for water heaters are provided by the retailers at the time of purchase or a customer can visit our website and download the form. Rebate applications must include an original purchase receipt showing brand and model number. **Implementation With Clean Energy Allies** The program will conduct outreach with key allies including the Solar Technical Advisory Group, solar contractors, suppliers, government and housing agencies; financial institutions; and housing, apartment, and contractor associations. This team will promote the program, solicit feedback for more efficient program operation, and identify opportunities for implementation and coordination of efforts
Key Changes	• Continual solicitation of new participating lenders to offer loan interest buy down incentive • Cooperative Marketing funds for solar contractors and lenders • Additional metering and data collection efforts to evaluate energy savings and system performance
Marketing Strategies	• Comprehensive marketing initiative including online, print, TV and radio advertising • Direct contact with participating solar contractors • Community event promotion of High Efficiency Water Heating • Listing of participating contractors and solar water heating resources on our website

Program Category	**4.3 Residential Energy Efficiency Measures** **4.3.2 High Efficiency Lighting**
Target Market	• Homeowners, Landlords, Tenants, and Property Managers • Manufacturers, Distributors, Dealers, and Retailers
Impacts	Demand 6,430 kW Energy 45,333,669 kWh Incentive Budget $3,230,000 (13%) Cost per kWh $0.071 /kWh TRB $43,732,048
Technologies	**Incentive** **Units** CFLs $1.10 1,300,000 LED $6.00 300,000
Market Barriers	**General** • Lack of understanding about how energy is used in the home • Disposal concerns • Lack of understanding as to which technology is the most effective to reduce energy consumption • Product availability of specialty and dimmable LEDs within the customer shopping area **Owner Occupant** • Ability to self-install • Ability to find appropriate CFLs for fixture or ceiling fan • Disposal concerns • May not pay for electricity cost (condominiums) **Landlords and Property Managers** • No control over the hours used for lighting • May not pay for electricity cost • Reluctance to invest without a financial return • Short term investment **Renters and Lessees** • Do not have the authority or responsibility for the lighting fixtures • May not pay for electricity

Program Category	**4.3 Residential Energy Efficiency Measures** **4.3.2 High Efficiency Lighting**
Description & Implementation Strategies	The CFL and LED rebates are offered through manufacturer direct incentives which are provided as point of sale cost reductions. The process includes: • Distributors, retailers and manufacturers complete a program application in which they commit to advertising and promotion for instant rebates for the CFL and LEDs sold to customers. • Participating retailers agree to display signage showing the rebate has been provided by the Program, provide assistance in ordering and stocking qualifying products, and provide sales staff training. • Retailers agree to promote consumer education, undergo staff training and follow proper procedures. • Manufacturers provide accurate, timely data on point of purchase information by store by SKU for rebate reimbursement. **Implementation with Clean Energy Allies** The program is implemented through strong working relationships between the program, the major CFL/LED manufacturers and the national retailers. The participating CFL manufacturers are: GE, FEIT, Sylvania, Westinghouse, TCP and Philips. The participating LED manufacturers are: Cree, Feit, Philips, GE, and Lighting Science Group. Participating retailers include: City Mill, Costco, Don Quijote, Foodland, Home Depot, Longs Drugs/CVS, Safeway, Sam's Club, Times and Wal-Mart who have all utilized their buying power to offer a better blend of quality, affordable CFLs and LEDs across the State.
Key Changes	• Increased unit numbers and reduced incentive levels for LEDs to reflect market changes. • Provide for increased recycling options for CFLs.
Marketing Strategies	• Significant focus on merchandising, including more requirements for in-store signage featuring Hawaii Energy brand and incentive amounts • Educational information online and in the media to inform customers on best practices for purchasing CFLs and LEDs • Advertisements to explain how to select a CFL or LED • Leverage allies to share CFL information and increase participation • Encourage an increase in selection of CFLs available • Promotion via social media

Program Category	**4.3 Residential Energy Efficiency Measures** **4.3.3 High Efficiency Air Conditioning**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers • HVAC and General Contractors • Architect and Engineers
Impacts	Demand 370 kW Energy 954,553 kWh Incentive Budget $382,500 (1.6%) Cost per kWh $0.401 /kWh TRB $2,651,957
Technologies	**Incentive** / **Units** VRF Split System AC $200 700 Window AC with Recycling $80 1,000 Ceiling Fans $35 3,500 Solar Attic Fans $50 200 Whole House $75 400
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 • Homeowner association rules **Landlords and Property Managers** • No control over the hours tenant/units use of air conditioning. • May not pay for electricity cost • Reluctance to invest without a financial return **Renters and Lessees** • Do not have the authority or responsibility for the HVAC system • May not pay for electricity

Program Category	**4.3 Residential Energy Efficiency Measures** **4.3.3 High Efficiency Air Conditioning**
Description & Implementation Strategies	The program will continue to provide prescriptive incentives to residential customers who purchase and install energy efficiency measures that meet or exceed ENERGY STAR® standards. The process includes: • The customer purchases a qualified high efficiency air conditioner, ceiling fan, solar attic fan or whole house fan. • The customer obtains an application through the program's website, in hard copy from Hawaii Energy, or through point of sale retailer displays. **Implementation with Clean Energy Allies** 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 also use industry working groups as a resource to identify appropriate efficiency standards when qualifying technologies to be incentivized.
Key Changes	• Addition of window air conditioning with recycling incentive. Rebate available for the purchase of an ENERGY STAR® qualified window AC provided an old working unit is surrendered. • The Program will continue to encourage variable refrigerant flow (VRF) inverter split system units with additional input from manufacturers and local distributors.
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 • Promotion via social media

Program Category

4.3 Residential Energy Efficiency Measures
4.3.4 High Efficiency Appliances

Target Market

- Homeowners, Landlords, Tenants, and Property Managers
- Manufacturers, Distributors, Dealers and Retailers
- Wholesalers and General Contractors
- Architect and Engineers

Impacts

Demand	256	kW
Energy	4,720,829	kWh
Incentive Budget	$825,000	(3.4%)
Cost per kWh	$0.175	/kWh
TRB	$6,086,287	

Technologies

	Incentive	Units
Refrigerator (Purchase only, <$700)	$50	500
Refrigerator with Recycling	$125	5,000
Garage Refrigerator/Freezer Bounty	$85	500
Clothes Washer (Tier II / III)	$50	2,000
Set Top Box Replacement- Pilot	$100	100
Pool VFD Controller Pumps	$150	100
Advanced Power Strips	$15	500

Market Barriers

General

- Lack of understanding of how energy is used in the home
- Lack of information about energy efficient products
- Lack of understanding as to which are the most effective ways to reduce energy consumption
- Lack of understanding of the importance of size and operation for energy savings
- Large up-front cost

Owner Occupant

- Ability to self-install
- Homeowner 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

Program Category	**4.3 Residential Energy Efficiency Measures** **4.3.4 High Efficiency Appliances**
Description & Implementation Strategies	The program will continue to provide prescriptive incentives to residential customers who purchase and install energy efficiency measures that meet or exceed ENERGY STAR® standards. The process includes: • The customer purchases a qualified high efficiency appliance. • The customer obtains an application through the program's website, in hard copy from Hawaii Energy, or through point of sale retailer displays. **Implementation** We will continue to build relationships with manufacturers, distributors and dealers through store visits where we train allies on Hawaii Energy's offerings and processes while seeking input on how to create additional offerings and refinements to existing programs. We will leverage the relationships that were created with retailers across the State through the Trade Up for Cool Cash offering.
Key Changes	• Continue to improve quality control and reporting of recyclers • Increase price cap for ENERGY STAR® refrigerator (purchase new only) rebates to $750 to appropriately reflect market trends • Initiate set-top box replacement pilot • Develop new incentive for Advanced Power Strips
Marketing Strategies	• Provide point of purchase (POP) signage and information supported by quality control (merchandising) • Provide cost of ownership information on rebate application forms • More information on the website explaining good practices on how to use ENERGY STAR® appliances • Advertising explaining how to select and use appliances for the best energy savings • Identify organizations to assist with appliance outreach • Advertise the Garage Refrigerator/Freezer Bounty offer as "Rid-A-Fridge"

Program Category	**4.3 Residential Energy Efficiency Measures** **4.3.5 Energy Efficiency Kits**
Target Market	**General** • Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers
Impacts	Demand 93 kW Energy 560,262 kWh Incentive Budget $37,500 (0.2%) Cost per kWh $.067/kWh TRB $439,669
Technologies	Energy Saving Kits- Online Fulfillment — Incentive: $15 — Units: 2,500
Market Barriers	**General** • Lack of understanding of how energy is used in the home • Awareness of technologies • Understanding of best application • Installation
Description & Implementation Strategies	This program offers a basic introduction to energy saving opportunities in the home. Incentivized home energy saving kits will be made available for purchase online at a Program managed website. The kits will contain a variety of energy saving components including but not limited to: • Energy efficient light bulbs (LEDs or CFLs) • Advanced power strips • Low-flow showerheads • Faucet aerators **Implementation with Clean Energy Allies** Hawaii Energy will work with Clean Energy Allies and online retailers to establish a website where customers can purchase the incentivized home energy saving kit. The website will be customized to reflect Hawaii Energy educational messaging and customer location will be verified to ensure delivery only to residents in the designated service area. By providing an easy online form for residents to complete and shipping direct to the home, the Program hopes to overcome the barriers some residents face when evaluating multiple products available at retail locations. Data gathered through the online fullfillment will allow greater insight into customer characteristics and support future program targeting.

Program Category	**4.3 Residential Energy Efficiency Measures** **4.3.6 Energy Awareness, Measurement and Control Systems**
Target Market	**General** • Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers
Impacts	Demand 1,959 kW Energy 6,718,073 kWh Incentive Budget $1,897,683 (7.7%) Cost per kWh $0.282 /kWh TRB $2,049,044
Technologies	**Incentives** / **Units** Room Occupancy Sensor & Timers $5 200 Units Peer Group Comparison- Phase 1/2/3 $11.90 132,500 Homes Whole House Energy Metering $100 200 Units Water Cooler Timers $15 20,000 Units
Market Barriers	**General** • Awareness of technologies • Understanding of best application • Installation • Proper application of room occupancy sensors
Description & Implementation Strategies	**Room Occupancy Sensors** These sensors control the use of lighting in areas around the home with infrequent use such as laundry, storage, garage or spare areas. They are not intended for high use areas or CFLs. **Peer Group Comparison** Hawaii Energy plans to continue the Home Energy Report offered to 132,500 households. The program began in the Ewa region on Oahu (which was formerly funded with ARRA) and expanded across the neighbor islands (Hawaii, Maui, Lanai and Molokai) in PY11. It expanded again in PY13 to include multiple zip codes on leeward and windward Oahu. Our strategy will look for ways to affect measurable energy savings through behavior change. The market for peer comparison initiatives is evolving in PY14 to include additional analytical capabilities and geographic targeting. **Whole House Energy Metering Devices Mail-in Rebate** These devices collect energy data by induction and transmit the information to a display unit which can be carried anywhere throughout the house or viewed via the internet.

Program Category	**4.3 Residential Energy Efficiency Measures** **4.3.6 Energy Awareness, Measurement and Control Systems**
Description & Implementation Strategies (continued)	**Water Cooler Timers** Hawaii Energy will provide water cooler timers to residential customers through a web-based opt in offering. The Program will target hot/cold water dispensers in order to save the stand-by losses in the cold and hot tanks during times that the systems are not being utilized. Educational videos and instructional guides to setting the timer will be made available at the time of request. **Implementation** The Program will continue to test distribution methods for room occupancy sensors and timers. We will reflect on lessons learned from the PY12 upstream implementation and incoming data from the online fulfillment initiative to inform targeting of the offer. The Home Energy Report will be renewed with subtle refinements on participant selection, tips provided in the reports and specific promotions coordinated with our marketing and outreach initiatives. Particular attention will be given to customers who take the time to contact Hawaii Energy with concerns of the report's validity and/or desperate for help. The Whole House Energy Metering offer will benefit from marketing to high use households, where visibility of how electricity is being used will lead to subsequent investments in energy efficiency. The Water Cooler Timer program will utilize the home delivery water services providers to install digital timers at no cost to customers. Self-service customers will also be able to request delivery of a timer for their personal water cooler through an opt-in form linked to the Hawaii Energy website.
Key Changes	• Research and development of standards for Whole House Energy Metering incentive • Residential Water Cooler Timer initiative • Targeting for room occupancy sensor and timer distribution
Marketing Strategies	• Public relations and media opportunities stemming from Home Energy Reports • Three program specific marketing modules to be developed for printed Home Energy Reports • Integration of historical program participation data to Home Energy Report messaging • Collaboration with home delivery water service providers to deliver educational energy efficiency messages for water cooler timer recipients

4.4 Custom Energy Solutions for the Home

Program Category	**4.4 Custom Energy Solutions for the Home** **4.4.1 Custom Project Measures**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers • Mechanical and Solar Service Contractors
Impacts	Demand 0 kW Energy 5,973,595 kWh Incentive Budget $977,542 (4%) Cost per kWh $0.163 /kWh TRB $2,998,778
Technologies	**Incentive** **Units** Energy Efficiency- Project Auctions $0.18/kWh 5,430,788 kWh
Market Barriers	There were previously no mechanisms to accept "customized" residential energy efficiency proposals.
Description & Implementation Strategies	**Energy Efficiency- Project Auctions** Hawaii Energy will issue a call for projects in PY14 to solicit innovative, cost-effective projects that focus on energy efficiency in high-consumption and hard-to-reach homes. Projects must meet a total dollar per kWh savings target. **Implementation** Eligible projects in this auction will be any new technology, marketing approach or offering not currently served by existing Hawaii Energy programs. This initiative should increase customer satisfaction and participation in the energy efficiency program by allowing 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 submeters if required, to insure savings performance.
Key Changes	• New initiative
Marketing Strategies	• Direct contact with participating energy professionals • Direct contact with Property Managers and AOAOs

4.5 Residential Energy Services & Maintenance

Program Category	**4.5 Residential Energy Services & Maintenance** **4.5.1 Residential Design and Audits**
Target Market	• Residential Home Developers
Impacts	Demand 40 kW Energy 222,630 kWh Incentive Budget $60,000 (0.2%) Cost per kWh $0.27 /kWh TRB $428,620
Technologies	**Incentive** **Units** Efficiency Inside Home Design $600 100 Homes
Market Barriers	**Home Developers** • Need to design and equip homes to respond to home buyer market forces • Homes are not competitive for sale in Hawaii if not designed with A/C • Prior prescriptive components were not typically developer installed
Description & Implementation Strategies	The Efficiency Inside Home Design program uses computer energy modeling programs to compare a code-built home to the developer's home design offerings. Modeling allows the developer maximum flexibility in designing their homes to dovetail with the existing federal tax credits and ENERGY STAR® programs. These efforts encourage interaction with the developer to maximize utilization of incentives through comparing model scenarios. It also demonstrates to the home building industry the value of building above code leading to a more energy efficient and cost-effective home. PY14 will be the final year of the Efficiency Inside program as Hawaii Energy will focus on designing programs for removing barriers to adoption of higher Codes and Standards moving forward. **Implementation** Hawaii Energy works with HERS raters and a number of developers to identify the pipeline of projects annually.
Key Changes	• Increased collaboration with developers to model and evaluate multi-family designs • Sunset of measure
Marketing Strategies	**Efficiency Inside Home Design** • Direct contact with home developers and the BIA • Promotion of the participating developers in trade-publications such as the BIA, Parade of Homes, and Hawaii Home Remodeling and Design • Recognition of the awardees and description of the changes made to the homes on the Hawaii Energy website

Program Category	**4.5 Residential Energy Services & Maintenance** **4.5.2 Residential System Tune-Ups**
Target Market	• Homeowners, Landlords, Tenants and Property Managers • Manufacturers, Distributors, Dealers and Retailers • Mechanical and Solar Service Contractors
Impacts	Demand 105 kW Energy 499,581 kWh Incentive Budget $250,000 (1%) Cost per kWh $0.50 /kWh TRB $640,012
Technologies	**Incentive** / **Units** Solar Water Heater Tune-Up $150 1,000 Systems Central Air Conditioning Retrofit Pilot $1,000 100 Systems
Market Barriers	**General** • Lack of awareness of need for maintenance • Resistance to engage unknown contractors • High up front cost
Description & Implementation Strategies	**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 and customer **Central Air Conditioning Retrofit- Pilot** • This pilot will explore the effectiveness of replacing central air conditioning units popularly installed in residential single family developments in the early 2000's. The retrofit will consist of upgrading the primary unit, typically with an EER of 10.0, to one with a higher EER of 13.0. • The higher incentive of $1,000 is designed to offset the cost of this work which is expected to require a significant investment from the customer. **Implementation** The program will conduct outreach sessions with existing contractors, both solar and HVAC, to promote the programs, solicit feedback for more efficient program operation, and identify opportunities for implementation and coordination of efforts.

Program Category	**4.5 Residential Energy Services & Maintenance** **4.5.2 Residential System Tune-Ups**
Key Changes	• Central Air Conditioning Retrofit Pilot
Marketing Strategies	• Direct contact with Solar and AC Contractors • Provide collateral to Clean Energy Allies offering this service • Distribute educational materials at community events, neighborhood board meetings and homeowners association meetings • Provide cost of ownership information on rebate application forms and benefits of ownership on our website

4.6 Residential Hard-to-Reach (RHTR)

Program Category	**4.6 Residential Hard-to-Reach** **4.6.1 Energy Efficiency Equipment Grants**
Target Market	• Low income, physically isolated and traditionally underserved residential markets
Impacts	Demand 100 kW Energy 766,968 kWh Incentive Budget $900,000 (0.6%) Cost per kWh $1.17 /kWh TRB $1,016,954
Technologies	**Incentive** / **Units** CFL Exchange $2.50/Lamp 10,000 Lamps Refrigerator (w/recycling) Lanai and Molokai Equity $250 200 units Solar Water Heater (SWH Incentive) $11,000 75 Systems
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	**Implementation** **CFL Exchange** The Program encourages community organizations to participate in a CFL exchange as an energy saving and fundraising opportunity. Hawaii Energy provides CFL lamps free of charge to the groups so they can exchange with incandescent lamps. The group receives an incentive to the participating organization for each lamp exchange. **Refrigerator (with recycling) Lanai and Molokai equity** Building on existing relationships with local haulers/recyclers, the Program will expand its ENERGY STAR® refrigerator trade-up with recycling program to retail locations on Lanai and Molokai. **Solar Water Heater Incentive** The Program will continue to work with community assistance programs to identify hard-to-reach residential households to receive fully-funded solar water heating systems.
Key Changes	• Increased focus and penetration of direct install and educational outreach • CFL exchanges targeting large condo associations as a result of PY13 interest and feedback

Marketing Strategies	• Continue to target low-income and hard-to-reach customers through existing state and local agencies who service the needs of low income families • Develop working relationships with more community action and similar local groups to increase market penetration

Program Category	**4.6 Residential Hard-to-Reach** **4.6.2 Direct Installation**
Target Market	• Associations of Apartment Owners • Property Managers • Landlord/Tenants
Impacts	Demand 150 kW Energy 552,642 kWh Incentive Budget $161,250 (3%) Cost per kWh $0.292 /kWh TRB $624,982
Technologies	**Incentive** **Units** Multi-family Direct Install $129/unit 1,250
Market Barriers	• Lack of understanding of energy efficiency benefits • Renter and Lessee reluctance to invest in property
Description & Implementation Strategies	Multi-family property buildings will be targeted as recipients of turn-key installations of basic energy saving items for individual tenant units. Proposed installations include CFLs/LEDs, low-flow showerheads, faucet aerators, and advanced power strips. **Implementation** All measures will be direct install with no customer co-pay required. Hawaii Energy will manage customer education, scheduling and installation. Recipient recruiting will include market analysis and segmentation using input from State housing agencies, direct property manager outreach and tenant education. The multifamily direct install initiative could also take advantage of creative and cost effective proposals submitted under the Energy Efficiency Auction program.
Key Changes	• New initiative
Marketing Strategies	• Direct contact with State housing agencies, property managers, AOAOs, and landlords • Community event promotion • Print advertising and social media

5.0 BUSINESS PROGRAM STRATEGY & DETAILS

5.1 Overview

For PY14, Hawaii Energy will continue with its programmatic philosophies from PY13, specifically these incentive categories:

- Business Energy Efficiency Measures (BEEM) – This category offers incentives for standard, known energy efficiency technologies in the form of prescriptive incentives in a streamlined application and grant award process.
- Custom Business Energy Efficiency Measures (CBEEM) – This category offers incentive for non-standard energy efficiency technologies often needed for commercial and industrial customers who need to invest in energy efficiency opportunities specific to unique project specific processes and designs, for example. Incentive award amounts are determined via calculations performed to quantify specific energy savings related to unique applications.
- Business Energy Service and Maintenance (BESM) – This incentive category focuses on developing viable projects through collaboration, competition and direct support in the form of expertise and/or equipment (i.e. metering).
- Business Hard-to-Reach (BHTR) - This incentive category aims to secure various projects among geographies and demographics that have been traditionally underserved such as retail, restaurants and other small businesses.

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

Table 3
List of Business Programs

Business Programs
BEEM - Business Energy Efficiency Measures
High Efficiency Water Heating
High Efficiency Lighting
High Efficiency HVAC
High Efficiency Water Pumping
High Efficiency Motors
Commercial Industrial Processes
Building Envelope Improvements
High Efficiency Appliances
Energy Star Business Equipment
Direct Install - Residential Energy Kits
Energy Awareness, Measurement and Control Systems
CBEEM - Customized Business Energy Efficiency Measures
Customized Project Measures
BESM - Business Energy Services and Maintenance
Benchmarking, Codes and Standards
Business Design, Audits and Commissioning
BHTR - Business Hard to Reach Programs
Business Direct Installation
Energy Efficiency Equipment Grants
Restaurant Targeted Participation Programs

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

High Efficiency Lighting

- For PY14 Hawaii Energy will add a prescriptive incentive for LED Street and Parking Lot Lighting. Participation for these measures significantly increased in PY13 and seems to be increasingly popular. Therefore, for ease of participation and for increase certainty in the incentive amount for the customer Hawaii Energy will create a prescriptive incentive for these measures. Incentive level would vary depending on the wattages of the existing fixture.

High Efficiency HVAC

- Central Chiller Plant >15% Better Than Code – Significant savings can be achieved with this measure particularly when you consider the life expectancy of a chiller is 20 years. However, due to budget constraints in PY13 the incentive for this measure was reduced. However after reviewing the performance of this incentive throughout the year, it's possible that the incentive was reduced to a level that may not have sufficiently influenced the market. Therefore for PY14 the incentive is being increased back up to the $50 per ton level it was at in PY13.
- 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 slightly from the PY13 program to continue to encourage a methodical selection and the savings calculated using modeling or spreadsheet analysis with appropriate system conditions (condenser water, flow rates etc.). This offer will require kW/ton metering.

Commercial Industrial Process

- Wastewater – Wastewater facilities are 24/7 facilities that have specific technical requirements, high capital costs and long procurement processes. This targeted program will continue practices started in PY13 to target the two highest energy consumers in the plants; aeration systems & UV lighting through process improvements. Lessons learned from PY13, specifically the potentially long procurement cycle of these facilities, will be incorporated into the program in PY14 and Hawaii Energy will continue to pursue projects that we identified in PY13.

Seawater Cooling

- Hawaii Energy will continue to support this evolving project in PY14 through metering and providing ad hoc resources as needed. The Program will pay incentives as directed in earlier proceedings upon installation and startup of the SWAC system.

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

Customized Project Measures

- Target Cost per KWh Call for Projects – There is a potential to utilize a program that will provide an open opportunity for achieving energy efficiency by developing cost-effective projects that focus on high energy consumption businesses. The program would be part of the customized measures and 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 submetered to ensure savings performance.

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

Business Design, Audits and Commissioning

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

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

Restaurant Targeted Participation Programs

- Low-Flow Spray Rinse Nozzles – This measure was included to assist the program in driving up the cost effectiveness of the portfolio. This measure saves water first and then electricity in the form of lower water heating requirements. Hawaii Energy will engage with the water companies to jointly develop and promote this measure.

ENERGY STAR® Commercial Kitchen Equipment

- ENERGY STAR® Kitchen Equipment – This program will focus on raising awareness of energy efficiency options when replacing equipment at end-of-life. In addition, Hawaii Energy will investigate a refrigeration door gasket replacement program. Bad gaskets overwork refrigeration and freezer compressors by simply allowing cold air to leak. Hawaii Energy conducted a pilot installation in PY13 of new door gaskets with very encouraging results. Hawaii Energy plans to continue this work in PY14.

5.1.5 *Business Program Details Table of Contents*

To follow, in Sections 5.2 through 5. 5, is an overview summary of Residential Program Offerings followed by detailed descriptions and energy savings. The Overall Program Details are provided on the following page, preceding the individual Program summaries.

5.2 Overview of All Business Programs

Program Category	5.2 All Business Programs Overview of All Business Programs
Target Markets	**Competitive Commercial** o Office Buildings o Retail **Governmental** o City o State o Federal **Industrial Sector** o Warehousing o Cold Storage o Water Pumping o Manufacturing **Multi-Site** o Convenience Stores o Restaurants **High Load Factor Customers** o Hospitals o Hotels o Super Markets o Data Centers **Multi-Family Commercial Rate** o AOAO o AOAO - Mixed Use
Projected Impacts	Demand 6,811 kW Energy 64,137,162 kWh Incentive Budget $13,519,581 Cost per kWh $0.2108 /kWh TRB $89,598,016
Incentives	**Measure Categories** — **Incentives** 5.3 Business Energy Efficiency Measures $ 4,809,550 5.4 Custom Business Energy Efficiency Measures $ 3,025,011 5.5 Business Service and Maintenance $ 2,437,500 5.6 Business Hard-to-Reach $ 3,247,520 $ 13,519,581

Program Category	**5.2 All Business Programs** **Overview of All Business Programs**
Market Barriers	**General** • Lack of familiarity with availability of energy efficient technology and the vendors offering these services and products • Trust and creditability of technology providers • Unaware of business benefits of reducing exposure to cost of energy changes • High initial up-front cost • Life Cycle Cost vs. Simple Payback decision analysis • Need for a cash positive investment • Access to and/or understanding of financial options • Lack of knowledge of operation and maintenance of technologies **Landlords and Property Managers** • May not pay for electricity cost • Reluctance to invest without a financial return • Property is a short term investment **Renters and Lessees** • Do not have the authority or responsibility for the systems • Renter lease term shorter than simple payback for a measure
Description & Implementation Strategies	**Technology Based Categories** **High Efficiency Lighting, HVAC Water Heating Water Pumping Motors Building Envelope Improvements, ENERGY STAR® Business Equipment** The technology based incentives are provided for energy efficiency products that provide reliable energy savings for a wide array of customers. These incentives are developed to be based on fixed amounts per technology with performance adjustments to reflect the savings potential to ensure program cost-effectiveness set based on expected savings. Measures are selected and reviewed to determine that the energy savings can be reliably deemed, or calculated using simple threshold criteria. 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 Category	**5.2 All Business Programs** **Overview of All Business Programs**
Description & Implementation Strategies (continued)	**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	• Expand prescriptive selections for LED lamps that achieve ENERGY STAR®, Design Lights Consortium or Lighting Facts status • Chiller incentives based on kWh savings, Chiller selection model and kW/ton BTU metering • ENERGY STAR® Commercial Kitchen Equipment
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.

5.3 Business Energy Efficiency Measures

Program Category	5.3 Business Energy Efficiency Measures BEEM Programs Overview

Projected Impacts

Demand	4,911	kW
Energy	31,989,281	kWh
Incentive Budget	$4,809,550	(20%)
Cost per kWh	$0.1503	/kWh
TRB	$ 53,089,674	

Incentives

	Incentives
High Efficiency Lighting	$2,014,500
High Efficiency HVAC	$1,190,000
High Efficiency Water Heating	$826,200
High Efficiency Water Pumping	$99,900
High Efficiency Motors	$151,000
Commercial Industrial Processes	$125,000
Building Envelope Improvements	$41,250
High Efficiency Appliances	$7,950
ENERGY STAR® Business Equipment	$2,500
Direct Install – Residential Energy Kits	$161,250
Energy Awareness, Measurement and Control Systems	$190,000

*These are residential end-use measures installed in multi-family dwellings billed by HECO as commercial accounts.

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.1 High Efficiency Lighting**

Projected Impacts

Demand	3,227	kW
Energy	23,000,274	kWh
Incentive Budget	$ 2,014,500	(8%)
Cost per kWh	$0.0876	/kWh
TRB	$ 35,779,064	

Incentives

	Incentive	Units	
CFL	$2.00	16,100	Lamps
T12 to T8 (2&3 foot lamps)	$6.00	100	Lamps
T12 to T8 Low Wattage	$10.00	32,500	Lamps
T8 to T8 Low Wattage	$5.50	110,000	Lamps
Delamp	$5.00	1,210	Lamps Removed
Delamp/Reflector	$7.50	2,600	Lamps Removed
LED Refrigerated Case Light	$75.00	500	Lamps
ENERGY STAR® LED			
-non-dimmable existing	$7.00	50,000	Lamps
-dimmable w/controls	$10.00	40,000	Lamps
-non-dimmable A19 existing	$7.00	5,000	Lamps
-dimmable A19 new	$7.00	3,250	Lamps
LED Exit Signs	$20.00	1,000	Signs
LED Fixtures	$30.00	200	Fixtures
LED Street and Parking Lot Fixtures	$35.00	1,000	Fixtures
Ceramic Metal Halide	$40.00	400	Lamps
Sensors	$20.00	2,250	Sensors
Stairwell bi-level dimming Fluorescent	$50.00	1000	Fixtures

Key Changes

For PY14 Hawaii Energy will add a prescriptive incentive for LED Street and Parking Lot Lighting. Participation for these measures significantly increased in PY13 and seems to be increasingly popular. Therefore, for ease of participation and for increase certainty in the incentive amount for the customer Hawaii Energy will create a prescriptive incentive for these measures. Incentive level would vary depending on the wattages of the existing fixture. Proposed incentives are detailed in the following table.

Existing Fixture Wattage	Incentive
Replace 311–400 watt lamp with LED	$115/fixture
Replace 251–310 watt lamp with LED	$90/fixture
Replace 201–250 watt lamp with LED	$70/fixture
Replace 151–200 watt lamp with LED	$60/fixture
Replace 101–150 watt lamp with LED	$50/fixture
Replace 71–100 watt lamp with LED	$40/fixture
Replace up to 70 watt lamp with LED	$30/fixture

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.2 High Efficiency HVAC**

Projected Impacts

Demand	755	kW
Energy	4,186,536	kWh
Incentive Budget	$ 1,190,000	(5%)
Cost per kWh	$0.2842	/kWh
TRB	$ 8,346,542	

Incentives

	Incentive	Units
Central Chiller Plant > 15% Better than Code	$50	6,400 Tons
Chillers – kW/ton meter and Chiller Curve Optimization	$5,000	25 Systems
VFD – HVAC Chilled Water/ Condenser Water	$80	500 hp
VFD – HVAC AHU	$50	1,200 hp
Garage Active Ventilation Control	$0.12	1,000,000 kWh
Package Units	$200	500 Tons
VFR Split Systems - Existing	$300	1,000 Tons
VFR Split Systems – New Construction	$250	500 Tons

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.2 High Efficiency HVAC** **5.3.2.1 Central Plant ->15% Better than Code Chillers**
Projected Impacts	Demand 206 kW Energy 1,457,214 kWh Incentive Budget $ 320,000 (1%) Cost per kWh $0.22 /kWh TRB $3,086,953
Incentives	**Incentive** **Units** Chillers $50 6,400 Tons
Description & Implementation Strategies	This incentive will be targeted at chillers, both air-cooled and water- cooled, that have efficiencies at least 15% better than code efficiency requirements in place at the time of permitting the project. This is a change from PY13 where only water-cooled chillers qualified for this incentive. Throughout PY13 a number of air-cooled chiller were processed as customized incentives. Applying this prescriptive incentive to air-cooled chiller that exceed code by more than 15%, greatly simplifies the process for customers and provides a greater assurance of the exact value of the incentive. Significant savings can be achieved with this measure particularly when you consider the life expectancy of a chiller is 20 years. However, due to measure cost-effectiveness constraints in PY13, the incentive for this measure was reduced. However after reviewing the performance of this incentive throughout the year, it's possible that the incentive was reduced to a level that may not have sufficiently influenced the market. Therefore for PY14 the incentive is being increased back up to the $50/ton level it was at in PY13.

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.2 High Efficiency HVAC** **5.3.2.2 Chillers – kW/ton meter & Chiller Curve Optimization**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 125,000 (1%) Cost per kWh 0 /kWh TRB 0
Incentives	**Incentive** **Units** Chillers $5,000 25 Systems
Description & Implementation Strategies	**Energy Reduction Opportunity** The use of variable speed drives, oil-free magnetic bearings, large heat exchangers, lower condenser water and other modern design features, new chillers are 20-40% more efficient than older machines. Much of the savings is at part-load conditions where chillers operate the majority of the time. The BTU metering will allow building operators to know exactly how efficient the chiller is running at all times including part load and full load conditions. This should allow the building operator to continuously optimize and maintain the chiller producing of energy savings over time. At this time it is not known what savings will be generated by this measure; consequently, this incentive will be run as a pilot program subject to review and approval of how savings will be determined. Once determined the savings methodology will be included in the TRM for 2014 Programs. **Target Audience** Who – Property Managers, Facilities Directors, Chief Engineers and Governmental Facilities Departments What – Large Commercial facilities **Incentive & Targeted Economics** After seeing lackluster participation in the chiller optimization program in PY13 that was based on the eventual installation of an optimized chiller, it was determined the ultimate goal of this incentive was to get vital information to the building operators once the chiller is installed. Therefore Hawaii Energy elected to modify this measure to a copayment for the installation of BTU metering when a new chiller is installed. Once this metering is installed it is believed that building operators will avail themselves of the increased information in order to run their chillers optimally. **Customer Qualifications** Customers with existing chillers include centrifugal, screw, scroll and reciprocating, approaching the end of their useful life. **Application Process** The following will be completed and submitted for review • Rebate Application , AC Chiller Rebate Worksheet

	• Chiller Equipment type (centrifugal, screw, reciprocating) • BTU metering configuration **Complementary Programs** • Customized Project Measures

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.2 High Efficiency HVAC** **5.3.2.3 Garage Active Ventilation Control**
Projected Impacts	Demand 94 kW Energy 824,963 kWh Incentive Budget $ 120,000 (1%) Cost per kWh $0.15 /kWh TRB $ 854,628
Incentives	**Incentive** **Units** Garage Active Ventilation Control $0.12 1,000,000 kWh
Description & Implementation **Strategies**	**Energy Reduction Opportunity** Enclosed parking garages that are mechanically ventilated 24/7 in order to remove the carbon monoxide (CO) created by gasoline powered vehicles. The ventilation systems are designed for maximum capacity conditions and there are opportunities to reduce both operating speed and fan runtimes during times of lower traffic periods to achieve fan energy savings of 60% to 90% with active CO monitoring systems control. The addition of Variable Speed Drives (VFDs) can also be incorporated if not already present. **Target Audience** Who - Property Managers & Private and Public Facilities Directors Air Conditioning/Mechanical Contractors Facilities Maintenance Companies What – Office/Retail Buildings with mechanically ventilated parking garages. **Incentive & Targeted Economics** The $0.12/kWh incentive is directly provided to the metered savings resulting from the retrofit, not to exceed 85% of the total 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 –T8 / T5 / Occupancy Sensors /Timers

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.2 High Efficiency HVAC** **5.3.2.4 Package Units – 15% Better Than Code**
Projected Impacts	Demand 38 kW Energy 227,772 kWh Incentive Budget $ 100,000 (1%) Cost per kWh $0.44 /kWh TRB $ 426,163
Incentives	**Incentive** **Units** Package Units $200 500 Tons
Description & Implementation Strategies	**Energy Reduction Opportunity** The air-cooled package units are most often found in small commercial facilities as they are least first-cost and maintenance intensive of HVAC options to this market. The units are often roof-top mounted and feed constant volume distribution systems. The most cost effective opportunity to reduce energy consumption in these units are to replace them with the highest efficiency unit available and potentially convert at the same time to a VAV distribution system to increase both comfort and reduce cooling loads. A higher cost option is to convert to VRF split systems. **Target Audience** Who – Property Managers & Private and Public Facilities Directors Air Conditioning/Mechanical Contractors, Mechanical Engineers What – Small Commercial facilities. **Incentive & Targeted Economics** The offering of prescriptive incentives based on the EER of the units at or above 15% better than IECC 2006 energy codes. **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	**5.3 Business Energy Efficiency Measures** **5.3.2 High Efficiency HVAC** **5.3.2.5 Variable Refrigerant Flow Air Conditioners – Existing Facility**
Projected Impacts	Demand 117 kW Energy 837,378 kWh Incentive Budget $ 425,000 (2%) Cost per kWh $0.51 /kWh TRB $ 1,770,160
Incentives	**Incentive** **Units** VFR Split Systems – Existing Systems $300 1,000 Tons VFR Split Systems – New Construction $250 500 Tons
Description & Implementation Strategies	**Energy Reduction Opportunity** Inverter driven variable refrigerant flow (VRF) air conditioning systems are direct expansion AC systems that utilize variable speed evaporator/condenser fans, and a combination of fixed and variable speed compressors along with most often multiple individual zone evaporators to provide the ability to more closely match the AC system's output with the building's cooling requirements. A potential of 20% to 35% energy savings come from: • *Part Load Efficiencies:* Increased part-load efficiency operation • *High Efficiency Motors:* Many systems use ECM motors • *Higher Room Temperatures:* The capacity matching allows for better humidity control through longer cooling operation. • *Reduction of Distribution Losses:* Duct losses are reduced with DX systems. This may be offset by dedicated outside air distribution systems when needed. **Target Audience** Who – Property Managers & Private and Public Facilities Directors, Air Conditioning/Mechanical Contractors, Mechanical Engineers What – Commercial facilities. **Incentive & Targeted Economics** The offering of prescriptive incentives based on the tonnage of the VRF system. This level of incentive should reduce 25% of the incremental difference between a VRF and an alternative single or two-speed standard efficiency unit. **Application Process** 1. A prescriptive worksheet will be completed and submitted for review • Unit size, model, efficiency rating, operational hours • Map of Locations 2. A sample of sites have pre/post inspections **Complementary Programs** • Window Tinting, Package and Split AC Tune-Up

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.2 High Efficiency HVAC** **5.3.2.7 VFD – AHU** **5.3.2.8 VFD – Chilled Water / Condenser Water**
Projected Impacts	Demand 299 kW Energy 839,210 kWh Incentive Budget $ 100,000 (<1%) Cost per kWh $0.12 /kWh TRB $ 2,208,638
Incentives	**Incentive** / **Units** VFD – AHU $50 1,200 hp VFD – Chilled Water / Condenser Water $80 500 hp
Description & Implementation Strategies	**Energy Reduction Opportunity** The use of variable frequency drives to vary motor speeds to control flow in response to changes to loads provides significant savings in HVAC applications of supply, return and exhaust fans as well as chilled water and condenser water pumps. **Target Audience** Who – Property Managers, Facilities Directors, Chief Engineers and Governmental Facilities Departments, Mechanical Engineers and Contractors What – All Commercial Facilities **Incentive & Targeted Economics** HVAC Fans (VFD): The offering of a prescribed $50 per fan HP controlled (3-100 HP for existing facilities and 3-25 HP for new facilities) incentive. HVAC Pumps (VFD): The offering of a prescribed $80 per pump HP controlled (3-100 HP and 3-50 HP for new facilities) incentive for both existing and new construction facilities. **Customer Qualifications** The application must have a load and system design and controls (two way valves, VAV boxes etc.) that respond to varying loads.

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.2 High Efficiency HVAC** **5.3.2.7 VFD – AHU** **5.3.2.8 VFD – Chilled Water / Condenser Water**
Description & Implementation Strategies (continued)	**Application Process** A HVAC Fan or Pump VFD rebate worksheet will be completed and submitted for review. • Require pre-notification before projects begin. • Existing equipment must not have a VFD. • The VFDs must actively control and vary the fan or pump speed. • Motor HP • Motor quantity

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.3 High Efficiency Water Heating**
Projected Impacts	Demand 440 kW Energy 1,432,151 kWh Incentive Budget $826,200 (3%) Cost per kWh $0.58 /kWh TRB $4,056,658
Incentives	**Incentive** **Units** Commercial Solar Water Heaters -Electric Resistance $250 50 Tons -Heat Pump $100 100 Tons Single Family Solar Water Incentive $1,000 800 systems Heat Pumps -Conversion – Electric Resistance $120 20 Tons Heat Pump Upgrade $65 20 Tons

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.3 High Efficiency Water Heating** **5.3.3.1 Commercial Solar Water Heaters Electric Resistance** **5.3.3.2 Commercial Solar Water Heaters Heat Pump**

Projected Impacts

Demand	136	kW
Energy	48,805	kWh
Incentive Budget	$ 22,500	(<1%)
Cost per kWh	$0.431	/kWh
TRB	$ 609,093	

Incentives

	Incentive	Units
Commercial Solar Water Heaters		
-Electric Resistance	$250	50 Tons
-Heat Pump	$100	100 Tons

Description & Implementation Strategies

Energy Reduction Opportunity

Commercial solar water heaters can provide a renewable energy source of water heating. The systems can reduce electrical consumption for water heating by providing supplemental pre-heating all the way to 100% of the water heating needs limited by the hot water demand characteristic and the site's physical constraints on storage tank and panel locations.

Target Audience

Who – AOAOs, Property Managers, Private and Public Facilities Directors, Mechanical Contractors, Mechanical Engineers

What – Hotel, Condominium and Apartments & Government housing.

Incentive & Targeted Economics

The offering of a $250/12,000 BTU prescriptive incentive based on the derated installed capacity of the solar water heating system. The base system must have been electric resistance, heat pump or heat recovery off an electric chiller, the latter two receiving a smaller incentive commensurate with their lesser energy savings. 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.

Description & Implementation Strategies (continued)

Application Process

1. A prescriptive worksheet/saving calculator will be competed and submitted for review
   - Unit sizes, model, derating rating, operational hours
   - System diagram
2. A sample of sites will have pre/post inspections

Complementary Programs

- Water saving showerheads, spray-rinse valves, and fixtures.

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.3 High Efficiency Water Heating** **5.3.3.3 Heat Pump – Conversion – Electric Resistance** **5.3.3.4 Heat Pump Upgrade** **5.3.3.5 Single Family SWH Incentive**
Projected Impacts	Demand 304 kW Energy 1,383,347 kWh Incentive Budget $ 803,700 (4%) Cost per kWh $0.58 /kWh TRB $3,447,565
Incentives	**Incentive** / **Units** Heat Pumps -Electric Resistance $120 / 20 Tons -Upgrade $65 / 20 Tons Single Family SWH $1,000 / 800 units
Description & Implementation Strategies	**Energy Reduction Opportunity** Heat pump water heaters can provide a highly efficient source of water heating. Water-Source Heat pumps are the most efficient when used to supplement the heat rejection from chilled water return loops and condenser water systems to heat a facilities' domestic water needs or swimming pools. Heat pumps can also be air-source and provide heat mitigation in areas such a commercial kitchen and serve pools as a stand-alone water heater. The systems can reduce electrical consumption for water heating by providing supplemental pre-heating all the way to 100% of the water heating needs limited by the hot water demand characteristic and the site's physical constraints on heat pump storage tanks. The Single Family Water Heating (SWH) Incentive is reserved for a Military existing home retrofit with BTU metering and maintenance program for 800 homes behind a commercial meter. The total project will cover three years and be up to 1,200 homes. The construction of these homes was delayed in PY13, consequently Hawaii Energy committed to the Military to continue to honor the incentive in PY14. **Target Audience** Who – AOAOs, Property Managers, Private and Public Facilities Directors. Mechanical Contractors, Mechanical Engineers. What – Commercial Pools, Hotel, Condominium and Apartments & Government housing. **Incentive & Targeted Economics** The offering of a $120 or $65 per ton prescriptive incentive based on the installed capacity of the heat pump. The base system must have been electric resistance, failing heat pump (10 year or older) or heat recovery off an electric chiller. Conversion/remaining on a gas backup system are permitted to eliminate any potential electrical demand from the system and allow quick peak recovery.

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.4 High Efficiency Water Pumping - Summary of Programs**				
Projected Impacts	Demand	36	kW		
	Energy	396,118	kWh		
	Incentive Budget	$ 99,900	(1%)		
	Cost per kWh	$0.25	/kWh		
	TRB	$616,691			
Incentives				**Incentive**	**Units**
	VFD Dom. Water Booster Packages – VFD			$600	75 hp
	VFD Dom. Water Booster Packages – added HP Reduction			$80	30 hp reduced
	VFD Pool Pump Packages			$350	150 hp

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.4 High Efficiency Water Pumping** **5.3.4.1 VFD Dom. Water Booster Packages – added HP Reduction** **5.3.4.2 VFD Dom. Water Booster Packages – VFD ($3K per Sys.)**
Projected Impacts	Demand 24 kW Energy 257,153 kWh Incentive Budget $ 47,400 (<1%) Cost per kWh $0.183 /kWh TRB $ 404,845
Incentives	**Incentive** **Units** VFD Dom. Water Booster Packages – VFD $3,000 15 units VFD Dom. Water Booster Packages – Added HP Reduction $80 30 hp reduced
Description & Implementation Strategies	**Energy Reduction Opportunity** The replacement of single speed staged domestic water booster pumps can provide up to 70% energy savings by: • providing constant pressure regardless of flow • reducing pump speed during low use periods increases system efficiency **Target Audience** Who – Property Managers, Facilities Directors, Chief Engineers and Governmental Facilities Departments, Mechanical Contractors and VFD Pump Package suppliers. What – Apartments, Office Buildings, Hotels, Hospitals **Incentive & Targeted Economics** The offering of a prescribed $3,000 for the VFD booster pump system plus another $80 per HP reduction is targeted to achieve a 10 to 15% reduction in the system cost. All pump motors must meet CEE Premium Efficiency standards. **Customer Qualifications** Booster Pump applications require pre-notification before equipment is purchased and installed. • The new booster pump system's total horsepower must be equal to or less than that of the existing system. • The system horsepower reduction must be between 0 to 129 hp. For projects with greater than 129hp, please contact the program • Booster Pump applications do not apply to New Constructions.

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.4 High Efficiency Water Pumping** **5.3.4.1 VFD Dom. Water Booster Packages – added HP Reduction** **5.3.4.2 VFD Dom. Water Booster Packages – VFD ($3K per Sys.)**
Description & Implementation Strategies (continued)	**Application Process** The following will be completed and submitted for review • Rebate Application • Booster Pump Rebate Worksheet • Manufacturer's specification sheets or Name Plate Information including: • Manufacturer • Model Number • Serial Number • Motor Size (nominal hp) – All pump motors must meet CEE Premium Efficiency standards • Pump Type • Identify Pump with VFD or without VFD • Existing System hp minus New System hp **Complementary Programs** • Customized Project Measures • Central Plant Optimization Competition • CEE Listed Premium Efficiency Motors

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.4 High Efficiency Water Pumping** **5.3.4.3 VFD Pool Pump Packages**
Projected Impacts	Demand 12 kW Energy 138,965 kWh Incentive Budget $ 52,500 (<1%) Cost per kWh $0.38 /kWh TRB $211,846
Incentives	VFD Pool Pump Packages — Incentive: $350 — Units: 150 hp
Description & Implementation Strategies	**Energy Reduction Opportunity** Pool pumps often run much longer than necessary. A variable speed commercial pool pump motor in place of a standard single speed motor can save energy and maintain a comfortable swimming pool temperature and chemical circulation by using a smaller, higher efficiency pump and by operating it less. **Target Audience** Who – Property Managers, Facilities Directors, Chief Engineers and Governmental Facilities Departments What – Commercial facilities with swimming pool. **Incentive & Targeted Economics** The offering of a prescribed $225 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	**5.3 Business Energy Efficiency Measures** **5.3.5 High Efficiency Motors** **5.3.5.1 CEE Tier 1+ Premium Efficiency Motors** **5.3.5.2 ECM- Fan Coil Fans** **5.3.5.3 ECM w/ Controller- Evaporator Fan Motors**
Projected Impacts	Demand 133 kW Energy 1,170,061 kWh Incentive Budget $ 151,000 (<1%) Cost per kWh $0.13 /kWh TRB $ 1,929,681
Incentives	**Incentive** / **Unit** CEE Tier 1+ Premium Efficiency Motors $10/hp 50 hp ECM w/ Controller-Evaporator Fan Motors $85/motor 800 Motor ECM- Fan Coil Fans $55/motor 1,500 Motor
Description & Implementation Strategies	**Energy Reduction Opportunity** CEE LISTED MOTORS There is an opportunity to save energy with motors designed to utilize less power for the same horsepower of work. Motors in many applications (Water pumping and air handing) have long operational hours and are often out of sight and mind until they fail. The CEE Premium Efficiency Specification will be the qualification level for motors. This is driven by the December 2010 implementation of the Energy Independence and Security Act of 2007 (EISA) requiring the vast majority of new electric motors to meet NEMA Premium Efficiency standards. ECM There is an opportunity to save energy with ECM motors that have higher electrical efficiency (Electronically Commutated Motor, 70 percent efficient) than PSC (Permanent split capacitor, 49 percent efficient) or shaded-pole (32 percent efficient). In addition, “cooler” motor operation creates less heat load on the conditioned space. When motors fail there is often an operational urgency to replace them at the lowest first-cost as the replacement was not budgeted. **Target Audience** Who – Property Managers, Mechanical & Electrical Contractors, Motor Repair/Rewind Shops, Motor Distributor and Supply houses What – All Refrigeration and PTAC units

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.5 High Efficiency Motors** **5.3.5.1 CEE Tier 1+ Premium Efficiency Motors** **5.3.5.2 ECM- Fan Coil Fans** **5.3.5.3 ECM w/ Controller- Evaporator Fan Motors**
Description & Implementation Strategies (continued)	**Incentive & Targeted Economics** The current $10/hp incentive was designed to eliminate the cost premium for the listed CEE Premium efficiency motors up to 200 hp. The $85 and $55/motor incentives are aimed at 20% of installed cost. **Application Process** 1. A contractor or customer submitted application and savings worksheet. • Unit size, model, • Unit location description • Operational hours 2. A sample of sites will have post inspections **Complementary Programs** • High Efficiency HVAC • Central Plant Optimization • Target Cost per kWh Request for Proposals

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.6 Commercial Industrial Processes – Summary of Programs**			
Projected Impacts	Demand	89	kW	
	Energy	471,012	kWh	
	Incentive Budget	$ 125,000	(2%)	
	Cost per kWh	$0.27	/kWh	
	TRB	$ 841,722		
Incentives		**Incentive**	**Unit**	
	Kitchen Exhaust Hood Demand Ventilation	$700	150 hp	
	Refrigerated Case Night Cover	$10 Linear ft.	2,000 Linear ft.	

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.6 Commercial Industrial Processes** **5.3.6.1 – Kitchen Exhaust Hood Demand Ventilation**
Projected Impacts	Demand 56 kW Energy 325,819 kWh Incentive Budget $ 105,000 (1%) Cost per kWh $0.32 /kWh TRB $ 612,895
Incentives	**Incentive** **Unit** Kitchen Exhaust Hood Demand Ventilation $700/hp 150 hp
Description & Implementation Strategies	**Energy Reduction Opportunity** Kitchen ventilation with demand control hood exhaust uses temperature and/or smoke sensors to adjust ventilation rates. This saves significant energy comparing with the traditional 100% on/off controls. Traditional ventilation systems operate at one speed regardless of how hard the appliances are working. Demand Control Kitchen Ventilation systems respond to variations in stove use, allowing the two-speed or variable speed fans to regulate exhaust and makeup airflow as necessary. Therefore, when stoves are off or only a few burners are in use, the exhaust fans work at lower speeds and use less energy. **Target Audience** Restaurants, hotels, universities and hospitals. **Incentive & Targeted Economics** Incentive amounts will differentiate based on existing or new construction applications. **Application Process** To qualify for a Hawaii Energy Commercial Kitchen Demand Ventilation Controls Rebate, the following conditions must be met: • The control system must be used in conjunction with variable speed fan motor controls. • All motors must meet NEMA Premium Efficiency standards and be UL® Approved • Temperature or optical fume sensors must have the ability to sense and ramp up or down the ventilation rate based on the presence of temperature, smoke or steam from cooking activity • Temperature and Infrared cooking sensors must have the ability to measure temperature at the cooking surface to ramp ventilation up or down based on when cooking starts • Hawaii Energy Incentive Worksheet must be submitted with incentive application

	Complementary Programs • ENERGY STAR® Kitchen Equipment • SBDI – Restaurant Lighting • Low Flow Spray Rinse Nozzles

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.6 Commercial Industrial Processes** **5.3.6.2 – Refrigerated Case Night Covers**
Projected Impacts	Demand 33 kW Energy 145,193 kWh Incentive Budget $ 20,000 (<1%) Cost per kWh $0.14 /kWh TRB $ 228,827
Incentives	**Incentive** / **Unit** Refrigerated Case Night Covers: $10/Linear ft. / 2,000 Linear ft.
Description & Implementation Strategies	**Energy Reduction Opportunity** The installation of retractable aluminum woven fabric covers for open-type refrigerated display cases, where the covers are deployed during the facility's unoccupied hours in order to reduce refrigeration energy consumption. **Target Audience** Supermarkets, grocery stores, convenience stores and big box stores. **Incentive & Targeted Economics** The incentive target is $10/linear feet. **Application Process** Eligibility • Must install a cover on an existing open refrigerated display case to decrease its cooling load during off hours. • The equipment manufacturer must not object to the use of night covers for the existing display case model. • This incentive is based on linear footage of the installed night cover. • The cover must be applied for a period of at least six hours. **Complementary Programs** • EC Evaporator Fan Motors • Refrigerated case lighting

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.7 Building Envelope Improvements**		
Projected Impacts	Demand	31	kW
	Energy	121,682	kWh
	Incentive Budget	$ 41,250	(<1%)
	Cost per kWh	$0.34	/kWh
	TRB	$ 201,697	
Incentives		**Incentive**	**Unit**
	Window Tinting	$0.85/sq.ft.	25,000 sq.ft.
	Cool Roof Technologies	$0.20/sq.ft	100,000 sq.ft.

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.7 Building Envelope Improvements** **5.3.7.1 Cool Roof Technologies**
Projected Impacts	Demand 4 kW Energy 20,624 kWh Incentive Budget $ 20,000 (<1%) Cost per kWh $0.97 /kWh TRB $ 30,802
Incentives	**Incentive** **Unit** Cool Roof Technologies $0.20/sq.ft 100,000 sq.ft.
Description & Implementation Strategies	**Energy Reduction Opportunity** Cool Roofs increase the reflectivity of the roof and reduce cooling loads by either the reflective white or silver color and/or by "stealth" technologies such as ceramic and titanium oxide particles embedded in the material. The cool roof technologies allow a wide range of roof colors. **Target Audience** Who – AOAOs, Property Managers, Private and Public Facilities Directors Roofing Companies, Architects What – All Commercial Facilities **Incentive & Targeted Economics** The offering of a $0.20/sq. ft. prescriptive incentive based on ENERGY STAR® Qualified roofing products. • *Warranty* – Roof must have a minimum fifteen-year manufacturer's warranty and one-year installer's warranty • *Conditioned Space* – Rebates shall be paid on actual square footage of roof covering a conditioned space. • *Unshaded* – Roofs significantly shaded by buildings, trees or awnings are not eligible for rebates. This is targeted to incentive will provide a 25% of the incremental cost of moving from standard to ENERGY STAR® roofing materials.

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.7 Building Envelope Improvements** **5.3.7.2 Window Tinting**

Projected Impacts

Demand	27	kW
Energy	101,058	kWh
Incentive Budget	$ 21,250	(<1%)
Cost per kWh	$0.21	/kWh
TRB	$ 170,895	

Incentives

	Incentive	Unit
Window Tinting	$0.85/sq.ft.	25,000 sq.ft.

Description & Implementation Strategies

Energy Reduction Opportunity

Window tinting can save energy by reducing the heat gain through windows as well as preventing lowering of temperature set points by occupants near the windows. Modern tints can provide the rejection of infrared energy while not blocking visible light. This expands the tinting opportunities in view sensitive locations such as hotel and office buildings.

Target Audience

Who – AOAOs, Property Managers, Private and Public Facilities Directors.
Window Tinting Companies

What – Hotel, Office, Condominium and Apartments & Government housing.

Incentive & Targeted Economics

The offering of a $0.85 / sq. ft. prescriptive incentive based on the film's Solar Heat Gain Coefficient (SHGC) < 0.435.

- *Warranty* – Film must have a minimum five-year manufacturer's warranty and one-year installer's warranty
- *Conditioned Space* – Rebates shall be paid on actual square footage of glass in a conditioned space on the east, west, and south facing windows.
- *Eligible Types* – Windows may be clear or factory tinted, single or double pane, but must not have reflected glass. All orientations are eligible.
- *Unshaded* – Windows significantly shaded by buildings, trees or awnings are not eligible for rebates
- *Replacement Film* – Replacement of deteriorated window film is eligible for 50% of the rebate if the customer did not receive a rebate for the existing film

This incentive is targeted to provide a 25% cost reduction for the installation.

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	**5.3 Business Energy Efficiency Measures** **5.3.8 ENERGY STAR® Business Equipment** **5.3.8.1 ENERGY STAR® Office Refrigerators w/Recycling**
Projected Impacts	Demand 1 kW Energy 33,906 kWh Incentive Budget $ 2,500 (<1%) Cost per kWh $0.07 /kWh TRB $ 43,871
Incentives	**Incentive** **Unit** ENERGY STAR® Refrigerators w/Recycling $125/unit 20 units
Description & Implementation Strategies	**Energy Reduction Opportunity** There is a 32% to 62% energy reduction opportunity in the replacement of the "old" office refrigerator with a modern ENERGY STAR® model. **Target Audience** Who – Property Managers, Executive Level Company Officers What – All Commercial **Incentive & Targeted Economics** The offering of a $125 incentive for ENERGY STAR® units bought and delivered by participating retailers. This incentive is a 10% to 25% reduction in the cost of a new ENERGY STAR® model. **Application Process** 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

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.9 High Efficiency Appliances**		
Projected Impacts	Demand	2	kW
	Energy	41,226	kWh
	Incentive Budget	$ 7,950	(<1%)
	Cost per kWh	$0.19	/kWh
	TRB	$ 54,295	

	Incentive	Unit
AOAO Clothes Washer (Tier II/III)	$50	24
AOAO Refrigerator (Purchase New Only)	$50	10
AOAO Refrigerator (with recycling of old)	$125	50

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.10 Energy Awareness, Measurement and Control Systems**			
Projected Impacts	Demand	84	kW	
	Energy	721,793	kWh	
	Incentive Budget	$ 190,000	(1%)	
	Cost per kWh	$0.26	/kWh	
	TRB	$ 750,717		
Incentives		**Incentive**	**Unit**	
	Hotel Room Occupancy Controls	$100	500	
	Condominium Submetering	$200	500	units metered
	Small Business Submetering	$200	100	units metered
	Vending Machine Energy Control Systems	$200	100	

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.10 Energy Awareness, Measurement and Control Systems** **5.3.10.1 Condominium Submetering**
Projected Impacts	Demand 24 kW Energy 112,607 kWh Incentive Budget $ 100,000 (1%) Cost per kWh $0.89 /kWh TRB $ 143,720
Incentives	**Incentive** **Unit** Condominium Submetering $200 500 units metered
Description & Implementation Strategies	**Program Objective** • This program is designed to assist master-metered condominiums and their Association of Apartment Owners (AOAO) to install billing submeters for their units and common areas to drive energy conservation and ensure equity and fairness in allocating energy costs to tenants and/or owners of their condominium units. The knowledge of personal energy usage and the responsibility to pay for it can result in energy usage behavior modification and reward those making investments in energy efficient equipment. • The combination of billing submeters, along with education, peer group comparisons and special equipment offerings, will assist the owner or tenant to achieve significant energy conservation and efficiency. • Provides the AOAO an opportunity to receive an energy audit of the property and participate in other Hawaii Energy incentives for conservation in all common areas. Possible incentives could include A/C, lighting, pool pumps, domestic water pumps and parking garage exhaust fans. **Incentive** • The payment of this $200 per unit metered incentive is payable to the AOAO towards the purchase and installation of a third party submetering system. The metering system is to be used for billing purposes so that each owner or tenant of the unit metered will be responsible for the payment of their own electric consumption. • Incentive payment will be made upon completion of: installation of each meter and billing system, tenant education submetering workshop, energy audit of the AOAO property and commencement of real time billing to individual tenants. • Incentive payment cannot exceed 50% of total project cost.

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.10 Energy Awareness, Measurement and Control Systems** **5.3.10.1 Condominium Submetering**
Description & Implementation Strategies (continued)	**Energy Savings** • It is expected there will be at least a 10% reduction in energy usage; however, there is no minimum reduction in electrical use required to retain the incentive. • Currently the M&V Review found a 22.7% reduction on the projects they reviewed, but recommended no change to the 10% reduction assumption. **Requirements** • The metering system must remain in place and billing to occur for a period of at least five (5) years or a pro-rated portion of the incentive will be recovered by Hawaii Energy. • Energy meter data (submetered billing statements) must be provided to Hawaii Energy for analysis purposes. • A joint educational and monitoring program will be undertaken with AOAO to assist in the verification of savings and development of an ongoing energy incentive offering for other condominiums in Hawaii. Components of the Pilot Program: • Physical verification review of meters serving the building. Review monthly billing history • AOAO to provide monthly individual data collection for a two month period after meter installation to Hawaii Energy. This would be the mock billing information that is supplied to the tenant. • Submetering system installation inspection review • Identification of Top (T) and Bottom (B) 5 energy users for the purpose of peer comparison. All information will be anonymous. • AOAO to host submetering and energy conservation and efficiency workshops presented by Hawaii Energy. A free energy efficient power strip will be given to encourage attendance. (If power strips are not available, Hawaii Energy reserves the right to offer a comparable promotional item.) • CFL's and LED's can be purchased utilizing the point of purchase rebates made available by Hawaii Energy in retail outlets throughout the state. • AOAO owners/tenants are eligible for ENERGY STAR® Appliance rebates and can purchase ENERGY STAR® appliances through major retailers throughout the state. • AOAO to perform energy audit/Vendor Project Proposals with Hawaii Energy assistance on the following: 1. Common Area Lighting 2. HVAC 3. Domestic Water Pumping • Domestic Water Heating

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.10 Energy Awareness, Measurement and Control Systems** **5.3.10.2 Hotel Room Occupancy Controls**
Projected Impacts	Demand 41 kW Energy 309,361 kWh Incentive Budget $ 50,000 (1%) Cost per kWh $0.17 /kWh TRB $ 335,550
Incentives	**Incentive** **Unit** Hotel Room Occupancy Controls $100 500
Description & Implementation Strategies	**Program Objective** • This offer is for the installation of energy management systems that gives thermostat control to existing guest room air conditioning systems using occupancy sensors. **Requirements** • All entry and lanai doors must have door switches or other technologies that will de-energize the fan coil unit • (FCU) when the door remains open. • All main rooms must have occupancy sensors that will de-energize the FCU when no movement is detected for a given period of time (not to exceed 15 minutes) Thermostat controls must be preset • Applicant must be on a Commercial Rate Schedule (reference utility bill). **Application** • Completed Commercial and Industrial Prescriptive Incentive Application • W-9 Tax Form • Completed Hotel Guest Room EMS Worksheet • Hotel Guest Room List • Equipment Invoice: Must clearly show the manufacturer, model number and quantity. • Equipment Specification Sheets **Incentive** • $100 per guest room controlled

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.10 Energy Awareness, Measurement and Control Systems** **5.3.10.3 Small Business Submetering**
Projected Impacts	Demand 9 kW Energy 33,856 kWh Incentive Budget $ 20,000 (<1%) Cost per kWh $0.59 /kWh TRB $ 49,143
Incentives	**Incentive** **Unit** Small Business Submetering $200 100 units metered
Description & Implementation Strategies	• Small Businesses ongoing efforts to reduce energy consumption and support the current submetering proposal as one that will insure both fairness in allocating energy costs as well as encouraging energy conservation through direct feedback of business energy use to the tenants. • Combining the submetering program with education and audits as proposed will complete developing the tenant's newfound desire for energy conservation with the how to achieve it. • $200 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 2014 Programs.

Program Category	**5.3 Business Energy Efficiency Measures** **5.3.11 Direct Install – Residential Energy Kits**
Projected Impacts	Demand 112 kW Energy 414,482 kWh Incentive Budget $ 161,250 (<1%) Cost per kWh $0.39 /kWh TRB $ 468,736
Incentives	**Incentive** **Unit** Multi-Family Direct Install Energy Savings Kits $129/unit 1,250 units
Description & Implementation Strategies	Multi-Family Direct Install – Multi-family property buildings will be targeted as recipients of turn-key installations of basic energy saving items for individual units. Proposed installations include CFLs/LEDs, low flow showerheads, faucet aerators, and advanced power strips. Program development will include market analysis and segmentation using input from State housing agencies, direct property manager outreach and tenant education. All measures will be installed without a customer co-pay.

5.4 Custom Business Efficiency Measures

Program Category	5.4 Custom Business Energy Efficiency Measures Customized Programs Overview

Projected Impacts

Demand	490	kW
Energy	17,155,773	kWh
Incentive Budget	$ 3,025,011	(12%)
Cost per kWh	$0.18	/kWh
TRB	$ 18,725,312	

Incentives

This program provides for incentives for all energy-savings actions that are not already covered by the prescribed incentives. Custom incentives will not be limited to a certain list of measures.

	Incentive	Units	
Customized Project Measures <=5 yrs.	$0.10	1,500,000	kWh
Customized Project Measures >5 yrs.	$0.18	10,821,667	kWh
Efficiency Project Auction	$0.18	6,355,617	kWh

Program Category

5.4 Custom Business Energy Efficiency Measures
5.4.1 Customized Project Measures
5.4.1.1 Customized Project Measures <5 yrs.
5.4.1.2 Customized Project Measures >5 yrs.

Projected Impacts

Demand	290	kW
Energy	10,164,913	kWh
Incentive Budget	$ 1,881,000	(8%)
Cost per kWh	$0.15	/kWh
TRB	$ 11,910,100	

Incentives

	Incentive	Units
Customized Project Measures <=5 yrs.	$0.10	1,500,000 kWh
Customized Project Measures >5 yrs.	$0.18	10,821,667 kWh

Market Barriers

- Risk Avoidance
- Market acceptance of new technologies
- Lack of familiarity with availability of energy efficient technology
- High initial up-front cost
- Life Cycle Cost vs. Simple Payback decision analysis
- Need for a cash positive investment
- Access to and/or understanding of financial options
- Lack of knowledge of operation and maintenance of technologies

Description & Implementation Strategies

Customized Application Process
This program will provide a custom application and granting process for participants to receive incentives for installing non-standard energy efficiency technologies. The intent of this structure is to enable customers to invest in energy efficiency processes and technology measures that may require calculations of energy savings for specific, unique applications. Incentive awards will be based on calculated savings that ensure program cost-effectiveness.

The process includes:

- Program performs outreach and promotions to inform customers of incentive opportunities
- Customer learns about the program offerings through various channels
- Customer may call the program to request assistance.

Customer or his agent must submit a brief proposal that describes the project and includes estimates of energy savings and payback

- Engineering calculations are required and may be reviewed either internally or with a third-party engineering firm
- Program provide feedback on the project to clarify if needed
- Program 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
- Commercial Refrigeration Measures
- Advanced Energy Management Controls
- Variable Refrigerant Flow Air Conditioning
- High Performance Commercial Lighting
- Bi-Level Stairwell and Parking Garage Lighting

Key Changes

Tiered Incentives by Payback

- Projects that have longer life measures often have longer paybacks that businesses have a harder time gaining approval for. These projects can be pushed into reality by offering increases in the incentive levels in order to enhance feasibility and get them to a point where the customers will implement them. For PY14 Hawaii Energy has significantly increased the incentives for project with greater than a five year life expectancy, from $0.12/kWh in PY13 to $0.18/kWh for this program year. The incentive for measures with life expectancies of five year or less was also increased from $0.08 /kWh in PY13 to $0.10/kWh for this program year.

Measure Life	*Reduction in Energy use Incentive*
<= 5 years	$0.10 /kWh
> 5 years	$0.18 /kWh

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	**5.4 Custom Business Energy Efficiency Measures** **5.4.1 Customized Project Measures** **5.4.1.3 Efficiency Project Auction**
Projected Impacts	Demand 200 kW Energy 6,990,861 kWh Incentive Budget $1,144,011 (5%) Cost per kWh $0.16 /kWh TRB $6,815,212
Incentives	**Incentive** **Units** Efficiency Project Auction $0.18 6,355,617 kWh
Description & Implementation Strategies	Hawaii Energy will issue a call for projects in PY14 for innovative energy efficiency programs from third parties. Eligible projects in this auction are any new technology, marketing approach or customer segment not already offered or served Hawaii Energy PY14 programs. Projects may include new technologies if it can be demonstrated that the technology is commercially available and any performance issues have been investigated and resolved. A ceiling price and evaluation methods will be defined in the call for projects.

5.5 Business Service and Maintenance

Program Category	**5.5 Business Energy Services & Maintenance** **BESM Program Overview**			
Projected Impacts	Demand	19	kW	
	Energy	1,455,967	kWh	
	Incentive Budget	$2,437,500	(10%)	
	Cost per kWh	$1.67	/kWh	
	TRB	$416,387		
Incentives		**Incentive**		**Units**
	5.5.1 Benchmarking, Codes and Standards			
	ENERGY STAR® Portfolio Scoring Rewards	$11,333.33		32 Participants
	5.5.2 Business Design, Audits & Commissioning			
	Benchmark Metering	$100,000		4 Groups
	Decision Maker – Real-Time Submeters	$125,000		2 Projects
	Energy Audit	$15,000		25 Studies
	Energy Study Project Implementation-100%	$25,00		8 Studies
	Energy Study Assistance – 50%	$15,000		10 Studies
	Design Study Assistance – 50%	$15,000		15 Designs
	Education Facilities – Submetering for Energy Programs	$75,000		5 Participants
	Optimized Chiller Selection Engineering	$2,500		25 Participants
	Water/Wastewater Catalyst	$1.25	/kwh	160,000 kWh

Program Category	**5.5 Business Energy Services & Maintenance** **5.5.1 Benchmarking, Codes and Standards** **5.5.1.1 ENERGY STAR® Portfolio Scoring Rewards**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 200,000 (<1%) Cost per kWh $0.00 /kWh TRB $0
Incentives	**Incentive** **Unit** Benchmark Metering $11,333 32 Participants
Description & Implementation Strategies	This program would have a goal of benchmarking as many facilities as possible by raising awareness and removing barriers to using the ENERGY STAR® Portfolio Manager program. Facilities with scores <75 are considered a very low performing facility and in need of major facility improvements. For these facilities Hawaii Energy would offer participation in the Whole Building Assistance Program which includes Energy Audits, Energy Studies, and Design assistance. Facilities with scores between 75 - 90 are considered high performing buildings and Hawaii Energy would provide incentives for specific energy efficiency upgrades. For these facilities Hawaii Energy would offer ENERGY STAR® Certification assistance. Facilities with scores >90 are considered optimal performing buildings and need very specific projects in order to optimize existing systems. For these Facilities Hawaii Energy would offer Decision Maker Metering, a program that by installation of submetering allows decision makers to focus efforts on energy wasters that may not otherwise be obvious.

Program Category	**5.5 Business Energy Services & Maintenance** **5.5.2 Business Design, Audits and Commissioning** **5.5.2.1 Benchmark Metering**
Projected Impacts	Demand 0 kW Energy 417,981 kWh Incentive Budget $ 400,000 (1%) Cost per kWh $0.96 /kWh TRB $45,502
Incentives	**Incentive** **Unit** Benchmark Metering $100,000 4 Groups
Description & Implementation Strategies	The Benchmark Metering incentive is designed to encourage business customers to install a central chiller plant metering and data logging system that will provide real-time data and trend data. This data reflects actual tons of cooling and measured efficiency in KW per ton. The new equipment will make it possible for the customer to set meaningful energy efficiency goals and track progress towards those goals. With the Hawaii Energy incentive, there is no cost to the customer for the metering equipment or installation (up to $100,000). Procedure: Customer: 1. Have a central chiller plant (or a central chiller plant project in the planning phase) with a total building electrical energy consumption of at least 3 million kWh per year. 2. Complete and submit Central Chiller Plant Benchmarking Application 3. The Hawaii Energy monitoring and data acquisition server shall be located at the customer's site and connected to the internet via customer's connection. 4. Submit to Hawaii Energy all payee information and the IRS Form W-9 at the beginning of every calendar year for processing of the IRS Form 1099. It is understood that Hawaii Energy will forward a copy of the IRS Form 1099 to the payee at the end of the calendar year. 5. Agree to inspection of project for up to 5 years after completion Industry Partners: 1. Assist customer in submission of application, savings estimate worksheet, and project proposal. 2. Provide quotations for metering installation at customer's location. Only firm/fixed cost quotes will be accepted by Hawaii Energy. 3. Provide supporting documentation to support information submitted on Worksheet. Information may include drawings, vendor cut sheets, energy savings estimates (methodology and calculations). 4. Install approved measures and required metering/monitoring equipment

Program Category	**5.5 Business Energy Services & Maintenance** **5.5.2 Business Design, Audits and Commissioning** **5.5.2.1 Benchmark Metering**
Description & Implementation Strategies (continued)	Hawaii Energy: 1. Review application, worksheet, and proposal to determine if proposed project meets the intent of the program. 2. Perform post installation inspection to ensure all measures/equipment are properly install and operational. 3. Process approved incentive payments (to customer or authorized third party) based on validated savings calculations 4. Prepare and file close out report documenting actual savings achieved and incentives paid.
Marketing Strategies	• Direct contact with Mechanical Services companies, chief engineers, property managers and manufacturers' representatives,

Program Category	**5.5 Business Energy Services & Maintenance** **5.5.2 Business Design, Audits and Commissioning** **5.5.2.2 Decision Maker – Real-Time Submeters**
Projected Impacts	Demand 0 kW Energy 348,318 kWh Incentive Budget $250,000 (1%) Cost per kWh $0.72 /kWh TRB $37,918
Incentives	**Incentive** / **Units** Decision Maker – Real-Time Submeters $125,000/Project 2 Projects
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 2014 Programs. **Target Audience** Who – Property Managers, Executive Level Company Officers What – All Commercial **Incentive & Targeted Economics** The offering of the direct installation or materials with in-house installation of web-based electrical metering. This metering will be monitored by decision makers within the organization to identify usage patterns and be the basis of peer group competitions within the organization. **Application Process** An MOU will be developed with the customer that will outline the purpose and process of setting up education and peer group competitions within their businesses. **Complementary Programs** • High Efficiency HVAC • High Efficiency Lighting Measures

Program Category	**5.5 Business Energy Services & Maintenance** **5.5.2 Business Design, Audits and Commissioning** **5.5.2.3 Energy Audit**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 375,000 (2%) Cost per kWh $0.00 /kWh TRB $0
Incentives	**Incentive** **Unit** Energy Audit $15,000 25 Studies
Description & Implementation Strategies	This offer is designed to promote energy-saving evaluations of building equipment and operations that consume electricity. Hawaii Energy provides an incentive for a portion of the existing facility's energy consumption analysis through a two phase process: (1) the completion of a preliminary energy audit (see Energy Audit Worksheet from website) and (2) a detailed energy study upon approval of the audit. Pre-approval is required prior to the start of any audit in order to ensure budget availability, review any prior studies at the location, and have a discussion about the goals and context of the energy analysis.

Program Category	**5.5 Business Energy Services & Maintenance** **5.5.2 Business Design, Audits and Commissioning** **5.5.2.4 Energy Study Project Implementation - 100%**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 200,000 (<1%) Cost per kWh $0.00 /kWh TRB $0
Incentives	**Incentive** **Units** Energy Study Assistance $25,000/study 8 studies
Description & Implementation Strategies	• 100% Funded up to $25,000 • Customer agrees to implement reccomendations with less than 2 year paybacks within 1 year up to the value of the energy study or pays back 50% of the energy study cost. • Load / Existing Performance Measurements • Modeling new systems • Actionable recommendations

Program Category	**5.5 Business Energy Services & Maintenance** **5.5.2 Business Design, Audits and Commissioning** **5.5.2.5 Energy Study Assistance**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 150,000 (<1%) Cost per kWh $0.00 /kWh TRB $0
Incentives	Energy Study Assistance — **Incentive** $15,000/study — **Units** 10 studies
Description & Implementation Strategies	• 50% matching up to $15,000 • Load / Existing Performance Measurements • Modeling new systems • Actionable recommendations

Program Category	**5.5 Business Energy Services & Maintenance** **5.5.2 Business Design, Audits and Commissioning** **5.5.2.6 Design Assistance**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 225,000 (<1%) Cost per kWh $0.00 /kWh TRB $0
Incentives	**Incentive** **Units** Energy Study Assistance $15,000/Design 15 Designs
Description & Implementation Strategies	• 50% matching up to $15,000 for projects exceeding code requirements • Meet targeted energy efficiency levels • Actionable recommendations
Marketing Strategies	• Direct interaction with potential customers and mechanical engineers • Promote measure information on the website • Promote successful projects in the media and events

Program Category	**5.5 Business Energy Services & Maintenance** **5.5.2 Business Design, Audits and Commissioning** **5.5.2.7 Education Facilities – Submetering for Energy Programs**
Projected Impacts	Demand 0 kW Energy 522,476 kWh Incentive Budget $ 375,000 (2%) Cost per kWh $0.72 /kWh TRB $56,877
Incentives	**Incentive** **Units** Submetering for Energy Programs $75,000 5 Participants
Description & Implementation Strategies	• Hawaii Energy plans to support the installation of submetering within the University campuses to allow measurable energy-saving behavioral action to be recognized and provide feedback that supports future initiatives and education.
Marketing Strategies	• Direct recruitment

Program Category	**5.5 Business Energy Services & Maintenance** **5.5.2 Business Design, Audits and Commissioning** **5.5.2.8 Optimized Chiller Selection Engineering**
Projected Impacts	Demand 0 kW Energy 0 kWh Incentive Budget $ 62,500 (<1%) Cost per kWh $0 /kWh TRB $0
Incentives	**Incentive** **Units** Optimized Chiller Selection Engineering $2,500 25 Participants
Description & Implementation Strategies	**Energy Reduction Opportunity** The chiller selection process is an important element prior to chiller purchase that is often overlooked. In many applications, replacing chillers with the size chiller that currently exists misses an opportunity to downsize the chiller. Significant energy savings can occur if chillers are "right-sized" to the load. The PY13 chiller optimization program was based on the eventual installation of an optimized chiller. However, after participation was less than expected, it was determined that the ultimate goal of this incentive was to get vital information to the decision makers on the optimized size of the chiller before a buying decision is made. Hawaii Energy believes this can best be done by funding an energy optimization studies in the beginning of the selection process. **Target Audience** Who – Property Managers, Facilities Directors, Chief Engineers and Governmental Facilities Departments What – Large Commercial facilities **Incentive & Targeted Economics** Hawaii Energy would fund a study to determine the actual load that the existing chiller is serving. The result of the study can be used by the decision makers to right size the new chiller when it is purchased. **Customer Qualifications** Customers with existing chillers include centrifugal, screw, scroll and reciprocating, approaching the end of their useful life.

Program Category	**5.5 Business Energy Services & Maintenance** **5.5.2 Business Design, Audits and Commissioning** **5.5.2.9 Water & Wastewater Energy Project Catalyst**
Projected Impacts	Demand 19 kW Energy 167,192 kWh Incentive Budget $ 200,000 (<1%) Cost per kWh $1.20 /kWh TRB $276,091
Incentives	**Incentive** **Units** W/WW Energy Project Catalyst $1.25/kWh 160,000 kWh
Description & Implementation Strategies	The objective of the catalyst program is to accelerate stalled high impact UV disinfection project. • *5 Year Cost Neutral Incentive* – This measure will provide the funding required to drive this project into a 5 year lease that is cash neutral for the customer.

5.6 Business Hard-to-Reach

Program Category	**5.6 Business Hard-to-Reach** **BHTR Program Overview**
Target Market	Small Business Customers receiving electric power under a Schedule "G" rate are eligible under this program. Small customers similar to Schedule "G" customers that are under master-metered accounts would also be eligible. The program will target the 50,000 customers within the small business market that have limited time and expertise within their organizations to research lighting technology options, obtain financing and contract with lighting contractors to replace their older less efficient lighting technologies. **Offices** Water coolers use a significant amount of energy. A standard hot and cold water cooler can use more energy than a large refrigerator – according to ENERGY STAR®. The solution is to install timers to shut down during non-usage hours. **Restaurants** This sector has a low participation rate, low saturation of high efficiency equipment and high potential for energy savings. The Small Business Direct Installation (SBDI) method has shown to be effective to get attention and participation with the ability to then gather information on the restaurant equipment and operations that can lead to greater energy savings through other programs such as the ENERGY STAR® Kitchen equipment program. **Landlords** The landlord/tenant relationship provides challenges to making energy efficiency capital investments in properties and operations such as air conditioning and lighting upgrades. This funding is to create a program that works with landlords that are taking tax credits. This program will be targeted to provide landlords of small business schedule "G" customers with comprehensive audit, RFP and other support for energy saving projects that will drive down the energy cost of their tenants.
Projected Impacts	Demand 1,392 kW Energy 13,536,146 kWh Incentive Budget $3,247,520 (5%) Cost per kWh $0.24 /kWh TRB $17,366,643

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

Incentives		Incentive	Units	
	5.6.1 Small Business Direct Installation			
	Retrofitted Lamps	$143.67	21,082	Lamps
	Customized Retrofits	$0.25	80,000	kWh
	Ladder Charges	$10.00	500	Charges
	Refrigerated Cases	$1.10	90,909	kWh
	5.6.2 Energy Efficiency Equipment Grants			
	Water Cooler Timers	$15	15,000	units
	5.6.3 Restaurant Targeted Participation Programs			
	ENERGY STAR® Commercial Kitchen Equipment	$0.18/kWh	1,111,111	kWh
	Low Flow Spray Rinse Nozzles	$22	500	units
	SBDI - Kitchen Exhaust Hood Demand Ventilation	$1,700	50	hp
	SBDI - Restaurant Lighting			
	Retrofitted Lamps	$143.67	13,965	Lamps
	Customized Retrofits	$0.25	269,180	kWh
	Ladder Charges	$10.00	1,200	Charges

Program Category	**5.6 Business Hard to Reach** **5.6.1 Small Business Direct Installation** **5.6.1.1 – SBDI Lighting Retrofits** **5.6.1.2 – SBDI Refrigeration Retrofits**
Projected Impacts	Demand 341 kW Energy 3,988,110 kWh Incentive Budget $ 1,728,115 (4%) Cost per kWh $0.43 /kWh TRB $5,829,035
Incentives	**Incentive** **Units** Small Business Direct Lighting Retrofits Retrofitted Lamps $143.67 21,082 Lamps Customized Retrofits $0.25 80,000 kWh Ladder Charges $10.00 500 Charges Refrigerated Cases $1.10 90,909 kWh
Technologies	Small Business Lighting Retrofit providing a "Turn-key" program consisting of audits, 100% incentivized lighting measures, installation by participating Hawaii Energy Participating contractors and 6 month financing of lighting retrofit costs of custom measures beyond the cost per kWh incentive. The program will be modified to return T8 32W to Low-wattage T8s (25/28W) to the standard incentive levels. This action is taken to increase cost effectiveness of the program and utilize the SBDIL budget to target the more T12s that remain in service. This also addressed more directly the customers that have for whatever operational/financial reason been unable to upgrade their T12 lighting. The 100% incentive levels will be reviewed to insure that changes in equipment pricing (LEDs in particular) are taken into account.
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
Description & Implementation Strategies	• Provide complete process to provide direct installation of lighting retrofits for small business customers. • Participating Hawaii Energy Participating contractors will offer six month payment plans for the lighting retrofits • Use of workforce development groups and grass roots volunteer organizations to generate leads and perform initial audits to lower cost of sales for Lighting contractors

	• Quick Inventory worksheet to ID potential targeting for future mechanical measures (AC/Water heating/Appliances/Refrigeration)
Marketing Strategies	• Direct contact with participating lighting contractors • Direct contact with Small Business Administration • Direct contact and printed materials to Property Management groups • Door-to-Door contact through Grassroots Action Groups • Website listing of participating lighting contractors

Program Category	**5.6 Business Hard to Reach** **5.6.2 Water Cooler Timers**
Projected Impacts	Demand 294 kW Energy 3,307,687 kWh Incentive Budget $ 225,000 (<1%) Cost per kWh $0.07 /kWh TRB $2,162,940
Incentives	**Incentive** **Unit** Water Cooler Timers $15 15,000 units
Description & Implementation Strategies	**Energy Reduction Opportunity** Water coolers use a significant amount of energy. To address the vast energy waste, water cooler timers can save over 70% on water cooler electricity cost in a standard office work week. Water coolers programmed to shut down during non-usage hours will save significant amount of energy. **Target Audience** Offices **Incentive & Targeted Economics** $15 per water cooler timer **Application Process**. This program will be implemented through home-office delivery (HOD) companies that provide water services. Water cooler timers will be programmed to shut down during non-usage office hours.

Program Category	**5.6 Business Hard to Reach** **5.6.3 Restaurant Targeted Participation Programs** **5.6.3.1 - ENERGY STAR® Commercial Kitchen Equipment**
Projected Impacts	Demand 242 kW Energy 1,209,945 kWh Incentive Budget $ 200,000 (<1%) Cost per kWh $0.17 /kWh TRB $2,068,662
Incentives	**Incentive** / **Unit** Commercial Kitchen Equipment: $0.18 /kWh / 1,111,111 kWh
Description & Implementation Strategies	**Energy Reduction Opportunity** This program will start with direct installation of variable exhaust ventilation systems that adjust to the cooking exhaust loads. **Target Audience** Who – Restaurants and commercial kitchens What – Commercial Kitchen Equipment **Incentive & Targeted Economics** This program will have a variety of incentives for dozens of equipment types. It is expected that the average cost per kWh will be $0.30 /kWh. We will work with Fishnick and CEE to develop equipment types and incentive levels. **Application Process**. This program will be implemented through specialty contractors on a dollar per kWh capture basis. The program will also develop vendor driven program that will provide them direct incentives and the support of Hawaii Energy technology papers and sales call assistance. **Complementary Programs** • Target Cost per kWh Request for Proposals

Program Category	**5.6 Business Hard–to-Reach** **5.6.3 Restaurant Targeted Participation Program** **5.6.3.2 Low Flow Spray Rinse Nozzles**
Target Market	• Restaurants
Projected Impacts	Demand 490 kW Energy 1,982,979 kWh Incentive Budget $11,000 (<1%) Cost per kWh $0.00 /kWh TRB $3,713,858
Incentives	Low Flow Spray Rinse Nozzles — Incentive: $22 — Units: 500
Description & Implementation Strategies	A low-flow pre-rinse spray valve is one of the easiest and most cost effective energy saving devices available to the foodservice operator. In addition to minimizing water consumption, water heating energy and sewer charges are also reduced.

Program Category	**5.6 Business Hard-to-Reach** **5.6.3 Restaurant Targeted Participation Programs** **5.6.3.3 SBDI - Kitchen Exhaust Hood Demand Ventilation**
Target Market	• Restaurants
Projected Impacts	Demand 25 kW Energy 143,360 kWh Incentive Budget $85,000 (<1%) Cost per kWh $0.59 /kWh TRB $269,674
Incentives	**Incentive** **Unit** SBDI - Kitchen Exhaust Hood Demand Ventilation $1,700 50 hp
Market Barriers	• Familiarity with technology • Vendor/Contractor sales and support in Hawaii for technology • Customer lack of access to capital for energy improvements • Renter and Lessee reluctance to invest in non-owned property
Description & Implementation Strategies	**Energy Reduction Opportunity** Kitchen Exhaust hoods run typically at full speed during the operating hours of the restaurant. These controller systems monitor the cooking surfaces for heat and/or particulates in the air to run the fans only when needed. Saving the energy that is wasted during idle periods. This will be a pilot program subject to review and approval of how savings will be determined. Savings methodology to be included in the TRM for 2014 Programs. The modest savings value is based on a single project monitored in PY2011. **Target Audience** Who – Restaurant Owners, Hawaii Restaurant Association What – Restaurants **Incentive & Targeted Economics** The offering of the direct installation 100% Cost Incentive. Work to be performed by participating contractors/manufacturers. **Application Process** • Targeted Anticipation and Vendor Driven leads drive interest. • Application and site audit information • Agreement to allow marketing/promotions in Restaurant regarding work performed and savings achieved.

Program Category	**5.6 Business Hard-to-Reach** **5.6.3 Restaurant Targeted Participation Programs** **5.6.3.4 SBDI - Restaurant Lighting**
Target Market	• Restaurants
Projected Impacts	Demand 0 kW Energy 2,904,065 kWh Incentive Budget $998,405 (4%) Cost per kWh $0.34 /kWh TRB $3,322,474
Incentives	**Incentive** / **Units** Retrofitted Lamps $143.67 13,965 Lamps Customized Retrofits $0.25 269,180 kWh Ladder Charges $10.00 1,200 Charges
Market Barriers	• Customer lack of access to capital for energy improvements • Renter and Lessee reluctance to invest in non-owned property
Description & Implementation Strategies	• Provide complete process to provide direct installation of lighting retrofits for small business customers. • Participating Hawaii Energy Participating contractors will offer six month payment plans for the lighting retrofits • Use of workforce development groups and grass roots volunteer organizations to generate leads and perform initial audits to lower cost of sales for Lighting contractors • Quick Inventory worksheet to ID potential targeting for future mechanical measures (AC/Water heating/Appliances/Refrigeration)
Marketing	• Direct contact with participating lighting contractors • Direct contact with Small Business Administration • Direct contact and printed materials to Property Management groups • Door-to-Door contact through Grassroots Action Groups • Website listing of participating lighting contractors

Program Category	**5.6 Business Hard-to-Reach** **5.6.3 Restaurant Targeted Participation Program** **5.6.3.5 SBDI - Restaurant Lighting**
Technologies	A "Turn-key" program consisting of audits, 100% incentivized lighting measures, installation by participating Hawaii Energy Participating contractors and 6 month financing of lighting retrofit costs of custom measures beyond the cost per kWh incentive. The program will be modified to return T8 32W to Low-wattage T8s (25/28W) to the standard incentive levels. This action is taken to increase cost effectiveness of the program and utilize the SBDIL budget to target the more T12s that remain in service. This also addressed more directly the customers that have for whatever operational/financial reason been unable to upgrade their T12 lighting. The 100% incentive levels will be reviewed to insure that changes in equipment pricing (LEDs in particular) are taken into account.
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

6.0 PROGRAM BUDGET

Below is a summary of the PY14 Budget.

Table 4
Hawaii Energy Efficiency Program Annual Plan Budget
July 1, 2014 through June 30, 2015

Activity	Non-Incentive	Incentive	Total
Residential Programs			
REEM	2,225,000	8,712,683	10,937,683
CESH	230,000	977,542	1,207,542
RESM	100,000	310,000	410,000
RHTR	300,000	1,061,250	1,361,250
Total Residential Programs	**2,855,000**	**11,061,475**	**13,916,475**
Residential Market Evaluation	**219,561**	**0**	**219,561**
Residential Outreach	**600,000**	**0**	**600,000**
Total Residential Services and Initiatives	**3,674,561**	**11,061,475**	**14,736,036**
Business Programs			
BEEM	1,100,000	4,809,550	5,909,550
CBEEM	1,100,000	3,025,011	4,125,011
BESM	675,000	2,437,500	3,112,500
BHTR	666,130	3,247,520	3,913,650
Total Business Programs	**3,541,130**	**13,519,581**	**17,060,711**
Business Market Evaluation	**250,000**	**0**	**250,000**
Business Outreach	**700,000**	**0**	**700,000**
Total Business Services and Initiatives	**4,491,130**	**13,519,581**	**18,010,711**
Total Residential and Business Services and Initiatives	**8,165,691**	**24,581,056**	**32,746,747**
Transformational Programs			
Residential Transformational Programs	0	1,747,514	1,747,514
Business Transformational Programs	0	2,135,850	2,135,850
Total Transformation Services and Initiatives	**0**	**3,883,364**	**3,883,364**
Total Supporting Services	**2,405,683**	**0**	**2,405,683**
Total Tax on Non-Incentive	**498,123**	**0**	**498,123**
Sub-Total Estimated Contractor Costs	**11,069,497**	**28,464,420**	**39,533,917**
Performance Awards in Excess of Target Levels			**133,000**
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels			**39,666,917**

This table provides a program-level itemization of the overall contract budget. While the contractual budget categories and limitations are as set forth in the contract, the Hawaii Energy team will continue reporting status of budget and expenditures at the program-level, consistent with prior years. Formal changes to the contract budget will be in accordance with the contract.

7.0 PERFORMANCE INCENTIVE GOALS AND INCENTIVE WEIGHTING

7.1 Performance Incentive Goals

The following table shows the PY14 Program Performance Goals and Incentives as contained in the supplemental contract covering the PY14 budget. The transition between Minimum, Target and Maximum shall be calculated on a linear basis for both goals and awards where appropriate.

Table 5 - Performance Goals and Performance Incentives

PY2014 Hawaii Energy - Performance Goals and Performance Incentives

Performance Target Item	*Performance Goals*					*Award Fraction*		*Program Incentive Award*		
Resource Acquisition	***Minimum***		***Target***	***Maximum***				***Minimum***	***Target***	***Maximum***
	75%		*100%*	110%				75%	*100%*	123.8%
First Year Energy Reduction	101,112,172		134,816,230	148,297,852	kWh	35%		$ 183,750	$ 245,000	$ 303,188
Peak Demand Reduction	12,937		17,250	18,975	kW	5%		$ 26,250	$ 35,000	$ 43,313
Total Resource Benefit	$ 120,554,939		$ 160,739,919	$ 176,813,911	$	40%		$ 210,000	$ 280,000	$ 346,500
Island Incentive Equity	***Minimum***		***Target***	***Maximum***	***Contribution***			***Minimum***	***Target***	***Maximum***
	80%		100%							
County of Hawaii	$ 2,556,430		$ 3,195,537	n/a	13.0%					
C&C Honolulu	$ 14,551,985		$ 18,189,981	n/a	74.0%	10%	All Counties met	n/a	$ 70,000	$ 70,000
County of Maui	$ 2,556,430		$ 3,195,537	n/a	13.0%					
Total			$ 24,581,056		100.0%					
Market Transformation	***Minimum***		***Target***	***Potential Actions***				***Minimum***	***Target***	***Maximum***
	70%		100%					75%	*100%*	
Behavior Modification	12,600		18,000	Participants		2%		$ 11,250	$ 15,000	$ 15,000
Professional Development	700		1,000	Participants		2%		$ 11,250	$ 15,000	$ 15,000
Technical "Know How"	175		250	Participants		2%		$ 11,250	$ 15,000	$ 15,000
Hawaii Energy Ally Program	n/a		Trade Ally Meeting 200 participants	Roll Out Program by 8/1/14		1%		n/a	$ 5,000	$ 5,000
Benchmarking	200		500	Sites EUI/ENERGY STAR/Peer Group Evaluated						
Codes & Standards	Market Survey & 1 Actions		Market Survey & 2 Actions	1. Incentive Program for Early Code Adoption 2. 30 by 2030 - Above Code Program 3. Code Compliance Assistance 4. Project TBD by Mutual Agreement w/PUC						
Demand Response	Market Survey & 1 Action		Market Survey & 2 Actions	1. In-field live-test and evaluated Project 2. EE/DR Incentive for installation of standard Specification devices 3. Project TBD by Mutual Agreement w/PUC		3%	All Items in Category must be met for award	$ 15,000	$ 20,000	$ 20,000
Smart Grid	Market Survey & 1 Action		Market Survey & 2 Actions	1. Direct Installation of in-home smart devices compatible with HECO Smart Grid 2. Evaluation Report on TOU Energy Data 3. Project TBD by Mutual Agreement w/PUC						
Electric Vehicle	Market Survey & 1 Action		Market Survey & 2 Actions	1. Develop proposal of "motivational" TOU rate tariff and incentives mix to drive EV charging station installation and use. 2. Marketing Materials to raise EE/EV awareness 3. Project TBD by Mutual Agreement w/PUC						
Total						100%			$ 700,000	$ 833,000
Potential Award										$ 133,000

8.0 CONCLUSION

Hawaii Energy's PY14 will clearly be a challenging period of unprecedented change for the entire energy industry in Hawaii. As such, this Annual Plan must be a living document subject to strategic modification throughout the year as required to take advantage of unique opportunities, overcome unexpected barriers and integrate any changes in course directed by the PUC. Such modifications will be made with the concurrence of the PUC Contract Manager.

In particular, the expanded Transformational program initiatives directed by the PUC are designed to accelerate Hawaii's transition to a more efficient, clean-energy-tolerant and ratepayer-accommodating electric grid. This will be accomplished through collaboration with utilities and key stakeholders to facilitate the identification and development of opportunities to integrate energy efficiency, demand management, energy storage, EV and TOU rate capabilities into the grid.

For PY14, the Leidos team will continue the transparency, integrity, cost-effectiveness, innovation and singular focus on helping Hawaii achieve its clean energy goals that have been key hallmarks of our tenure as Hawaii's first PBFA. Working under the PUC's leadership, together with our allies, government agencies, utilities and utility customers, we look forward to being an even better catalyst and contributor to Hawaii's successful evolution to a clean energy future.

MAHALO,

The Leidos Hawaii Energy Team

9.0 APPENDICES

Appendix A Program-Level Budget PY2014 (Expanded Version)
Appendix B Summary Proposed Program Budgets
Appendix C Program Cost-Effectiveness Targets
Appendix D Summary Presentation of Programs By Measure
Appendix E TRB Utility Benefit Values

APPENDIX A - Program-Level Budget PY2014 (Expanded Version)

As noted above, while the contract sets forth the overall budget categories and limitations, status of Hawaii Energy PY14 budget and expenditures will be reported at this itemized program-level.

Table 6

Hawaii Energy Efficiency Program Annual Plan Budget - June 10, 2014	PY14 Budget
Residential Programs	
Residential Program Ops and Management	
REEM	2,225,000
CESH	230,000
RESM	100,000
RHTR	300,000
Subtotal Residential Programs	2,855,000
Residential Market Evaluation	219,561
Residential Outreach	600,000
Total Residential Non-Incentive	*3,674,561*
Residential Incentives	
REEM	8,712,683
CESH	977,542
RESM	310,000
RHTR	1,061,250
Subtotal Residential Incentives	11,061,475
Residential Transformational	1,747,514
Total Residential Incentives	*12,808,989*
Total Residential Programs	**16,483,550**
Business (C&I) Programs	
Business Programs Ops and Management	
BEEM	1,100,000
CBEEM	1,100,000
BESM	675,000
BHTR	666,130
Subtotal Business Programs	3,541,130
Business Evaluation --	250,000
Business Outreach	700,000
Total Business Non-Incentive	*4,491,130*
Business Incentives	
BEEM	4,809,550
CBEEM	3,025,011
BESM	2,437,500
BHTR	3,247,520
Subotal Business Incentive	13,519,581
Business Transformational	2,135,850
Total Business Incentives	*15,655,431*
Total Business Programs	**20,146,561**
Supporting Services	
Supporting Services	2,405,683
Total Supporting Services	**2,405,683**
Subtotal Non-Incentive (Prior to Tax)	10,571,374
Less Performance Incentives (Prior to Tax)	(668,500)
Subtotal Non-Incentive Less Performance Incentives (PI)	9,902,874
Total Tax on Non-Incentive Without PI	466,623
Performance Incentive Award (Inclusive of Tax)	700,000
Subtotal Non-Incentive Billed	*11,069,497*
Subtotal Residential and Business Customer Incentives	*24,581,056*
Subtotal Transformational Incentives	*3,883,364*
Subtotal Customer and Transformational Incentives	*28,464,420*
Sub-Total Estimated Contractor Costs	***39,533,917***
Performance Awards in Excess of Target Levels	133,000
Total Estimated Contractor Costs, including Performance Awards in Excess of Target Levels	**39,666,917**

APPENDIX B – Summary Proposed Program Budgets

Table 7

Hawaii Energy - PY2014 ANNUAL PLAN

SUMMARY PROPOSED PROGRAM BUDGETS

PROGRAM BUDGET GUIDELINES

PBFA Contract Renewal Guidelines for Year 6

Program Year	2014
Period of Performance	7/1/14 to 6/30/15
PBFA Budget Allocation	$ 39,666,917

Budget Item / Category	Amount	% of Total Budget	% of Subtotal
General Administrative and IT Costs	$ 2,405,683	6.1%	94.8%
Performance Award in Excess of Target*	$ 133,000	0.3%	5.2%
Total PBFA Administrative Costs	$ 2,538,683	6.4%	100.0%

Budget Item / Category		Direct Incentives	Res + Bus EE Incentives
Residential Direct Incentives	38.86%	$ 11,061,475	86.4%
Business Direct Incentives	47.50%	$ 13,519,581	$ 24,581,056
			Res + Bus Trans Incentives
Residential Transformational Incentives	6.14%	$ 1,747,514	13.6%
Business Transformational Incentives	7.50%	$ 2,135,850	$ 3,883,364
Total Program Direct Incentives	100.00%	$ 28,464,420	

Budget Item / Category		Total	Allocation Targets Direct Incentives	Direct Implementation Cost
Residential Program Cost Split	45%	$ 16,707,705	$ 12,808,989	$ 3,898,716
Business Program Cost Split	55%	$ 20,420,529	$ 15,655,431	$ 4,765,098
Total Direct Program Costs		$ 37,128,234	$ 28,464,420	$ 8,663,814
Residential GA & IT Split	45%	$ 1,082,557		$ 1,082,557
Business GA & IT Split	55%	$ 1,323,126		$ 1,323,126
General Administrative and IT Costs		$ 2,405,683	$ -	$ 2,405,683
Total Direct Program Costs		$ 37,128,234	$ 28,464,420	$ 8,663,814
General Administrative and IT Costs		$ 2,405,683	$ -	$ 2,405,683
Total Incentives and Operations		$ 39,533,917	$ 28,464,420	$ 11,069,497
		100%	72.0%	28.0%

Proposed Incentives and Operations Breakouts

Budget Item / Category	Amount	% of Total Budget	% of Subtotal
Residential Incentives	$ 11,061,475	27.9%	38.9%
Business Incentives	$ 13,519,581	34.1%	47.5%
Transformation Incentives	$ 3,883,364	9.8%	13.6%
Total Incentives	$ 28,464,420	71.8%	100.0%
Administration / IT	$ 2,405,683	6.1%	21.7%
Direct Program Implementation Costs	$ 8,663,814	21.8%	78.3%
Total Operations	$ 11,069,497	27.9%	100%
Total Incentives	$ 28,464,420	71.8%	72.0%
Total Operations	$ 11,069,497	27.9%	28.0%
Total Incentives and Operations	$ 39,533,917	99.7%	100%
Total Incentives and Operations	$ 39,533,917	99.7%	99.7%
Total Award in Excess of Target*	$ 133,000	0.3%	0.3%
Total Budget	$ 39,666,917	100.0%	100.0%

* = This Incentive Award budget amount is not earned until performance is achieved.

These highlighted figures are key program metric percentages

APPENDIX C - Program Cost-Effectiveness Targets

Table 8

Hawaii Energy - PY2014 ANNUAL PLAN - PROGRAM COST EFFECTIVENESS TARGETS

PBFA Contract Renewal Guidelines			
Total Program Direct Incentives		$ 24,581,056	
First Year Energy Reduction		134,816,230	kWh - Program Level
Peak Demand Reduction		17,250	kW on Peak 5 to 9 p.m. Weekdays
Total Resource Benefit		$ 160,739,919	NPV of Utility Cost Avoidance

Derived Top Down Cost Effectiveness Metrics			
Total Program Direct Incentives		$ 24,581,056	
First Year Energy Reduction	÷	134,816,230	
Measure Cost Effectiveness - First Year		$ 0.182	per kWh - Program Level
First Year Energy Reduction		134,816,230	
Average Measure Life	x	9.9	years
Lifetime Energy Savings		1,334,111,790	kWh - Program Level
Total Program Direct Incentives		$ 24,581,056	
Lifetime Energy Savings	÷	1,334,111,790	
Measure Cost - Lifetime		$ 0.018	per kWh - Program Level
Total Program Direct Incentives		$ 24,581,056	
Avg. Incentive % of Incremental Cost	÷	33%	
TRC - Total Resource Cost		$ 74,488,048	
TRB - Total Resource Benefit		$ 160,739,919	
TRC - Total Resource Cost	÷	$ 74,488,048	
Cost Effectiveness - TRB/TRC		2.2	
First Year Energy Reduction		134,816,230	kWh - Program Level
Estimated Average Net-to-Gross	÷	0.81	
First Year Energy Reduction		167,107,353	kWh First Year - Customer Level
HCEI 2030 Energy Reduction Goal	÷	4,300,000,000	kWh/year
% Achievement towards HCEI 2030 Goal		3.9%	
First Year Energy Reduction		167,107,353	kWh First Year - Customer Level
Average Energy Cost	x	$ 0.32	per kWh
Participant Customer Energy Cost Savings		$ 53,474,353	per year
Average Measure Life	x	9.9	
Participant Customer Energy Cost Savings		$ 526,754,085	over lifetime of Equipment

County Distribution Targets

PBFA Contribution by County for PY2012			
Hawaii	Maui	Honolulu	Total
13.0%	13.0%	74.0%	100.0%

Program Level Targets by County				
Hawaii	Maui	Honolulu	Total	
$ 3,195,537	$ 3,195,537	$ 18,189,981	$ 24,581,056	Incentives
12,133,461	13,481,623	109,201,146	134,816,230	kWh First Year - PL
$ 0.263	$ 0.237	$ 0.167	$ 0.182	Cost per kWh

Target Savings Contribution by County			
Hawaii	Maui	Honolulu	Total
9.0%	10.0%	81.0%	100%

County Generation and T&D Losses			
Hawaii	Maui	Honolulu	Average
9.0%	10.0%	11.2%	10.7%

Defining Levelized Cost of Saved Energy

PY14 Plan

$$Levelized\ CSE\left(in\ \frac{\$}{unit}energy, e.g., kWh, therm, Btu\right) = \frac{C\ x\ (Capital\ Recovery\ Factor)}{D}$$

$$Capital\ Recovery\ Factor = [A*(1+A)^{\wedge B}]/[(1+A)^{\wedge B}-1]$$

Where:

A = Discount rate (LBNL uses 6% in this analysis)

B = Estimated program savings life in years

C = Total program cost in 2012$ dollars

D =Annual kWh saved that year by the energy efficiency program

A		6%
B		9.9
C		$ 39,666,917
D		134,816,230
		0.107
	÷	0.780
Capital Recovery Factor		0.137
C		$ 39,666,917
Capital Recovery Factor	x	0.137
D	÷	134,816,230
Utility Levelized Cost of Saved Energy (CSE)		$ 0.040

LBNL March 2014 – CSE Report - http://emp.lbl.gov/sites/all/files/lbnl-6595e.pdf

APPENDIX D - Summary Presentation of Presentation of Programs By Measure

Table 9

Hawaii Energy - PY2014 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS BY MEASURE

Item	Total	Incentives		Transformation		kW	kWh - 1st yr.		$/kWh 1st Yr.	kWh - Life	$/kWh Life	TRB $
Residential	$ 12,808,989	$ 11,061,475	45%	$ 1,747,514	45%	10,439	70,679,061	52%	$ 0.157	536,693,431	$ 0.021	$ 71,141,903
Business	$ 15,655,431	$ 13,519,581	55%	$ 2,135,850	55%	6,811	64,137,168	48%	$ 0.211	797,418,359	$ 0.017	$ 89,598,016
Direct Incentives Only		$ 24,581,056				17,250	134,816,230		$ 0.182	1,334,111,790	$ 0.018	$ 160,739,919
Direct and Transformational Incentives	$ 28,464,420	$ 24,581,056		$ 3,883,364			134,816,230		$ 0.211	1,334,111,790	$ 0.021	
Total Program Budget	$ 39,666,917						134,816,230		$ 0.294	1,334,111,790	$ 0.030	

Program, Category, Measure	Count	Unit	Average Participant Incentive per Unit	Estimated Incentive Budget ($)	% Total Program Budget (%)	Estimated Trans. Budget ($)	Peak Demand Reduction per Unit (kW/Unit)	Energy Reduction per Unit (kWh/Unit)	Program Demand (kW Peak)	Program Energy (kWh/Year)	% of Energy (%)	1st Year ($/kWh)	Life (yrs.)	Lifetime Energy (kWh/Life)	Lifetime Cost ($/kWh)	TRB ($)
Residential Programs				**$ 11,061,475**	**45.0%**	**$ 1,747,514**			**10,439**	**70,679,061**	**52.4%**	**$ 0.157**	**8**	**536,693,431**	**$ 0.021**	**$ 71,141,903**
REEM - Residential Energy Efficiency Measures				**$ 8,712,683**	**35.4%**				**10,043**	**62,663,645**	**46.5%**	**$ 0.139**	**12**	**487,770,678**	**$ 0.018**	**$ 65,432,557**
High Efficiency Water Heating			***$ 1,040.00***	***$ 2,340,000***	***9.5%***		***0.3180***	***1,568***	***934***	***4,376,259***	***3.2%***	***$ 0.535***	***18***	***83,239,464***	***$ 0.021***	***$ 10,473,554***
Solar Water Heater - Contractor Incentive	1,800	Systems	$ 1,000.00	$ 1,800,000	7.3%		0.4600	2,065	719	3,229,926	2.4%	$ 0.557	20	64,598,524	$ 0.024	$ 8,122,216
Solar Water Heater - Interest Buydown	50	Systems	$ 1,000.00	$ 50,000	0.2%		0.4600	2,065	20	89,720	0.1%	$ 0.557	20	1,794,403	$ 0.024	$ 225,617
Solar Water Heater - OBF Contribution	350	Systems	$ 1,000.00	$ 350,000	1.4%		0.4600	2,065	140	628,041	0.5%	$ 0.557	20	12,560,824	$ 0.024	$ 1,579,320
Solar Water Heater - New Technology Pilots and Testing	40	Systems	$ 2,000.00	$ 80,000	0.3%		-	-	-	-	0.0%		20			
Heat Pumps	300	Systems	$ 200.00	$ 60,000	0.2%		0.2100	1,644	55	428,571	0.3%	$ 0.140	10	4,285,713	$ 0.012	$ 546,401
High Efficiency Lighting			***$ 3.55***	***$ 3,230,000***	***13.1%***		***0.0040***	***26***	***6,430***	***45,333,669***	***33.6%***	***$ 0.071***	***11***	***310,948,825***	***$ 0.015***	***$ 43,732,048***
CFLs	1,300,000	Lamps	$ 1.10	$ 1,430,000	5.8%		0.0050	36	5,648	41,006,246	30.4%	$ 0.035	6	246,037,476	$ 0.005	$ 35,419,825
LED	300,000	Lamps	$ 6.00	$ 1,800,000	7.3%		0.0030	17	782	4,327,423	3.2%	$ 0.416	15	64,911,349	$ 0.024	$ 8,312,223
High Efficiency Air Conditioning			***$ 88.00***	***$ 382,500***	***1.6%***		***0.1548***	***418***	***370***	***954,553***	***0.7%***	***$ 0.401***	***14***	***14,423,267***	***$ 0.124***	***$ 2,651,957***
VRF Split System AC	700	Units	$ 200.00	$ 140,000	0.6%		0.2600	501	158	304,744	0.2%	$ 0.459	15	4,571,167	$ 0.027	$ 1,002,649
Window AC with Recycling	1,000	Units	$ 80.00	$ 80,000	0.3%		0.0021	19	2	16,250	0.0%	$ 4.923	9	146,246	$ 0.475	$ 18,491
Ceiling Fans	3,500	Units	$ 35.00	$ 122,500	0.5%		0.0120	65	36	197,689	0.1%	$ 0.620	5	988,443	$ 0.108	$ 161,611
Solar Attic Fans	200	Units	$ 50.00	$ 10,000	0.0%		-	502	-	87,244	0.1%	$ 0.115	20	1,744,873	$ 0.005	$ 124,841
Whole House Fans	400	Units	$ 75.00	$ 30,000	0.1%		0.5000	1,003	174	348,627	0.3%	$ 0.086	20	6,972,539	$ 0.004	$ 1,344,363
High Efficiency Appliances			***$ 82.14***	***$ 825,000***	***3.4%***		***0.0263***	***452***	***256***	***4,720,829***	***3.5%***	***$ 0.175***	***10***	***63,196,291***	***$ 0.027***	***$ 6,086,287***
Refrigerator (Purchase New Only)	500	Units	$ 50.00	$ 25,000	0.1%		0.0170	105	7	45,620	0.0%	$ 0.548	14	638,686	$ 0.034	$ 80,261
Refrigerator (with Recycling of Old)	5,000	Units	$ 125.00	$ 625,000	2.5%		0.0340	822	148	3,571,428	2.6%	$ 0.175	14	49,999,987	$ 0.011	$ 4,621,078
Garage Refrigerator / Freezer Bounty	500	Units	$ 85.00	$ 42,500	0.2%		0.0340	859	15	373,219	0.3%	$ 0.114	14	5,225,059	$ 0.007	$ 480,341
Clothes Washer (Tier II/III)	2,000	Units	$ 50.00	$ 100,000	0.4%		0.0420	328	73	570,038	0.4%	$ 0.175	11	6,270,419	$ 0.014	$ 781,192
Set-Top Box Replacements - Pilot	100	Units	$ 100.00	$ 10,000	0.0%		0.0285	250	2	21,724	0.0%	$ 0.460	5	108,620	$ 0.080	$ 15,144
Pool VFD Controller Pumps	100	Units	$ 150.00	$ 15,000	0.1%		0.0060	597	1	51,904	0.0%	$ 0.289	10	519,039	$ 0.025	$ 47,696
Advance Power Strips	500	Units	$ 15.00	$ 7,500	0.0%		0.0228	200	10	86,896	0.1%	$ 0.086	5	434,480	$ 0.015	$ 60,575
Energy Efficiency Equipment Kits			***$ 15.00***	***$ 37,500***	***0.2%***		***0.0427***	***258***	***93***	***560,262***	***0.4%***	***$ 0.067***	***5***	***2,801,311***	***$ 0.012***	***$ 439,669***
Home Energy Saving Kits- Online Fullfillment	2,500	Kits	$ 15.00	$ 37,500	0.2%		0.0427	258	93	560,262	0.4%	$ 0.067	5	2,801,311	$ 0.012	$ 439,669
Energy Awareness, Measurement and Control Systems			***$ 32.97***	***$ 1,897,683***	***7.7%***		***0.0072***	***133***	***1,959***	***6,718,073***	***5.0%***	***$ 0.282***	***5***	***13,161,519***	***$ 0.091***	***$ 2,049,044***
Room Occupancy Sensors & Timers	200	Units	$ 5.00	$ 1,000	0.0%		0.0046	21	1	3,615	0.0%	$ 0.277	8	28,919	$ 0.030	$ 4,727
Peer Group Comparison - Phase 1/2/3	132,500	Homes	$ 11.90	$ 1,576,683	6.4%		0.0170	50	1,957	5,756,863	4.3%	$ 0.274	1	5,756,863	$ 0.238	$ 1,352,057
Whole House Energy Metering	200	Units	$ 100.00	$ 20,000	0.1%		0.0070	410	1	71,255	0.1%	$ 0.281	4	285,019	$ 0.061	$ 31,023
Water Cooler Timers	20,000	Units	$ 15.00	$ 300,000	1.2%		-	51	-	886,340	0.7%	$ 0.338	8	7,090,718	$ 0.037	$ 661,236
CESH - Custom Energy Solutions for the Home				**$ 977,542**	**4.0%**				**-**	**5,973,595**	**4.4%**	**$ 0.164**	**5**	**29,867,974**	**$ 0.033**	**$ 2,998,778**
Customized Project Measures			***$ 0.18***	***$ 977,542***	***4.0%***		***-***	***1***	***-***	***5,973,595***	***4.4%***	***$ 0.164***	***5***	***29,867,974***	***$ 0.036***	***$ 2,998,778***
Hawaii Energy - Efficiency Project Auction	5,430,788	kWh	$ 0.18	$ 977,542	4.0%		-	1	-	5,973,595	4.4%	$ 0.164	5	29,867,974	$ 0.036	$ 2,998,778
RESM - Residential Energy Services and Maintenance				**$ 310,000**	**1.3%**				**146**	**722,211**	**0.5%**	**$ 0.429**	**10**	**7,305,498**	**$ 0.042**	**$ 1,068,632**
Residential Design and Audits			***$ 600.00***	***$ 60,000***	***0.2%***		***0.4000***	***2,200***	***40***	***222,630***	***0.2%***	***$ 0.270***	***15***	***3,339,448***	***$ 0.018***	***$ 428,620***
Efficiency Inside Home Design	100	Homes	$ 600.00	$ 60,000	0.2%		0.4000	2,200	40	222,630	0.2%	$ 0.270	15	3,339,448	$ 0.018	$ 428,620
Residential System Tune-Ups			***$ 575.00***	***$ 250,000***	***1.0%***		***0.3895***	***1,348***	***105***	***499,581***	***0.4%***	***$ 0.500***	***8***	***3,966,050***	***$ 0.315***	***$ 640,012***
Solar Water Heater Tune Up	1,000	Systems	$ 150.00	$ 150,000	0.6%		0.0290	249	29	251,977	0.2%	$ 0.595	1	251,977	$ 0.602	$ 38,306
Central Air Conditioning Retrofit Pilot	100	Systems	$ 1,000.00	$ 100,000	0.4%		0.7500	2,447	76	247,605	0.2%	$ 0.404	15	3,714,074	$ 0.027	$ 601,706

Hawaii Energy - PY2014 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS BY MEASURE

Residential Programs Continued

Program, Category, Measure	Count	Unit	Average Participant Incentive per Unit	Estimated Incentive Budget ($)	% Total Program Budget (%)	Estimated Trans. Budget ($)	Peak Demand Reduction per Unit (kW/Unit)	Energy Reduction per Unit (kWh/Unit)	Program Demand (kW Peak)	Program Energy (kWh/Year)	% of Energy (%)	1st Year ($/kWh)	Life (yrs.)	Lifetime Energy (kWh/Life)	Lifetime Cost ($/kWh)	TRB ($)
RHTR - Residential Hard to Reach				$ 1,061,250	4.3%				250	1,319,610	1.0%	$ 0.804	12	11,749,281	$ 0.090	$ 1,641,936
Energy Efficiency Equipment Grants			***$ 3,750.83***	***$ 900,000***	***3.7%***		***0.1663***	***975***	***100***	***766,968***	***0.6%***	***$ 1.173***	***13***	***8,433,427***	***$ 0.100***	***$ 1,016,954***
CFL Exchange	10,000	Lamps	$ 2.50	$ 25,000	0.1%		0.0050	38	55	415,781	0.3%	$ 0.060	6	2,494,687	$ 0.011	$ 354,588
Refrigerator (with Recycling of Old) - Lanai & Molokai Equity	200	Units	$ 250.00	$ 50,000	0.2%		0.0340	822	7	180,832	0.1%	$ 0.277	14	2,531,645	$ 0.022	$ 233,979
Solar Water Heater (SWH) Incentive	75	Systems	$ 11,000.00	$ 825,000	3.4%		0.4600	2,065	38	170,355	0.1%	$ 4.843	20	3,407,095	$ 0.266	$ 428,387
Direct Installation - Residential Energy Kits			***$ 129.00***	***$ 161,250***	***0.7%***		***0.1090***	***402***	***150***	***552,642***	***0.4%***	***$ 0.292***	***6***	***3,315,854***	***$ 0.053***	***$ 624,982***
Multifamily Direct install - Energy Savings Kits	1,250	Kits	$ 129.00	$ 161,250	0.7%		0.1090	402	150	552,642	0.4%	$ 0.292	6	3,315,854	$ 0.053	$ 624,982
RTRAN - Residential Transformational Programs						$ 1,747,514										
Behavior Modification						***$ 367,950***										
Hawaii Energy / Kanu Hawaii Projects	14,000	Contacts				$ 178,750										
Hawaii Energy / Sharing the Aloha - Classes	2,500	Participants				$ 189,200										
Benchmarking, Codes and Standards						***$ 68,750***										
30% Above Code Design and Construction Program - Residential	1	Pilot				$ 68,750										
EE/DR/SG/EV Support						***$ 290,000***										
AC Integrated DR Control Pilot	1	Pilot				$ 55,000										
EV - EE, DR and Smart Grid Awareness	1	Pilot				$ 50,000										
Net Zero Electric Car Purchase Package	1	Pilot				$ 60,000										
Smart Grid EE Integration Support & Evaluation	1	Pilot				$ 60,000										
Transformational Time-of-Use Rates	1	Pilot				$ 10,000										
Water Heater Integrated DR Control Pilot	1	Pilot				$ 55,000										
Energy Trade Ally Support						***$ 35,000***										
Rebuild Hawaii	1	Program				$ 15,000										
Trade Ally Service Center	1	Pilot				$ 20,000										
Labor						***$ 486,605***										
Labor Transformational Labor						$ 486,605										
Professional Development						***$ 431,750***										
Hawaii Energy - Educator Training and Grants - NEED.org	270	Participants				$ 308,000										
Hawaii Energy/ Kupu RISE Intern Project Support	6	Interns				$ 123,750										
TBD						***$ 67,459***										
Transformation TBD						$ 67,459										

Hawaii Energy - PY2014 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS BY MEASURE

Program, Category, Measure	Count	Unit	Average Participant Incentive per Unit	Estimated Incentive Budget ($)	% Total Program Budget (%)	Estimated Trans. Budget ($)	Peak Demand Reduction per Unit (kW/Unit)	Energy Reduction per Unit (kWh/Unit)	Program Demand (kW Peak)	Program Energy (kWh/Year)	% of Energy (%)	1st Year ($/kWh)	Life (yrs.)	Lifetime Energy (kWh/Life)	Lifetime Cost ($/kWh)	TRB ($)
Business Programs				$ 13,519,581	55.0%	$ 2,135,850			6,811	64,137,168	47.6%	$ 0.211	11	797,418,359	$ 0.017	$ 89,598,016
BEEM - Business Energy Efficiency Measures				$ 4,809,550	19.6%				4,911	31,989,281	23.7%	$ 0.150	14	436,398,357	$ 0.011	$ 53,089,674
High Efficiency Water Heating			***$ 307.00***	***$ 826,200***	***3.4%***		***0.5410***	***883***	***440***	***1,432,151***	***1.1%***	***$ 0.577***	***14***	***28,193,918***	***$ 0.032***	***$ 4,056,658***
Commercial Solar Water Heating - Elec. Res.	50	Tons	$ 250.00	$ 12,500	0.1%		1.1000	1,030	45	42,469	0.0%	$ 0.294	15	637,036	$ 0.016	$ 234,189
Commercial Solar Water Heating - Heat Pump	100	Tons	$ 100.00	$ 10,000	0.0%		1.1000	77	91	6,336	0.0%	$ 1.578	15	95,036	$ 0.087	$ 374,904
Heat Pump - Conversion - Electric Resistance	20	Tons	$ 120.00	$ 2,400	0.0%		0.0300	943	0	15,559	0.0%	$ 0.154	10	155,588	$ 0.013	$ 15,322
Heat Pump Upgrade	20	Tons	$ 65.00	$ 1,300	0.0%		0.0150	300	0	4,950	0.0%	$ 0.263	10	49,498	$ 0.022	$ 5,147
Single Family Solar Water Heater (SWH) Incentive	800	Systems	$ 1,000.00	$ 800,000	3.3%		0.4600	2,065	304	1,362,838	1.0%	$ 0.587	20	27,256,761	$ 0.024	$ 3,427,096
High Efficiency Lighting			***$ 18.67***	***$ 2,014,500***	***8.2%***		***0.0214***	***167***	***3,227***	***23,000,274***	***17.1%***	***$ 0.088***	***14***	***299,365,290***	***$ 0.009***	***$ 35,779,064***
Ceramic Metal Halide	400	Lamps	$ 40.00	$ 16,000	0.1%		0.0350	302	12	99,655	0.1%	$ 0.161	14	1,395,177	$ 0.009	$ 157,623
CFL	16,100	Lamps	$ 2.00	$ 32,200	0.1%		0.0300	247	398	3,273,987	2.4%	$ 0.010	3	9,821,962	$ 0.003	$ 1,462,456
Delamp with Reflector Kit (2 foot Lamp)	100	Lamps	$ 5.00	$ 500	0.0%		0.0170	149	1	12,308	0.0%	$ 0.041	14	172,318	$ 0.002	$ 19,375
Delamp with Reflector Kit (4 foot Lamp)	2,000	Lamps	$ 10.00	$ 20,000	0.1%		0.0170	149	28	246,169	0.2%	$ 0.081	14	3,446,363	$ 0.005	$ 387,503
Delamp with Reflector Kit (8 Foot Lamp)	500	Lamps	$ 15.00	$ 7,500	0.0%		0.0170	149	7	61,542	0.0%	$ 0.122	14	861,591	$ 0.007	$ 96,876
Delamp Only (2 foot Lamp)	10	Lamps	$ 2.50	$ 25	0.0%		0.0170	149	0	1,231	0.0%	$ 0.020	14	17,232	$ 0.001	$ 1,938
Delamp Only (4 foot Lamp)	1,000	Lamps	$ 5.00	$ 5,000	0.0%		0.0170	149	14	123,084	0.1%	$ 0.041	14	1,723,182	$ 0.002	$ 193,751
Delamp Only (8 Foot Lamp)	200	Lamps	$ 7.50	$ 1,500	0.0%		0.0170	149	3	24,617	0.0%	$ 0.061	14	344,636	$ 0.004	$ 38,750
ENERGY STAR LED Dimmable A19	3,250	Lamps	$ 7.00	$ 22,750	0.1%		0.0081	70	22	187,947	0.1%	$ 0.121	15	2,819,206	$ 0.007	$ 311,425
ENERGY STAR LED Dimmable w/Controls	40,000	Lamps	$ 10.00	$ 400,000	1.6%		0.0239	206	789	6,807,591	5.0%	$ 0.059	15	102,113,858	$ 0.003	$ 11,288,349
ENERGY STAR LED Non-Dimmable	50,000	Lamps	$ 7.00	$ 350,000	1.4%		0.0179	155	738	6,381,085	4.7%	$ 0.055	15	95,716,274	$ 0.003	$ 10,577,426
ENERGY STAR LED Non-Dimmable A19	5,000	Lamps	$ 7.00	$ 35,000	0.1%		0.0061	53	25	216,553	0.2%	$ 0.162	15	3,248,290	$ 0.009	$ 359,386
LED Exit Signs	500	Fixtures	$ 40.00	$ 20,000	0.1%		0.0350	307	14	126,632	0.1%	$ 0.158	16	2,026,108	$ 0.008	$ 218,276
LED Fixture	200	Fixtures	$ 30.00	$ 6,000	0.0%		-	181	-	29,798	0.0%	$ 0.201	15	446,965	$ 0.011	$ 35,435
LED Refrigerated Case Lighting	500	Kits	$ 75.00	$ 37,500	0.2%		0.0360	199	15	82,001	0.1%	$ 0.457	15	1,230,019	$ 0.025	$ 157,631
LED Street and Parking Lot Fixture	350	Fixtures	$ 100.00	35,000	0.1%		0.0500	492	18	172,170	0.1%	$ 0.203	15	1,230,019	$ 0.025	$ 378,410
Occupancy Light Sensors	2,250	Sensors	$ 20.00	$ 45,000	0.2%		0.0068	68	13	125,848	0.1%	$ 0.358	8	1,006,784	$ 0.037	$ 125,942
Stairwell Bi-Level Dimming Fluorescent	1,000	Systems	$ 50.00	$ 50,000	0.2%		0.0560	546	46	450,430	0.3%	$ 0.111	14	6,306,013	$ 0.007	$ 689,251
T12 to T8 Low Wattage	32,500	Lamps	$ 10.00	$ 325,000	1.3%		0.0090	39	241	1,042,959	0.8%	$ 0.312	14	14,601,424	$ 0.018	$ 2,114,611
T12 to T8 Standard (2 foot lamps)	75	Lamps	$ 5.00	$ 375	0.0%		0.0070	56	0	3,490	0.0%	$ 0.107	14	48,854	$ 0.006	$ 5,630
T12 to T8 Standard (3 foot lamps)	25	Lamps	$ 6.00	$ 150	0.0%		0.0070	56	0	1,163	0.0%	$ 0.129	14	16,285	$ 0.008	$ 1,877
T8 to T8 Low Wattage	110,000	Lamps	$ 5.50	$ 605,000	2.5%		0.0090	39	817	3,530,015	2.6%	$ 0.171	14	49,420,204	$ 0.010	$ 7,157,145
High Efficiency HVAC			***$ 741.27***	***$ 1,190,000***	***4.8%***		***0.0959***	***445***	***755***	***4,186,536***	***3.1%***	***$ 0.284***	***17***	***68,496,265***	***$ 0.015***	***$ 8,346,542***
Central Plant - >15% Better than Code Chillers	6,400	Tons	$ 50.00	$ 320,000	1.3%		0.0390	276	206	1,457,214	1.1%	$ 0.220	20	29,144,275	$ 0.009	$ 3,086,953
Chiller Plant Efficiency kW/Ton Meter	25	Systems	$ 5,000.00	$ 125,000	0.5%		-	-	-	-	0.0%		20			
Garage Active Ventilation Control	1,000,000	kWh	$ 0.12	$ 120,000	0.5%		0.0001	1	94	824,963	0.6%	$ 0.145	8	6,599,700	$ 0.015	$ 854,628
Package Units - 15% Better Than Code	500	Tons	$ 200.00	$ 100,000	0.4%		0.0930	552	38	227,772	0.2%	$ 0.439	15	3,416,582	$ 0.024	$ 426,163
Variable Refrigerant Flow Air Conditioners - New Construction	500	Tons	$ 250.00	$ 125,000	0.5%		0.0950	677	39	279,126	0.2%	$ 0.448	20	5,582,521	$ 0.018	$ 590,053
Variable Refrigerant Flow Air Conditioners - Existing Facility	1,000	Tons	$ 300.00	$ 300,000	1.2%		0.0950	677	78	558,252	0.4%	$ 0.537	20	11,165,042	$ 0.022	$ 1,180,107
VFD - AHU	1,200	hp	$ 50.00	$ 60,000	0.2%		0.2000	472	198	466,863	0.3%	$ 0.129	15	7,002,942	$ 0.007	$ 1,356,727
VFD - Chilled Water / Condenser Water	500	hp	$ 80.00	$ 40,000	0.2%		0.2450	903	101	372,347	0.3%	$ 0.107	15	5,585,202	$ 0.006	$ 851,911
High Efficiency Water Pumping			***$ 343.33***	***$ 99,900***	***0.4%***		***0.1740***	***1,877***	***36***	***396,118***	***0.3%***	***$ 0.252***	***15***	***5,941,772***	***$ 0.013***	***$ 616,691***
VFD Dom. Water Boosters - added HP Reduction	30	hp	$ 80.00	$ 2,400	0.0%		0.0560	588	1	14,552	0.0%	$ 0.165	15	218,285	$ 0.009	$ 22,916
VFD Dom. Water Boosters - VFD ($3K per Sys.)	75	hp	$ 600.00	$ 45,000	0.2%		0.3730	3,921	23	242,601	0.2%	$ 0.185	15	3,639,013	$ 0.010	$ 381,929
VFD Pool Pump Packages	150	hp	$ 350.00	$ 52,500	0.2%		0.0930	1,123	12	138,965	0.1%	$ 0.378	15	2,084,474	$ 0.021	$ 211,846

Hawaii Energy - PY2014 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS BY MEASURE

Business Programs Continued

Program, Category, Measure	Count	Unit	Average Participant Incentive per Unit	Estimated Incentive Budget ($)	% Total Program Budget (%)	Estimated Trans. Budget ($)	Peak Demand Reduction per Unit (kW/Unit)	Energy Reduction per Unit (kWh/Unit)	Program Demand (kW Peak)	Program Energy (kWh/Year)	% of Energy (%)	1st Year ($/kWh)	Life (yrs.)	Lifetime Energy (kWh/Life)	Lifetime Cost ($/kWh)	TRB ($)
High Efficiency Motors			***$ 50.00***	***$ 151,000***	***0.6%***		***0.0683***	***538***	***133***	***1,170,061***	***0.9%***	***$ 0.129***	***15***	***17,550,912***	***$ 0.011***	***$ 1,929,681***
CEE Tier 1+ Premium Efficiency Motors	50	hp	$ 10.00	$ 500	0.0%		0.0283	46	1	1,914	0.0%	$ 0.261	15	28,709	$ 0.014	$ 7,002
ECM - Fan Coil Fans	1,500	motors	$ 55.00	$ 82,500	0.3%		0.0265	232	33	287,087	0.2%	$ 0.287	15	4,306,304	$ 0.016	$ 474,157
ECM w/Controller- Evaporator Fan Motors	800	motors	$ 85.00	$ 68,000	0.3%		0.1500	1,335	99	881,060	0.7%	$ 0.077	15	13,215,899	$ 0.004	$ 1,448,522
Commercial Industrial Processes			***$ 355.00***	***$ 125,000***	***0.5%***		***0.2350***	***1,361***	***89***	***471,012***	***0.3%***	***$ 0.265***	***13***	***6,339,218***	***$ 0.015***	***$ 841,722***
Kitchen Exhaust Hood Demand Ventilation	150	hp	$ 700.00	$ 105,000	0.4%		0.4500	2,633	56	325,819	0.2%	$ 0.322	15	4,887,284	$ 0.018	$ 612,895
Refrigerated Case Night Covers	2,000	Linear Ft.	$ 10.00	$ 20,000	0.1%		0.0200	88	33	145,193	0.1%	$ 0.138	10	1,451,934	$ 0.011	$ 228,827
Building Envelope Improvements			***$ 0.53***	***$ 41,250***	***0.2%***		***0.0007***	***3***	***31***	***121,682***	***0.1%***	***$ 0.339***	***10***	***1,216,820***	***$ 0.049***	***$ 201,697***
Cool Roof Technologies	100,000	sq. ft.	$ 0.20	$ 20,000	0.1%		0.0001	0	4	20,624	0.0%	$ 0.970	10	206,241	$ 0.080	$ 30,802
Window Tinting	25,000	sq. ft.	$ 0.85	$ 21,250	0.1%		0.0013	5	27	101,058	0.1%	$ 0.210	10	1,010,579	$ 0.017	$ 170,895
High Efficiency Appliances			***$ 75.00***	***$ 7,950***	***0.0%***		***0.0310***	***418***	***2***	***41,266***	***0.0%***	***$ 0.193***	***13***	***558,246***	***$ 0.020***	***$ 54,295***
AOAO Refrigerator (Purchase New Only)	10	Units	$ 50.00	$ 500	0.0%		0.0170	105	0	866	0.0%	$ 0.577	14	12,127	$ 0.034	$ 1,524
AOAO Refrigerator (with Recycling of Old)	50	Units	$ 125.00	$ 6,250	0.0%		0.0340	822	1	33,906	0.0%	$ 0.184	14	474,683	$ 0.011	$ 43,871
AOAO Clothes Washer (Tier II/III)	24	Units	$ 50.00	$ 1,200	0.0%		0.0420	328	1	6,494	0.0%	$ 0.185	11	71,435	$ 0.014	$ 8,900
Energy Star Business Equipment			***$ 125.00***	***$ 2,500***	***0.0%***		***0.0340***	***822***	***1***	***33,906***	***0.0%***	***$ 0.074***	***14***	***474,683***	***$ 0.004***	***$ 43,871***
Office Refrigerators w/Recycling	20	Units	$ 125.00	$ 2,500	0.0%		0.0340	822	1	33,906	0.0%	$ 0.074	14	474,683	$ 0.004	$ 43,871
Direct Install - Residential Energy Kits			***$ 129.00***	***$ 161,250***	***0.7%***		***0.1090***	***402***	***112***	***414,482***	***0.3%***	***$ 0.389***	***6***	***2,486,891***	***$ 0.053***	***$ 468,736***
Multifamily Direct install - Energy Savings Kits	1,250	Kits	$ 129.00	$ 161,250	0.7%		0.1090	402	112	414,482	0.3%	$ 0.389	6	2,486,891	$ 0.053	$ 468,736
Energy Awareness, Measurement and Control Systems			***$ 150.00***	***$ 190,000***	***0.8%***		***0.0820***	***761***	***84***	***721,793***	***0.5%***	***$ 0.263***	***8***	***5,774,342***	***$ 0.044***	***$ 750,717***
Condominum Submetering	500	Units Metere	$ 200.00	$ 100,000	0.4%		0.0570	273	24	112,607	0.1%	$ 0.888	8	900,859	$ 0.092	$ 143,720
Hotel Room Occupancy Controls	500	Units	$ 100.00	$ 50,000	0.2%		0.1000	750	41	309,361	0.2%	$ 0.162	8	2,474,888	$ 0.017	$ 335,550
Small Business Submetering Pilot	100	Units Metere	$ 200.00	$ 20,000	0.1%		0.1140	410	9	33,856	0.0%	$ 0.591	8	270,852	$ 0.061	$ 49,143
Vending Machine Energy Control Systems	200	Units	$ 100.00	$ 20,000	0.1%		0.0570	1,612	9	265,968	0.2%	$ 0.075	8	2,127,743	$ 0.008	$ 222,305
CBEEM - Customized Business Energy Efficiency Measures				**$ 3,025,011**	**12.3%**				**490**	**17,155,773**	**12.7%**	**$ 0.176**	**12**	**203,085,052**	**$ 0.015**	**$ 18,725,312**
Customized Project Measures			***$ 0.18***	***$ 3,025,011***	***12.3%***		***0.0000***	***1***	***490***	***17,155,773***	***12.7%***	***$ 0.176***	***12***	***203,085,052***	***$ 0.016***	***$ 18,725,312***
Customized Proj. Measures - Under 5 year Life	1,500,000	kWh	$ 0.10	$ 150,000	0.6%		0.0000	1	35	1,237,444	0.9%	$ 0.121	5	6,187,219	$ 0.020	$ 681,556
Customized Proj. Measures - Over 5 year Life	10,821,667	kWh	$ 0.19	$ 1,731,000	7.0%		0.0000	1	255	8,927,469	6.6%	$ 0.194	13	126,989,228	$ 0.015	$ 11,228,544
Hawaii Energy - Efficiency Project Auction	6,355,617	kWh	$ 0.18	$ 1,144,011	4.7%		0.0000	1	200	6,990,861	5.2%	$ 0.164	10	69,908,606	$ 0.018	$ 6,815,212
BESM - Business Energy Services and Maintenance				**$ 2,437,500**	**9.9%**				**19**	**1,455,967**	**1.1%**	**$ 1.674**	**3**	**3,796,661**	**$ 0.642**	**$ 416,387**
Benchmarking, Codes and Standards			***$ 11,333.33***	***$ 200,000***	***0.8%***		***-***	***-***			***0.0%***					
ENERGY STAR Portfolio Scoring Rewards	32	Participants	$ 11,333.33	$ 200,000	0.8%		-	-			0.0%					
Business Design, Audits and Commissioning			***$ 41,389.03***	***$ 2,237,500***	***9.1%***		***0.0001***	***73,334***	***19***	***1,455,967***	***1.1%***	***$ 1.537***	***4***	***3,796,661***	***$ 0.646***	***$ 416,387***
Benchmark Metering	4	Groups	$ 100,000.00	$ 400,000	1.6%		0.0001	100,000	0	417,981	0.3%	$ 0.957	1	417,981	$ 1.000	$ 45,502
Decision Maker - Real-Time Submeters	2	Projects	$ 125,000.00	$ 250,000	1.0%			166,667	-	348,318	0.3%	$ 0.718	1	348,318	$ 0.750	$ 37,918
Energy Audit	25	Studies	$ 15,000.00	$ 375,000	1.5%				-	-	0.0%					
Energy Study Project Implementation - 100%	8	Studies	$ 25,000.00	$ 200,000	0.8%				-	-	0.0%					
Energy Study Assistance - 50%	10	Studies	$ 15,000.00	$ 150,000	0.6%				-	-	0.0%					
Design Assistance - 50%	15	Designs	$ 15,000.00	$ 225,000	0.9%				-	-	0.0%					
Education Facilities - Submetering for Energy Programs	5	Participants	$ 75,000.00	$ 375,000	1.5%			100,000	-	522,476	0.4%	$ 0.718	1	522,476	$ 0.750	$ 56,877
Optimized Chiller Selection Engineering	25	Participants	$ 2,500.00	$ 62,500	0.3%		-	-	-	-	0.0%		20			
Water & Waste Water Catalyst - Rural Site Grants	160,000	kWh	$ 1.25	$ 200,000	0.8%		0.0001	1	19	167,192	0.1%	$ 1.196	15	2,507,886	$ 0.083	$ 276,091

Hawaii Energy - PY2014 ANNUAL PLAN - SUMMARY PRESENTATION OF PROGRAMS BY MEASURE

Business Programs Continued

Program, Category, Measure	Count	Unit	Average Participant Incentive per Unit	Estimated Incentive Budget ($)	% Total Program Budget (%)	Estimated Trans. Budget ($)	Peak Demand Reduction per Unit (kW/Unit)	Energy Reduction per Unit (kWh/Unit)	Program Demand (kW Peak)	Program Energy (kWh/Year)	% of Energy (%)	1st Year ($/kWh)	Life (yrs.)	Lifetime Energy (kWh/Life)	Lifetime Cost ($/kWh)	TRB ($)
BHTR - Business Hard to Reach Programs				$ 3,247,520	13.2%				1,392	13,536,146	10.0%	$ 0.240	14	154,138,290	$ 0.021	$ 17,366,643
Business Direct Installation			***$ 135.44***	***$ 1,728,115***	***7.0%***		***0.0115***	***134***	***341***	***3,988,110***	***3.0%***	***$ 0.433***	***14***	***55,846,531***	***$ 0.108***	***$ 5,829,035***
SBDI - Lighting Retrofits				*$ 1,628,115*	*6.6%*		*0.0117*	*137*	*333*	*3,889,114*	*2.9%*	*$ 0.419*	*14*	*54,460,594*	*$ 0.109*	*$ 5,684,030*
Retrofitted Lamps	21,082	Lamps	$ 143.67	$ 1,603,115	6.5%		0.0122	142	326	3,801,998	2.8%	$ 0.422	14	53,240,970	$ 0.111	$ 5,556,425
Customized Retrofits	80,000	kWh	$ 0.25	$ 20,000	0.1%		0.0001	1	7	87,116	0.1%	$ 0.230	14	1,219,625	$ 0.018	$ 127,605
Ladder Charges	500	Charges	$ 10.00	$ 5,000	0.0%						0.0%					
SBDI - Refrigeration Retrofits				*$ 100,000*	*0.4%*		*0.0001*	*1*	*8*	*98,996*	*0.1%*	*$ 1.010*	*14*	*1,385,937*	*$ 0.079*	*$ 145,006*
Refrigerated Cases	90,909	kWh	$ 1.10	$ 100,000	0.4%		0.0001	1	8	98,996	0.1%	$ 1.010	14	1,385,937	$ 0.079	$ 145,006
Energy Efficiency Equipment Grants			***$ 15.00***	***$ 225,000***	***0.9%***		***0.0180***	***203***	***294***	***3,307,687***	***2.5%***	***$ 0.068***	***5***	***16,538,436***	***$ 0.015***	***$ 2,162,940***
DI - Water Cooler Timers	15,000	Units	$ 15.00	$ 225,000	0.9%		0.0180	203	294	3,307,687	2.5%	$ 0.068	5	16,538,436	$ 0.015	$ 2,162,940
Restaurant Targeted Participation Programs			***$ 162.80***	***$ 1,294,405***	***5.3%***		***0.0385***	***271***	***757***	***6,240,350***	***4.6%***	***$ 0.207***	***14***	***81,753,323***	***$ 0.087***	***$ 9,374,668***
ENERGY STAR Com. Kitchen Equip.	1,111,111	kWh	$ 0.18	$ 200,000	0.8%		0.0002	1	242	1,209,945	0.9%	$ 0.165	12	14,519,340	$ 0.015	$ 2,068,662
Low Flow Spray Rinse Nozzles	500	Units	$ 22.00	$ 11,000	0.0%		0.9000	3,642	490	1,982,979	1.5%	$ 0.006	12	23,795,746	$ 0.001	$ 3,713,858
SBDI - Kitchen Exhaust Hoods	50	hp	$ 1,700.00	$ 85,000	0.3%		0.4500	2,633	25	143,360	0.1%	$ 0.593	15	2,150,405	$ 0.043	$ 269,674
SBDI - Restaurant Lighting				*$ 998,405*	*4.1%*		*0.0138*	*162*	-	*2,904,065*	*2.2%*	*$ 0.344*	*14*	*41,287,831*	*$ 0.091*	*$ 3,322,474*
Retrofitted Lamps	13,965	Lamps	$ 143.67	$ 919,110	3.7%		0.0144	168	-	2,610,942	1.9%	$ 0.352	14	37,184,100	$ 0.092	$ 2,990,014
Customized Retrofits	269,180	kWh	$ 0.25	$ 67,295	0.3%		0.0001	1	-	293,124	0.2%	$ 0.230	14	4,103,732	$ 0.018	$ 332,460
Ladder Charges	1,200	Charges	$ 10.00	$ 12,000	0.0%											
BTRAN - Business Transformational Programs						$ 2,135,850										
Behavior Modification						***$ 139,550***										
AOAO Submetering Awareness Peer Group Comparisons	200	Participants				$ 40,000										
Hawaii Energy / Kanu Hawaii Projects	1,000	Participants				$ 13,750										
Hawaii Energy / Sharing the Aloha - Classes	625	Participants				$ 47,300										
Hawaii Energy / UH - Sustainability Conference	200	Participants				$ 11,000										
UH / IFMA - Higher Education Energy Program Support	1	Pilot				$ 27,500										
Benchmarking, Codes and Standards						***$ 323,750***										
30% Above Code Design and Construction Program - Business	1	Pilot				$ 68,750										
Code Compliance Assistance	1	Pilot				$ 95,000										
Hawaii Energy Benchmarking Program	3	Pilots				$ 160,000										
EE/DR/SG/EV Support						***$ 191,489***										
Limited Incentivizes to Add DR Capability in EE Projects	1	Pilot				$ 76,489										
Smart Grid EE Integration Support & Evaluation	1	Pilot				$ 30,000										
Transformational Time-of-Use Rates	1	Pilot				$ 10,000										
Wailea-Kihei Maui EE/DR/SG Pilot	1	Pilot				$ 75,000										
Energy Trade Ally Support						***$ 105,000***										
Rebuild Hawaii	1	Program				$ 40,000										
Trade Ally Service Center	1	Pilot				$ 65,000										
Labor						***$ 733,072***										
Labor Transformational Labor						$ 733,072										
Professional Development						***$ 398,750***										
Hawaii Energy / EEFG - Energy Sales Professional Training	800	Participants				$ 275,000										
Hawaii Energy/ Kupu RISE Intern Project Support	6	Interns				$ 123,750										
TBD						***$ 4,239***										
Transformation TBD						$ 4,239										
Technical Development						***$ 240,000***										
Hawaii Energy - Water and Waste Water Industry Support	100	Participants				$ 75,000										
Hawaii Energy/ UH Continuing Education - BOC Certification	80	Participants				$ 165,000										

APPENDIX E – TRB Utility Benefit Values

Table 10

Hawaii Energy - PY2014 ANNUAL PLAN
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.
2014	1	1.00	$ 370.6	$ 0.109	$ 371	$ 0.1089	$ 371	$ 0.1089
2015	2	0.94	$ 382.5	$ 0.112	$ 361	$ 0.1060	$ 731	$ 0.2149
2016	3	0.89	$ 386.2	$ 0.113	$ 344	$ 0.1010	$ 1,075	$ 0.3158
2017	4	0.84	$ 387.7	$ 0.114	$ 326	$ 0.0956	$ 1,401	$ 0.4115
2018	5	0.79	$ 389.1	$ 0.114	$ 308	$ 0.0905	$ 1,709	$ 0.5020
2019	6	0.75	$ 391.9	$ 0.115	$ 293	$ 0.0860	$ 2,002	$ 0.5880
2020	7	0.70	$ 390.7	$ 0.115	$ 275	$ 0.0809	$ 2,277	$ 0.6689
2021	8	0.67	$ 394.6	$ 0.116	$ 262	$ 0.0771	$ 2,540	$ 0.7460
2022	9	0.63	$ 398.3	$ 0.117	$ 250	$ 0.0734	$ 2,790	$ 0.8194
2023	10	0.59	$ 397.4	$ 0.117	$ 235	$ 0.0691	$ 3,025	$ 0.8885
2024	11	0.56	$ 401.4	$ 0.118	$ 224	$ 0.0658	$ 3,249	$ 0.9544
2025	12	0.53	$ 405.7	$ 0.119	$ 214	$ 0.0628	$ 3,463	$ 1.0172
2026	13	0.50	$ 409.3	$ 0.120	$ 203	$ 0.0597	$ 3,666	$ 1.0769
2027	14	0.47	$ 415.9	$ 0.122	$ 195	$ 0.0573	$ 3,861	$ 1.1342
2028	15	0.44	$ 423.3	$ 0.124	$ 187	$ 0.0550	$ 4,048	$ 1.1892
2029	16	0.42	$ 428.9	$ 0.126	$ 179	$ 0.0526	$ 4,227	$ 1.2418
2030	17	0.39	$ 433.9	$ 0.128	$ 171	$ 0.0504	$ 4,398	$ 1.2922
2031	18	0.37	$ 438.9	$ 0.130	$ 163	$ 0.0483	$ 4,561	$ 1.3404
2032	19	0.35	$ 443.9	$ 0.132	$ 156	$ 0.0462	$ 4,717	$ 1.3867
2033	20	0.33	$ 448.9	$ 0.134	$ 148	$ 0.0443	$ 4,865	$ 1.4310
2034	21	0.31	$ 453.9	$ 0.136	$ 142	$ 0.0424	$ 5,007	$ 1.4734
2035	22	0.29	$ 458.9	$ 0.138	$ 135	$ 0.0406	$ 5,141	$ 1.5139
2036	23	0.28	$ 463.9	$ 0.140	$ 129	$ 0.0388	$ 5,270	$ 1.5528
2037	24	0.26	$ 468.9	$ 0.142	$ 123	$ 0.0372	$ 5,393	$ 1.5900
2038	25	0.25	$ 473.9	$ 0.144	$ 117	$ 0.0356	$ 5,510	$ 1.6255