

annual plan

# PROGRAM YEAR 2017-18



# ANNUAL PLAN

Program Year 2017



*Hawai'i Energy's mission is to empower island families and businesses to make smart energy choices that reduce energy consumption, save money and pursue a 100% clean energy future.*

## TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	MARKETING & COMMUNICATIONS	5
3.0	CLEAN ENERGY ALLY PROGRAM STRATEGY & DETAILS	11
4.0	TRANSFORMATIONAL PROGRAM STRATEGY & DETAILS	14
5.0	RESIDENTIAL PROGRAM STRATEGY & DETAILS	19
6.0	BUSINESS PROGRAM STRATEGY & DETAILS	23
7.0	BUDGET	28
8.0	PERFORMANCE GOALS & INCENTIVE TABLE	29
9.0	RESPONSE TO PREVIOUS ANNUAL PLAN COMMENTS	30
10.0	CONCLUSION	33
11.0	APPENDIX	34

## LIST OF FIGURES

Figure 1 - PY17 Program Performance Targets and Impacts .....	4
Figure 2 - Current Phases of Hawai'i Energy Branding Campaign Execution.....	6
Figure 3 - Clean Energy Ally Engagement Cycle .....	11
Figure 4 - Examples of Ally Feedback and Program Response .....	12
Figure 5 - List of Residential Programs.....	20
Figure 6 - List of Business Programs .....	24

## 1.0 INTRODUCTION

On behalf of Leidos Engineering, LLC. (“Leidos”) and the Hawai‘i Energy Efficiency Program, operating as the Hawai‘i Public Benefits Fee Administrator (PBFA) under contract with the Hawai‘i Public Utilities Commission (PUC), we are pleased to present the PBFA Annual Plan for Program Year 2017 (PY17) which covers the period July 1, 2017 through June 30, 2018.

Hawai‘i Energy’s promise is putting Hawai‘i on the fast track to 100% clean energy. Energy efficiency remains the quickest and cheapest clean energy resource. At a lifetime cost of under 3 cents a kilowatt hour, there isn’t a more cost-effective option available.

Hawai‘i Energy educates island families and businesses about the many, lasting benefits of clean energy. We encourage and reward practical, everyday energy savings decisions. As a result, we can save money, grow our economy, and reduce the demand for electricity and foreign imports.

The Leidos team has a proven track record, saving customers over \$1 billion in energy bill savings **to date** on the measures installed since program inception. Through the life of the equipment, every \$1 investment in energy efficiency yields over \$9 in savings. This is the equivalent of building a 90 MW solar farm each year.

Besides being the cleanest and cheapest energy source, energy efficiency is also an economic engine. As noted in a recent American Council for an Energy Efficient Economy report, energy efficiency employs more people than all other energy sectors combined, creating more than 2.2 million jobs. The economic multiplier to our State’s economy through the \$1 billion in savings that is reinvested in our community instead of foreign oil, coupled with the over 300 Clean Energy Allies performing the work, is substantial.

In PY17 Leidos will build on the success of Hawai‘i Energy 2.0 that began in PY16. As PY16 comes to a close, we anticipate we will achieve a 24% reduction in the first year cost per kWh saved relative to PY15. These reductions are planned to reach a reduction of 28% over PY15 levels in PY17, continuing improved cost effectiveness of the program. Our plan for PY17 to maximize impact, increase awareness and drive innovation is outlined herein.

### 1.1 Plan Overview

This PY17 Annual Plan provides detailed strategies, budget, goals and a roadmap for administration and delivery of the Hawai‘i 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 PY17 Annual Plan include:

- a. Utilizing a \$29.6M budget to provide program-level impacts of 130,144,871 kWh first year savings with \$0.0232 (LBNL Cost of Saved Energy (CSE)) per kWh average lifetime Program acquisition cost, a significantly reduced CSE when compared to PY16’s \$0.024/kWh and PY15’s \$0.034/kWh;
- b. Continued commitment to cultivating “force multipliers” – community members who promote offerings and generate awareness for the Program;

- c. Comprehensive services and data analytics to enable targeting and enhanced engagement with customers;
- d. Advocacy and outreach support for advanced building energy codes and standards; and
- e. Further collaboration with the utility's programs to serve as a catalyst for 100% clean energy.

The PY17 key program energy figures are as follows:

- Customer level first year energy impact of 146M kWh
- 1,912,827,989 kWh in customer level savings over the life of the measures
- Lifetime Cost of Saved Energy (CSE) of \$0.0232
- Annual cost savings to participants of \$33 Million
- Lifetime project cost savings of \$426 Million

**Figure 1 - PY17 Program Performance Targets and Impacts**

PY16 Plan	1st Year \$/kWh	Lifetime \$/kWh	Average Life yrs.	Incentives	1st Year Energy Program Level (kWh)	Lifetime Energy Program Level (kWh)
Residential	\$0.143	\$0.013	11.0	\$8,465,057	58,997,632	647,421,536
Business	\$0.149	\$0.010	14.2	\$10,609,811	71,147,239	1,013,605,441
Direct Incentives Only	\$0.147	\$0.011	12.8	\$19,074,868	130,144,871	1,661,026,977
Residential Transformational				\$851,373		
Business Transformational				\$898,627		
Transformational Only				\$1,750,000		
<b>Program Cost</b>	<b>\$0.160</b>	<b>\$0.013</b>		<b>\$20,824,868</b>	<b>130,144,871</b>	<b>1,661,026,977</b>
<b>Customer Level Savings</b>					<b>146,026,210</b>	<b>1,912,827,989</b>

Customer Level Savings	Assumed Electricity Rate	Bill Savings	
	\$ / kWh	Annual	Lifetime
<b>Potential Cost Savings</b>	<b>\$0.23</b>	<b>\$33,018,845</b>	<b>\$426,571,073</b>
Average Project Simple Payback		2.5 years	
<b>Potential Participant Capital Investment</b>		<b>\$81,441,014</b>	
Direct Incentives		\$19,074,868	
Average Project Incentive as a % of Project Cost		23%	

## 2.0 MARKETING & COMMUNICATIONS

### 2.1 Overview

The recent brand awareness study<sup>1</sup> conducted by the Hawai'i Public Utilities Commission stated that 47% of constituents (on average) have heard of Hawai'i Energy. This result, when considering program lifespan and budget size, compares favorably to other jurisdictions that offer and promote efficiency programs across the country, in particular third party programs operated independent of the utility and including the nationally-recognized ENERGY STAR® program. Yet, there is still work to be done. Hawai'i Energy is always invested in raising brand awareness levels, and the solution involves collaboration between many pieces, both internal and external. For example, two of the biggest challenges are the continued association/confusion with the local utility and changing national energy landscape – two issues that require significant marketing support and targeted messaging for the intended audience since the program has to reach a broad spectrum of both residential and commercial customers.

Internal brand auditing and transition exercises over the last 18 months produced a refreshed brand identity/position that was rolled out internally in December 2016 and will be launched publically this program year. Simple changes in communication tone and style (i.e. incorporating humor, sounding “less corporate”, creating memorable/photo-worthy visual campaigns, etc.) will go a long way in differentiating from the utility and keeping Hawai'i Energy and energy conservation top-of-mind for consumers even when they are not at the point of purchase.

Furthermore, the investment in overall branding efforts must trickle down to every facet of how marketing and communication (Marcom) supports the Program's operations. Hawai'i Energy will continue to use this refined set of organizational values and messaging to influence public-facing materials, whether residential or business customer-focused, ensuring consistency throughout. The following sections below outline the key priorities and strategies for Marcom efforts in PY17, as they pertain to improving overall brand awareness as well as directly supporting the Program's resource acquisition goals.

### 2.2 Continuing the Brand Transition

An organization's brand goes far beyond its visual elements (e.g. logo and colors); it is also the foundational principle(s) on which an organization's culture, values and communications are all developed.

**Hawai'i Energy 2.0: Simple. Unique. Relevant.**

A key principle of transitioning to the refreshed “Hawai'i: Energy 2.0” is simplifying and personalizing how we talk about ourselves and explain what we do. This helps break through the typical clutter and often-used technical language of the industry and deliver messages that have lasting impact right away. Marcom efforts over the next year will focus on



<sup>1</sup> Winch, Rick (2017). Opinion Dynamics, *Hawai'i Energy Awareness Study*.

applying these principles and approaching operations through this new lens.

For example, a by-product of the work done internally and with the Program’s creative agency, Wall-to-Wall Studios over the past year was that the phrase “*empowering Hawai’i to make smart energy choices*” has become a tenet of our new identity. We found that many people, even Program staff, would introduce the Program using lengthy explanations, attempting to cover all the various facets of our work in one statement (i.e. “Hawai’i Energy is a ratepayer-funded program administered by Leidos Engineering...”etc.). Speaking this way, however, often fails to draw interest from audiences who know nothing about energy whereby we lose the opportunity to peak their interest and engage.

The new phrase helps us shift our way of thinking and communicating – its deeper meaning calls us (and our potential audiences) to question our choices. Speaking more broadly about what we do leaves room for organic discovery and allows us to tie our brand back to the roots of why each of our team members choose to be a part of the clean energy movement. For example, what is a smart energy choice? How do I make one? *Why* should we make them? It’s this deeper conversation that we aim to cultivate amongst our team and constituents – beginning with integrating its meaning into all communications and decisions as a Program.

#### Public Rollout with Wall-to-Wall Studios

Moving forward, the Program now has a solid foundation on which to launch a strategic advertising campaign that will bring the refreshed imagery, messaging and other visual elements to the public.

#### Ad Campaign Deployment

The campaign will include a mixture of traditional and non-traditional ads, including television spots, online media and out-of-home displays (e.g. AdWalls). Design and placement of the ads will be based on recommendations from Wall-to-Wall Studios.

#### Figure 2 - Current Phases of Hawai’i Energy Branding Campaign Execution

##### Phase 4 – *Develop* – **COMPLETE (by end of PY16)**

Wall-to-Wall will refine the selected creative concept based on Hawai’i Energy’s feedback. As this is an iterative phase, there may be several rounds of presentations and revisions.

##### Phase 5 – *Deploy*

Wall-to-Wall will finalize the deliverables and prepare for production and launch strategy.

Recent research indicates that media consumption methods are evolving and differ largely from that of even a decade ago. With technology (especially mobile devices) having such a large influence on our lives, advertisers must work even harder to help brands stand out. Based on this research, the campaign is a shift away from the traditional structure of prioritizing calls-to-action or sales language. So, in addition to simplifying our messages, our goal is to create ads that are also well-placed and memorable (incorporating humor), so when customers receive the messaging of the campaign they are motivated to take steps to learn more about Hawai’i Energy.

#### Website Improvements

Although it is an ever-evolving medium, another integral piece of refreshing external communications is continuing to refine the Hawai’i Energy website. The Program is heavily invested this year in bringing the website’s functionality and design up to par with other efficiency programs around the country, and identifying opportunities to improve efficiency and customer service through the web.

Building off the work completed in PY16 to simplify the website’s wireframe (e.g. the “bones” of the site) and improve the user flow process, Hawai’i Energy will continue to collaborate with Wall-to-Wall Studios to update content and add engaging and useful features as they are deemed feasible. Some of these features may include: online applications for more measures, a “find-your-rebate” center where customers can search available rebates by product and an improved contractor search tool.

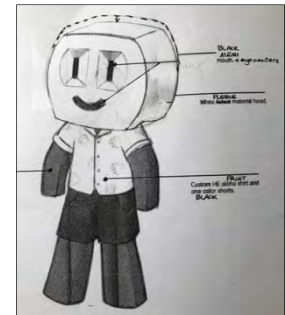
### Ensuring a Positive Public Position

Ensuring that the Program has a strong network of supporters and informed stakeholders is a key part of increasing the reach and effectiveness of the branding campaign, and we will continue to support these efforts in PY17 through garnering earned media coverage and networking. As indicated in the study<sup>2</sup>, the public is generally favorable toward Hawai’i Energy’s work, although familiarity with the Program’s various offerings could be improved. The Program has made great strides in the last year in building and strengthening relationships with government and community leaders, members of the media, and other sustainability-oriented organizations, which has led to many opportunities to educate their networks on Hawai’i Energy’s work.

### Force Multipliers

The Program will also continue to cultivate “force multipliers” – community members who promote offerings and generate awareness for the Program through outreach to their networks. This group includes everyone from our Clean Energy Allies to government officials to social media influencers and supports the Program by building and maintaining credibility, as well as ensuring the longevity of specific campaign messages. We continue to look at how we can best support multipliers with engaging, fresh content and reciprocal engagement.

New for this year, we will invest in tapping the potential of Hawai’i’s next generation. Hawai’i Energy continues to support and encourage STEM learning opportunities and be involved with student and teacher education on climate change and energy. Hawai’i Energy will work actively in PY17 to enhance its offerings and educational materials for younger audiences, tailored in-person classroom presentations, a section on the Hawai’i Energy website dedicated to students, and the addition of a Program “Pluggy” mascot.



The launches of the branding ad campaign and Pluggy mascot are planned in tandem, and the Program will use the opportunity to add outreach beyond some of the traditional events that have proven successful. This includes sponsorship of sporting events such as the Hawai’i Bowl and Diamond Head Classic, with opportunities to participate in STEM- focused, pre-game keiki activities and other promotional elements, such as featuring the Hawai’i Energy logo on young volunteers’ clothing.

---

<sup>2</sup> Winch, Rick (2017). Opinion Dynamics, *Hawai’i Energy Awareness Study*, pg. 3.



## 2.3 Key Priorities for Marketing Residential Programs

The Program has seen the most success by supplementing investments in brand building with direct marketing efforts geared specifically at driving rebate offer participation. The residential program saw positive results from this strategy in PY16 and will continue in PY17 in the following areas:

- Identifying and targeting high-quality leads using analytics and customer segmentation;
- Leveraging partners along the supply chain to affect program uptake; and
- Leveraging mass marketing tactics to take advantage of dual-purpose opportunities that strongly increase awareness in addition to driving program participation.

### Data Analytics for Direct Mail

In PY16, the Program saw success during a direct mail campaign to previous participants in the solar water heating rebate program, which targeted past participants with systems over four years old with a letter encouraging them to participate in the solar water heating tune-up program. The campaign resulted in a 250% increase in weekly call volume, ultimately overdrove the annual goal by 25%, and provided additional work for participating solar contractors in a time when their other business revenue sources had waned.

This model of using in-house data to create a pool of likely participants proved beneficial and can now be scaled for future campaigns targeting audience such as new movers, existing participants by technology, non-participants by technology (i.e. those with central air conditioners) and more.

### Leveraging Supply Chain Partners

The new consumer electronics program allowed for greater collaboration with retail partners to promote energy-efficient devices as well as appliances. Co-operative advertising projects with retailers and other Clean Energy Allies for newspaper inserts, floor signage and special promotions allows the Program to stretch marketing dollars while increasing sales for stores that proactively promote our presence. In addition, the newly launched online Energy Marketplace integrates with these efforts by allowing customers to purchase smaller measures directly from our website then pointing them to our retail partners for larger purchases.

Lastly, working with other organizations, from the national ENERGY STAR® program to local partners such as SustAINable Moloka'i or Pūlama Lāna'i, allows us to gain greater recognition in a cost-effective manner.

### Mass Market Tactics

The use of digital marketing (i.e. email, social media, paid search and display banners) is an increasingly important way to reach consumers. We will have a digital presence supporting the full portfolio throughout PY17. We will continue the monthly email cadence established in PY16 that alternates between a sales-oriented, promotional message and an educational tips newsletter, and will focus on building our email address database to not only enable these efforts, but support others such as the peer comparison reports.

Other mass media tactics such as radio and print ads have proven to also be an effective way of getting direct participation in the residential programs while increasing brand awareness and will be continuing into PY17.

## 2.4 Key Priorities for Marketing Business Programs

Hawai'i Energy continues to adapt to a changing commercial efficiency market. As we enter our 9<sup>th</sup> year, it is as important as ever that we build meaningful relationships with customers to increase the chances of project sustainability. Below are the key Marcom strategies for supporting business program operations in PY17:

### Prioritizing Sector-Specific Solutions

Each market sector is different, so by reframing energy savings and efficiency into concepts understood by the customer at hand (for example, measuring profit in “number of booked rooms” for hotel sector, addressing resident safety for condominiums, etc.), Energy Advisors and trade allies who market energy-saving products stand a better chance at influencing the purchase decision.

Central to the development of these materials will be a focus on storytelling and using narratives to illustrate the emotional piece of a participant's success. As we build our library of customer testimonials, we will prioritize research into what the true motivators are for various businesses to make smart energy choices. For example, if a nonprofit healthcare facility reduces their electric bill by \$2,000/month, we can highlight them being able to provide more much-needed procedures or medication for young children rather than focusing on their rebate amount or energy reduction. By switching the focus, we make the story more accessible to the everyday person.

Hawai'i Energy will develop sector-specific sales tools, which may include: a series of print materials, website landing pages, video case studies and presentations to support and encourage the business team's adaptation of this sales method.

### Setting Clean Energy Allies Up For Success

It's not uncommon that customers will first find out about Hawai'i Energy offerings through someone other than Program staff. Thus, it remains critical that these *force multipliers* are well-versed in Program offerings and that we provide the support they need to carry our messages outward.

The largest multiplier group by far is the Program's network of Clean Energy Allies, many of whom offer services that directly affect our ability to produce energy savings. Being able to provide them with creative, high-quality sales tools (videos, print collateral, technical trainings, presentation material, etc.) will remain a priority in PY17, as well as encouraging them to be strong advocates of Hawai'i Energy in their communities. Support planned for PY17 includes:

- *Events* – Public, in-person engagement with Allies for occasions such as launching the new Program year (annual kickoff event), communicating incentive changes, recognizing successful Allies and networking (i.e. topical “Cup of Joe” coffee hours, after-hours socials or partnering with other business groups such as the Chamber of Commerce of Hawai'i).
- *Digital Resources* – Utilizing in-house talent to produce an online CEA orientation webinar, video promo and recap spots to market CEA events and programs, and a web video library of technical training sessions facilitated by industry experts or Hawai'i Energy staff.
- *Co-op funding* – Financial support toward co-branded print, radio, TV, and digital advertising as well as Ally-hosted events/trainings to increase energy efficiency awareness and sales.

- *Inclusion in Hawai'i Energy-generated marketing efforts* – includes logos and/or company mentions in brochures, email campaigns, and social media posts.
- *Website* – Online portal with access to program forms/information and a vendor lookup directory for customers.

#### Using The Rebate Process To Our Advantage

As mentioned in the awareness study<sup>3</sup>, business customers identified “word-of-mouth” and “past participants” as two of the top sources for hearing about Hawai'i Energy. This indicates that businesses owners are willing to share their experiences with others and that the Program should find ways to not only encourage this, but seize the opportunity to receive genuine feedback about Program operations, both of which can have significant impact on marketing strategies.

In PY17, the Program will explore ways to better integrate testimonial collection and a potential feedback mechanism into the rebate process, as well as research the most effective areas within the cycle to communicate with and target specific customers.

## 2.5 Key Priorities for Supporting Market Transformation

### “Hawai'i: Energized” and Other Educational Materials

A large part of supporting market transformation efforts is to use marketing and communications tactics to help raise the level of energy literacy amongst consumers. For the average consumer, information about energy-related topics is often technical and confusing, and the Program is heavily invested in making this information more accessible, whether through a print piece with helpful energy-saving tips or a web video series. Producing this content in-house allows the Program to remain cost-effective and maintain control over creative decisions, messaging and distribution.

Video has been the most successful format for distributing educational content in recent years, due to: 1) it being a natural fit for disseminating of a lot of information in a short timeframe, and 2) its ability to be easily shared. The Program plans to continue its popular “Hawai'i: Energized” web show<sup>4</sup> with 3-4 full (5-8 minute) episodes in PY17 as well as supplement its video education library with several shorter, topical spots featuring the “Hawai'i: Energized” hosts and branding.

---

<sup>3</sup> Winch, Rick (2017). Opinion Dynamics, *Hawai'i Energy Awareness Study*. Figure 16, “Sources of Awareness of Hawai'i Energy”.

<sup>4</sup> “Hawai'i: Energized” is a video web series designed to be a resource on energy issues for families and businesses, showcasing money-saving tips, local energy news and thoughtful discussion with local experts and community leaders. The show is produced solely by Hawai'i Energy staff. [www.HawaiiEnergy.com/energized](http://www.HawaiiEnergy.com/energized)

### 3.0 CLEAN ENERGY ALLY PROGRAM STRATEGY & DETAILS

#### 3.1 Overview

The Clean Energy Ally (CEA) program acts as a force multiplier for Hawai'i Energy's initiatives, building workforce capacity and providing direct economic benefit to the State. Clean Energy Allies have a close connection with the end-use customer and play an important role in educating them on the benefits of energy efficiency. The CEA program supports and leverages architects, engineers, contractors, manufacturers, and distributors to efficiently and cost-effectively increase program participation from both commercial and residential customers. To date, over 350 businesses (companies) participate in Hawai'i Energy's Clean Energy Ally program.

Our team also relies on CEA feedback to help us maintain and improve programs and increase our cost-effectiveness. Leveraging our market multipliers helps us lower the total cost of delivering energy efficiency to customers. In the coming program year, we intend to continue recruiting new Allies and deepen relationships and engagement with existing Allies through expanded and improved program offerings.

**Figure 3 - Clean Energy Ally Engagement Cycle**



#### Supporting Market Multipliers

Clean Energy Allies help build and support a strong delivery market infrastructure to best serve Hawai'i ratepayer needs with energy efficiency options. Last program year, over 75% of Hawai'i Energy projects came through our Clean Energy Allies and we anticipate over 80% of Ally-driven projects in PY17.

Removing barriers to program participation by recruiting and motivating allies to become advocates of and active participants in the Hawai'i Energy programs is the main objective of the Clean Energy

Ally program. The Program actively evaluates and refines the list of Clean Energy Ally benefits to ensure Allies are thoroughly supported, as the desired result is to have Allies bring Hawai'i Energy an expanded number of energy efficiency projects and increased savings per project. Current benefits include marketing and outreach co-op funding, access to technical support, invitations to networking events and educational opportunities such as technical trainings and professional development courses augmented with professional sales tools. A Clean Energy Advisory board was established in PY16 to provide a channel for feedback and new ideas; the Program used that feedback to expand offerings in ways that benefit Allies in the best way possible in PY17.

**Figure 4 - Examples of Ally Feedback and Program Response**

Ally Feedback	Program Response
Allies cited affiliation with Hawai'i Energy as beneficial and important to their marketing efforts and desired more assistance.	Continue to grow the co-op funding program by assisting Allies with marketing planning, media buying and ad development and design for advertisements and include support for other types of events.
Allies requested more in-person interaction with Energy Advisors.	Continue "Cup-of-Joe" <sup>5</sup> coffee hours (began in PY16) and experiment with different formats throughout the program year in order to determine which are most beneficial.
Allies requested increased general training on the Hawai'i Energy program.	<p>Implement online, on-demand Hawai'i Energy program training accessible via the Hawai'i Energy website. Training topics will address Allies' questions on incentive amounts, filling out applications and worksheets and how to best take advantage of Clean Energy Ally benefits.</p> <p>The Program will monitor results to determine the most successful and effective offerings.</p>

#### Deepening Industry Engagement

In PY17, Hawai'i Energy will further strengthen its presence in the marketplace by building upon relationships with professional trade organizations, manufacturers, distributors, designers, retailers, installers, and service technicians through:

- Working with manufacturers, distributors, and suppliers to promote the application of incentives to reduce equipment costs;
- Collaboration with manufacturers regarding emerging and rapidly advancing efficiency technologies such as lighting technologies;
- Engagement with building designers to support customer education and engagement with the value of energy efficiency early in the design cycle;
- Support for large retail management and merchandising teams to ensure implementation of promotional agreements established at the corporate level;

---

<sup>5</sup> "Cup-of-Joe" is a casual event hosted by Hawai'i Energy at a local coffee shop designed to deepen relationships with trade allies and answer program related questions.

- Assistance to local, independent retailers and distributors including point-of-purchase collateral, product knowledge training and professional sales training; and
- Leveraging relationships with distributors, suppliers, manufacturers, and service vendors to maintain awareness of the needs of the HVAC supply chain.

#### Building Workforce Capacity

Workforce capacity is vital as we attribute over 5,000 Hawai'i jobs to energy efficiency. Improving Allies' ability to serve customers and install projects is important for both program impacts and our economy. A main goal of the program is to increase the base of qualified contractors and augment the skill sets of those who implement clean energy and energy efficiency projects, products and services. This is done by helping Allies successfully educate customers on energy efficiency, ultimately resulting in a retrofit to energy-saving equipment.

As in previous years, we will focus on providing educational opportunities to Allies through technical trainings, continuing education credits and professional sales training. We will continue with these initiatives in PY17 as they allow Allies to gain a competitive edge by obtaining knowledge, resources and credentials that enable them to deepen their service offerings and customer base. See page 15 for additional details on professional development and technical training initiatives.

#### Tiered Rewards Program

In addition to the resources and benefits described above Allies will be able to participate in a tiered rewards program in PY17, where they may earn additional benefits by reaching certain levels of program participation. Similar to a loyalty program for airlines or hotels, Allies can attain either a Platinum or Gold status depending upon the number of successfully completed projects within one program year. Potential rewards include: project leads, additional marketing support and funding for co-op events and advanced training opportunities, and recognition for exceptional achievement in efficiency projects on social media, in highlight videos and at an end-of-year award ceremony.

## 4.0 TRANSFORMATIONAL PROGRAM STRATEGY & DETAILS

### 4.1 Overview

Market transformation programs provide strategic interventions in the market in order to create lasting efficiencies and ultimately pave the way for the integration of clean energy solutions. To affect long-lasting and meaningful change, transformational strategies lay the foundation while removing the barriers for customers to make smart energy choices and increase adoption of energy efficiency practices. The transformational program complements the resource acquisition programs in the Hawai'i Energy portfolio through education to residents, training and energy solutions for businesses, adoption of energy codes, collaboration with public and private sectors, and review of Hawai'i's innovative emerging technologies. In PY17, the Hawai'i Energy transformational program will include the following focus areas:

- **Behavior modification** initiatives targeted to specific audiences.
- **Professional development & technical training** for Clean Energy Allies, energy managers, facility operators who buy and/or operate equipment, educators, and others who influence decision making.
- **Decision-making support** for large energy users in developing comprehensive energy management strategies to incorporate into business practices.
- **Codes and standards support** to drive energy savings in both public and private sectors.
- **Clean energy collaboration** with the utilities, the PUC and other public and private entities.

For additional information on the focus areas as well as historical context on market transformation efforts, visit Appendix D.

### 4.2 Behavior Modification

Building on a strong foundation of existing energy education programs (i.e. workshops, presentations, videos, etc.), Hawai'i Energy will leverage the relationships and networks of community affiliates to influence behavior change in targeted residential and youth audiences across its service areas. The following outlines the PY17 portfolio of planned behavior modification offerings:

#### Community Workshops and Presentations

Hawai'i Energy's community workshop series will expand in PY17 to include multiple local presenters, each providing a blend of financial and energy education with a fun, creative, relatable delivery style. Workshops include exercises on changing energy behavior while maximizing savings on the electric bill, and target hard-to-reach community organizations, local businesses, and agencies that provide access to a large number of residential customers (e.g. municipalities, hotels, etc.). Hawai'i Energy will utilize existing relationships with public housing, faith-based organizations, community organizations, nonprofits, schools, utility companies and others to reach underserved communities.

In addition, the Program will continue to support collaborative efforts to raise awareness and educate the community about energy efficiency in PY17. This will include sponsorship of activities

that reach specific educational and nonprofit groups who will go on to educate their peers and broader community about the importance of energy conservation and efficiency.

#### Gamification Campaigns

In PY17, gamification will play an essential role in amplifying behavior modification across all initiatives and engaging customers to connect with the program objectives and with each other. When executed effectively, gamification of energy efficiency and conservation concepts motivates participants and creates a shared sense of purpose to encourage long lasting or permanent change in participants' energy choices. Efforts to integrate gamification with social media campaigns will be interlaced within certain sectors to augment participation and overall program engagement.

In close coordination with Vermont Energy Investment Corporation (VEIC), a national leader in the design and implementation of energy efficiency services, the Program will use existing models as building blocks upon which gamification tactics (competition, enhanced engagement, etc.) will be applied to serve residential, small business and other sectors. In PY17, VEIC will evaluate gamified solutions for hard-to-reach tenants in multifamily buildings, support outreach and facilitation of an employer benefits program, engage residential homeowners through in-home energy modeling, and frame a retailer and community competition for replacement and/or recycling of old, inefficient appliances.

#### Student Energy Education

Hawai'i Energy will continue working collaboratively with external stakeholders to deliver energy efficiency knowledge to students of all ages and grade levels. Engagement strategies in this area will focus on statewide curriculum support and student and educator energy efficiency education through school collaborations and science, technology, engineering, mathematics (STEM) related events.

#### Social Media

Social media serves as an excellent vehicle to heighten awareness, solicit participation and shape the public's perception of the benefits of energy efficiency. Hawai'i Energy will continue to leverage its social media presence and connections to share transformational messaging in PY17 and increase the number of followers on our social media accounts to increase viewership of our message. In addition to further refining our in-house-produced web series, "Hawai'i Energized" (which is disseminated primarily through social media platforms), we will continue the work launched in PY16 with Ulupono Initiative, Blue Planet Foundation, Elemental Excelsior, the Hawaiian Electric Companies and others to multiply the messages on social media.

### 4.3 Professional Development & Technical Training

The Program continues to focus on technical training and professional development to create a workforce knowledgeable in energy efficiency. Our proposed initiatives in this area increase the core competencies for Clean Energy Allies, decision-makers, influencers and operators. Our approach addresses both the current (buyers and sellers) and future (students) market players to ensure the viability of long-term savings.



### Clean Energy Ally Support

PY17 plans include a focus on growing residential Clean Energy Ally participation. Support will be primarily through education and training activities to ensure Allies have a firm foundation in Hawai'i Energy 2.0 program offerings and guidelines and that they benefit from preferential access to networking events, professional sales, technical and certification trainings. Additionally, Ally-specific events like "Cup-of-Joe" coffee hours and recognition mechanisms will provide motivation for Clean Energy Ally participation and celebrate their accomplishments.

### Targeted Ally Training Opportunities

Hawai'i Energy will also rely on industry experts to enhance the portfolio of training opportunities to advance Allies' knowledge base and reputation. Offerings will include energy efficiency sales training, technical training, and co-operatively funded learning events, where local or national experts may provide training in their areas of technical specialization and Hawai'i Energy may subsidize the costs. Some of these opportunities may include:

- **Energy Efficiency Sales and Financial Analysis**
  - Tools, templates and case studies to support market penetration of effective sales techniques.
- **Technical Training**
  - Additional seminars on energy-efficient technologies and practices in conjunction with manufacturers, suppliers, universities and allies.
- **Co-op Funded Learning Events**
  - Expanded efforts in to encourage more business-to-business and business-to-customer learning opportunities

For more details, see page 11.

### Targeted Participant Training Opportunities

We will continue to focus on enhancing the skillsets of facilities managers and decision-makers as they scope, approve, procure and manage energy-saving projects. Training will focus on both technical and business skills, including financial analysis and contracting basics. The Program will offer the Building Operator Certification (BOC®) course, as well as collaborative training opportunities with industry organizations in the hospitality and small business sectors. We will also continue to coordinate with the Department of Business Economic Development and Tourism (DBEDT) to reach state employees and building managers.

### Educator Training & Grants

In PY17, professional development workshops will be conducted across the islands at public and independent schools, conferences, STEM events, and student energy summits. Hawai'i Energy recognizes there are many entities providing energy educator training and we will also focus on coordination of educator programs available in order to maximize and leverage our limited budget while reducing overlap and confusion with teachers.

## Energy Industry Workforce Development

Hawai'i Energy will continue with its fellowship program, drawing high-caliber students and recent graduates into the energy industry, while providing cost-effective support to the Program. Fellows and interns will work on Hawai'i Energy programs as needed, including direct-install programs for the hard-to-reach sector and the Clean Energy Ally Program.

## 4.4 Energy in Decision-Making

These offerings employ comprehensive services and engagement tools to assist end-use customers in making the best, fact-based decisions concerning their energy consumption. PY17 efforts include a growing focus on the tenants of Strategic Energy Management (SEM) with key institutional customers as well as enhanced commercial engagement through data analytics and benchmarking. Initiatives will continue to be closely coordinated with business program strategies, and incorporate strategies and input received from our work with Vermont Energy Investment Corporation (VEIC), to ensure we are aligned with nationally recognized best practices.

Additionally, with the creation of the Office of Sustainability within the City and County of Honolulu, the Hawai'i Energy program is working closely with the sustainability director to develop energy efficiency initiatives. SEM work will continue with the Hawai'i Department of Education, both on any GEMS financed projects or CIP funds focusing on energy efficiency.

## 4.5 Codes and Standards Support

As we look to the future, Hawai'i Energy recognizes that enhanced building codes and standards will provide a significant foothold for advancing energy efficiency in Hawai'i and we will continue to play a leading role in adoption, education, training, and other critical areas of successful code implementation.

Over the past three years, Hawai'i Energy has supported the State Building Code Council (SBCC) in the development of a modified IECC 2015 code for Hawai'i's climate and environment and has successfully advocated for its adoption at the state level. Building on past work, the proposed PY17 programs are designed with the following goals in mind:

- **Support adoption of IECC 2015, with Hawai'i amendments, in all counties.**  
We will continue to work with the Department of Business Economic Development and Tourism (DBEDT) and the Blue Planet Foundation to generate the necessary county-level support for adoption of the code.
- **Increase energy code compliance**  
We have also conducted substantial research into current levels of code compliance in both the residential and business sectors. For new construction, there are opportunities to engage the developer/design community to encourage innovation among builders and designers in order to exceed existing code requirements. As such, we will continue to offer codes trainings and advocate for early adoption and compliance.
- **Investigate leading-edge technologies & strategies for integration with building code.**  
In PY17, Hawai'i Energy will lead the SBCC Investigative Committee on Energy Efficiency Code Coordination. This committee will address leading-edge energy concepts, providing insight and support to the SBCC regarding the latest energy practices, as technology advances and further integrates with our habitable spaces.

The proposed programs represent a multilayered approach to provide the technical assistance and training support needed to drive energy savings through enhanced codes and standards. They have been designed to engage both public and private sector stakeholders throughout the state.

#### 4.6 Clean Energy Collaboration

In PY17, Hawai'i Energy will continue to collaborate with multiple external stakeholders including the utility company on demand-side management goals, private and nonprofit entities on innovative and emerging technologies, and public and private resources to leverage ratepayer funding for increased support in program initiatives. This is an area that is growing in importance as noted in recent Technical Advisory Group and energy efficiency charrette meetings. Our scope is limited to following based on current budget levels:

##### Integrated Demand-Side Management

Hawai'i Energy will continue with partnership opportunities with the Hawaiian Electric Companies to work towards integrated demand-side management (IDSMD) goals. The objective of this framework is to help increase the effectiveness of both parties' Demand Side Management (DSM) efforts, resulting in the most efficient use of customer monies through shared learnings and alignment on common endeavors and identification of new collaborative efforts to integrate renewable energy on the electrical grid and meet the State's 100% clean energy targets.

##### Innovation and Emerging Technologies

Developing innovative projects and incorporating emerging technologies will be pursued with public and private entities to assess the potential for market adoption and to design future program initiatives. In addition, to transform the way residents think about the energy efficiency and clean energy, Hawai'i Energy will explore collaborations to develop an interactive, immersive exhibit or display to fully visualize the state's ambitious clean energy goals.

## 5.0 RESIDENTIAL PROGRAM STRATEGY & DETAILS

In PY17, *Hawai'i Energy 2.0* will build upon a successful PY16 campaign characterized by achieving ambitious energy savings, customer equity, and cost-effectiveness goals. In PY16, the program shifted its planning and execution strategy from one based on budgets to one based on the customer perspective and marketplace structure. Recognizing that significant efficiencies could be achieved and a greater number of customers could be reached by organizing the portfolio by delivery channel mechanism instead of budget source, Hawai'i Energy revamped its strategy – to focus on enhancing program operations with strategic marketing and communications. This new strategy allowed the program to make significant strides in PY16, and it will continue to pay dividends in PY17 as we introduce new measures as well as strategically targeting and identifying potential participants.

One example of the new strategy's success was through the introduction of new measures and new programs. The successful rollout of the Residential AC Tune Up program reflects the efficiencies gained by planning and executing through trade ally channels. Air conditioning contractors were offered more opportunities to collaborate on program design and were trained in-depth with a series of online webinars. This enhanced initial participation and engagement with the contractor community, and resulted in three times more participation than planned. In PY17, Hawai'i Energy will expand its offerings even further, taking advantage of these same principles of delivery mechanism-based targeting and execution.

The portfolio of Residential offers will expand in PY17 to include more consumer electronics products, high-efficiency ENERGY STAR® clothes washers, clothes dryers, and smart thermostats, as well as a comprehensive, customized new construction program designed to drive builders to prioritize energy efficiency in design and construction in Hawai'i's unique climate. In addition, air conditioning offers will be broadened to address the entire suite of air conditioning systems such as room, split and central units, as well as trade-in and tune-up options for each type of system.

The Program utilized customer segmentation in PY16 to better target and identify potential participants for its Multifamily Direct Install (MFDI) and solar water heating programs. Techniques like re-engaging past participants based on specific characteristics or measures, or utilizing electronic communications in a systematic manner led to increased participation and greater engagement across the customer base. In PY17, the Program will build off these successes, and benefit from a more robust analytics capability to encourage widespread awareness and participation. Finally, the PY17 plan is supported by a holistic view of the complete three-year portfolio. Both the planning and execution of each year's portfolio has benefitted significantly from the ability to view budgets and goals on a three-year horizon. The program anticipates further expansion and diversification in PY18, which would only be possible given a three-year outlook. Much of the planning, coordination and stakeholder engagement for PY17's portfolio has taken place during PY16 or prior, and PY18's portfolio changes will be focused on program refinement.

## 5.1 Residential Program Details

The table below summarizes the residential program offerings for PY17, organized by budget source.

**Figure 5 - List of Residential Programs**

Residential Programs	
<b>REEM</b>	
	Program Communication
	Behavioral Energy Awareness / Responsibility
	Upstream
	High-Efficiency Lighting
	Scheduling & Control Systems
	High-Efficiency Electronics
	Traditional Retail
	High-Efficiency Appliances
	High-Efficiency HVAC
	High Efficiency Water Pumping
	Online Retail
	Energy Savings Kits
	Trade Ally Provided
	High-Efficiency Water Heating
	High-Efficiency HVAC
	Scheduling & Control Systems
<b>CREEM</b>	
	Trade Ally Provided
	Custom Residential Measures
<b>RESM</b>	
	Trade Ally Provided
	Maintenance / Tune-Up
<b>RHTR</b>	
	Program Direct Install
	Multifamily Direct Install (Schedule R)
	Appliances

## 5.2 Key Residential Program Updates

A summary listing of key planned changes to Residential program offerings is below. For a projection of potential energy savings and cost-effectiveness for the proposed changes by budget category, channel and end-use technology (e.g. measure) as well as the aggregate targets of the program portfolio, see Appendix.

### RESIDENTIAL ENERGY EFFICIENCY MEASURES (REEM)

#### *Peer Group Comparison*

- **Increase number of monthly emailed home energy reports**

Emails will augment quarterly print reports, providing more frequent reminders and ultimately resulting in more persistent energy-saving choices. Reports will offer easy opt-outs, though the positive feedback received from the print reports suggests that customers value the information the reports provide.

#### *High-Efficiency Lighting*

- **No longer offering rebates on residential Compact Fluorescent Lights (CFLs)**

Hawai'i Energy was compelled to no longer offer rebates on residential CELs due to more stringent ENERGY STAR® standards, as well as the local residential lighting market's gradual phase-out of CFLs. Composing the portfolio solely of Light Emitting Diode (LED) lights, reflects the program's commitment to promoting the most efficient technologies.

#### *High-Efficiency Appliances*

- **Reintroduction of clothes washers to the residential portfolio**
- **Introduction ENERGY STAR® clothes dryers to the portfolio**

The decision to bring these items into the PY17 plan came after conducting local market research in comparison to nationwide best practices and potential energy savings estimates. Hawai'i Energy plans to introduce these measures through multiple distribution channels, including retail channels and bulk-purchases for specific hard-to-reach customers.

#### *High-Efficiency HVAC*

##### Smart Thermostats

- **Introduce smart thermostats into residential portfolio**

Smart thermostats are characterized by automatic scheduling features, algorithms that learn usage patterns and adjust schedules and settings accordingly and two-way communication ability. These features save energy by making the most efficient use of customers' air conditioning units. The two-way communication features also present future possibilities for peak demand savings through participation in demand response programs. After a design phase in PY16 to review energy savings and nationwide best practices, Hawai'i Energy will incentivize the installation of smart thermostats through multiple distribution channels, including retail, distributor and contractor trade allies.

### Central AC Retrofit

- **Introduction of a Central AC Retrofit program, where outdated, inefficient central air conditioners will be replaced with high-efficiency units**

The program will target geographic areas with a high saturation of central AC such as the 'Ewa plains, especially those with low seasonal energy efficiency ratios (SEER). During PY16, Hawai'i Energy began the process of designing the Central AC Retrofit program, consulting with builders, contractors, and distributors to identify where the greatest potential might exist. These conversations revealed that certain concentrated housing developments in Honolulu, Maui, and Hawai'i counties are equipped with inefficient (10 SEER) air conditioners installed in the 1980s and 1990s. Hawai'i Energy will work with trade allies to incentivize the replacement of these inefficient units with 17+ SEER units, bringing significant energy and bill savings to the customers.

### *Energy Efficiency Innovation*

- **Updating the Energy Efficiency Auction to an emerging technology program model.**

These efforts will focus on new, innovative technologies that help accelerate commercialization and adoption of new high-potential equipment, appliances, practices and other types of measures. The Program will continue to work with Hawai'i's Elemental Exclerator to identify the most promising technologies.

## CUSTOMIZED RESIDENTIAL ENERGY EFFICIENCY MEASURES (CREEM)

### *Residential New Construction*

- **Implement a customized New Construction program wherein local builders and developers will be incentivized for building new homes more efficiently than building codes requires**

Hawai'i Energy is currently in the design phase of the program, working with builders, home energy raters, and trade organizations on potential program designs and how the program would have the greatest impact on the energy efficiency of new homes.

## RESIDENTIAL HARD-TO-REACH (RHTR)

### *Multifamily Direct Install*

- **Exclusively feature LEDs in the "Energy Smart 4 Homes" multifamily direct install program**

This reflects the program's commitment to providing only the most efficient, longest-lasting lighting solutions to multifamily customers.

### *Direct Install & Bulk Purchase*

- **Expand bulk purchase and direct installation programs for hard-to-reach customer segments**

In addition to refrigerator trade-ins offered at an increased incentive, the program will offer similar programs for high-efficiency clothes washers, clothes dryers, and window ACs. The

expansion will allow Hawai'i Energy to deliver more energy-saving equipment to the customers who would otherwise face financial and systemic barriers to invest in energy efficiency.

## 6.0 BUSINESS PROGRAM STRATEGY & DETAILS

As *Hawai'i Energy 2.0* reaches the one year mark, our business operations team continues to update our offerings as well as ramp up new tools and processes to help island businesses save energy. Above all else, our efforts are fueled by our commitment to build trusted relationships with customers, trade allies and the broader stakeholder community.

For PY17, incentive levels and measure offerings continue to be adjusted to achieve overall participation and program goals while enhancing cost-effectiveness. For example, the rapid decrease in LED lamp pricing – combined with Hawai'i Energy incentives – enables us to lower barriers to entry for customers who are sensitive to “first cost”. Along with new opportunities, such unprecedented market dynamics are prompting updates to internal processes and program participation requirements.

During PY17, significant updates to EPMIS – Hawai'i Energy's project tracking and incentive processing system – will facilitate efficient capture of all project forecasting information. This will drive a full transition to forecasting within the EPMIS environment which, in turn, will ensure greater data integrity and enhanced analytical capabilities.

Even broader efforts are in the works in PY17 for AMPLIFY, Hawai'i Energy's project scoping and specification system for lighting, to reduce cost, improve efficiency, and provide added value to contractors. We will continue to incrementally expand functionality to AMPLIFY that provides value-added capabilities to contractors, such as automatic form creation. Plans are also underway to create and deploy a mobile version of the platform such that contractors can be more efficient and accurate in the field. With such improvements and a maturation of the platform overall, the program will expand the deployment of AMPLIFY for broader use across the lighting program (e.g. both prescriptive and custom lighting projects). This initiative will empower current contractors to capture market-based projects while new allies will be solicited to adopt the platform, thus easing the application process and improving labor efficiencies on both ends of the transaction.

### Data-Driven Customer Engagement

A major impetus for the aforementioned operational improvements is to free up resources for increased customer engagement. The application of data-driven tools will ensure best use of those resources. Energy usage modeling and data analytics will not only enable prioritization and targeting of customers but can also provide powerful charts and visuals to engage customers in a deeper dialogue. Building on the PY16 pilot with First Fuel's FirstAdvisor platform, we will use benchmarking data and deeper modeling of building energy use to further capture insights and energy savings.

### Comprehensive Services and Support for Clean Energy Allies

As noted in the Clean Energy Ally (CEA) section (pg. 11), Hawai'i Energy continues to expand its comprehensive services for our Clean Energy Allies with a focus on increasing the number of



projects submitted. Leveraging our market multipliers helps us lower the total cost of delivering energy efficiency to customers. The Program also relies on CEA feedback to help us maintain and improve program offerings. Our engagement efforts will continue to grow in PY17 based on needs communicated by CEAs.

## 6.1 Business Program Details

The table below summarizes the business program offerings for PY17, organized by budget source.

**Figure 6 - List of Business Programs**

Business Programs	
<b>BEEM</b>	
Midstream	
	High Efficiency Lighting
Trade Ally-Provided	
	High Efficiency Lighting
	High Efficiency HVAC
	High Efficiency Motors
	High Efficiency Water Heating
	High Efficiency Water Pumping
	Envelope Improvements
	Scheduling & Control Systems
	High Efficiency Equipment & Appliances
	Refrigeration Improvements
Traditional Retail	
	High Efficiency Equipment & Appliances
<b>CBEEM</b>	
Trade Ally-Provided	
	High Efficiency Lighting
	High Efficiency HVAC
	High Efficiency Custom Measures
<b>BESM</b>	
Trade Ally-Provided	
	Behavioral Energy Awareness/Responsibility
	High Efficiency HVAC
	Energy Study Grant
	Commissioning/Recommissioning
<b>BHTR</b>	
Trade Ally-Provided	
	Kitchen Equipment
Traditional Retail	
	Combination Oven
Program Direct Install	
	G, J or P Scheduled Multifamily Direct Install
	Small Business Direct Install (SBDIL)
	Appliance Opportunities

## 6.2 Key Business Program Priorities

A summary listing of the changes to the Business Program offerings will be discussed below. For a projection of potential energy savings and cost-effectiveness for proposed changes by budget category, channel and end-use technology (e.g. measure) as well as the aggregate targets of the program portfolio, see Appendix.

### BUSINESS ENERGY EFFICIENCY MEASURES (BEEM)

#### *Lighting*

- **Frequent changes in incentive levels to keep pace with the increasingly rapid reductions in LED lamp prices**
  - A number of decreases originally slated for the start of PY17 were implemented in February 2017 and additional decreases across a majority of LED products are forthcoming in July 2017.
  - In addition to taking advantage of market conditions, Hawai'i Energy is taking steps to ensure our incentives – combined with dynamic pricing conditions – do not drive unintended market behaviors.

LED prices continue to drop and an increasing number of traditional lamp types and shapes are seeing cost-competitive LED replacements. Accordingly, we expect the market for most varieties of low-wattage fluorescents to continue to decrease in PY17 and beyond.

On the most common product types, the price of the LED lamps combined with our incentive is low enough that the cost barrier is diminishing. For bulbs that are easily self-installed (e.g. screw-in), rather than needing a contractor to install, incentives can be minimized, yet designed to promote faster transition to more efficient bulbs. For lamps which typically involve significant installation labor, incentives will continue to be a crucial motivator.

#### *Midstream Programs*

- **Hawai'i Energy will continue to grow its midstream program by allocating ~18% of BEEM and CBEEM funding slated for lighting to this channel.**
  - We will continue to pursue midstream opportunities with additional measures (e.g. motors, pumps, ENERGY STAR® kitchen equipment and possibly HVAC). Distributors will be recruited under the Clean Energy Ally banner.

The midstream lighting program continues to be one of the most cost-effective program offerings and provides processing efficiencies, new market opportunities and an administratively-efficient platform to broaden impact. However, given the higher degree of risks with a midstream format, Hawai'i Energy also recognizes that risks must be monitored and appropriately mitigated. By design, instant rebate programs are largely freed of traditional throughput constraints and thus are able to scale quickly. In combination with the fast-changing LED market, this presents new project possibilities such as budget-constrained AOAOs being able to leverage in-house staff to install low-cost LEDs. At the same time, rapid market movements call for anticipating and proactively updating program design to ensure incentives lead to intended outcomes.

### HVAC

- **Reduced incentive levels for all three categories of air conditioning systems**

This change will be effective as of the start of the program year and is part of a continued effort to optimize cost-effectiveness.

### CUSTOMIZED BUSINESS ENERGY EFFICIENCY MEASURES (CBEEM)

#### *Notable Commitments for PY17*

- **Carry-over into PY17 of a significant commitment to support a military housing complex's energy management system due to project delays**
  - Funding slated for both lighting and non-lighting projects
- **Incentive claims are forecasted for the initial phases of the Sand Island wastewater treatment facility UV lighting replacement project**
- **Completion of a substantial portion of the City & County of Honolulu's conversion to LED streetlights**

### BUSINESS ENERGY EFFICIENCY MEASURES (BESM)

#### *Strategic Energy Management (SEM)*

- **Further SEM work with the University of Hawai'i and Kamehameha Schools, including staff training, executive buy-in, energy studies, joint marketing promotions and integrating incentive payments with the customers' financial tracking systems.**
- **Continuous Energy Improvement (CEI) initiative to achieve energy savings through sustained organizational change (behavior and work processes) rather than discrete, energy-saving projects**

CEI's focus is to raise individual and organizational mindfulness towards energy. The ripple effects can be broad and are crucial to identifying deeper, organization-specific energy savings. We will select an initial cohort of customers and formally launch a pilot initiative in PY17. The small cohort of committed customers will share ideas and build synergy around common challenges, analogous internal processes, and/or similar organizational traits. We may identify additional customers as candidates for varying degrees of SEM efforts throughout the year.

#### *Program-Influenced Savings*

- **Continue developing a tracking and verification process for "claim-only" projects (i.e. savings that are achieved through influence or direct support from Hawai'i Energy staff).**

Claim-only projects are those influenced by the Program in design or implementation but are not associated with an incentive. These projects may arise from an opportunity that was unknown to the customer until identified by Hawai'i Energy staff. Examples include: the Program helping to overcome technical barriers; a payback period too short for Program guidelines; savings being

increased after an original estimate is determined to be too small; or savings being derived from a project receiving an outside funding source, but which the Program helped to leverage.

#### BUSINESS HARD-TO-REACH (BHTR)

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

- **Start PY17 fully-transitioned to the new incentive structure; expecting to see ~24% reduction in incentive costs over the old format.**
- **Elevate efforts to recruit motivated trade allies, provide enhanced sales tools/training, streamline processes and develop other benefits for customers and contractors.**

PY16 marked a fundamental change and reduction in the incentive structure to a flat rate which now requires customer co-pay rather than all costs being covered by the Program. While some have dropped out of the program due to the new incentive structure, the top-performing trade allies understand that SBDIL is still an attractive program and have adapted their sales and technical strategies accordingly. The SBDIL offer is of high importance to the Program, so while the majority of BHTR funding will support SBDIL in PY17, we will also continue our efforts to ramp up sales training and marketing collateral for participating contractors to compensate for the transition to new incentive structure.

## 7.0 BUDGET

Below is a summary of the PY17 program budget.

Activity	Non-Incentive	Incentive	Total
<b>Residential Programs</b>			
REEM	1,140,000	6,934,747	8,074,747
CREEM	115,000	408,000	523,000
RESM	35,000	275,000	310,000
RHTR	215,000	847,310	1,062,310
<b>Total Residential Programs</b>	<b>1,505,000</b>	<b>8,465,057</b>	<b>9,970,057</b>
<b>Residential Market Evaluation</b>	<b>39,603</b>	<b>0</b>	<b>39,603</b>
<b>Residential Outreach</b>	<b>785,000</b>	<b>0</b>	<b>785,000</b>
<b>Total Residential Services and Initiatives</b>	<b>2,329,603</b>	<b>8,465,057</b>	<b>10,794,660</b>
<b>Business Programs</b>			
BEEM	990,000	4,786,212	5,776,212
CBEEM	740,000	2,668,522	3,408,522
BESM	55,000	203,500	258,500
BHTR	450,000	2,951,577	3,401,577
<b>Total Business Programs</b>	<b>2,235,000</b>	<b>10,609,811</b>	<b>12,844,811</b>
<b>Business Market Evaluation</b>	<b>78,371</b>	<b>0</b>	<b>78,371</b>
<b>Business Outreach</b>	<b>410,000</b>	<b>0</b>	<b>410,000</b>
<b>Total Business Services and Initiatives</b>	<b>2,723,371</b>	<b>10,609,811</b>	<b>13,333,182</b>
<b>Total Residential and Business Services and Initiatives</b>	<b>5,052,974</b>	<b>19,074,868</b>	<b>24,127,842</b>
<b>Transformational Programs</b>			
Residential Transformational Programs	0	851,373	851,373
Business Transformational Programs	0	898,627	898,627
<b>Total Transformation Services and Initiatives</b>	<b>0</b>	<b>1,750,000</b>	<b>1,750,000</b>
<b>Total Supporting Services</b>	<b>1,942,708</b>	<b>0</b>	<b>1,942,708</b>
<b>Total Infrastructure/Facility Fee</b>	<b>476,404</b>	<b>0</b>	<b>476,404</b>
<b>Total Tax on Non-Incentive</b>	<b>352,085</b>	<b>0</b>	<b>352,085</b>
<b>Performance Amount</b>	<b>975,330</b>	<b>0</b>	<b>975,330</b>
<b>Total Estimated Contractor Costs *</b>	<b>8,799,501</b>	<b>20,824,868</b>	<b>29,624,369</b>

## 8.0 PERFORMANCE GOALS & INCENTIVE TABLE

Milestone amounts for performance indicators with multiple goals (e.g. Small Business Direct Install) will be subdivided equally for award purposes.

Performance Indicators		Performance Goals		Performance Metrics		Performance Award	
<b>Resource Acquisition</b>				<b>Fraction of Award</b>	<b>Award Milestone</b>	<b>Target Award</b>	
				70%	75%	\$682,731	
<b>KEY FOCUS AREAS</b>	<b>Milestone</b>	<b>Target</b>	<b>Metrics</b>	<b>Award Breakout</b>	<b>Milestone Award Breakout</b>	<b>Target Award Breakout</b>	
<b>Energy Efficiency &amp; Conservation</b>	<b>75%</b>	<b>100%</b>					
• First Year Energy Reduction	97,608,653	130,144,871	kWh	15%	\$109,725	\$146,300	
• Peak Demand Reduction	16,230	21,640	kW	15%	\$109,725	\$146,300	
• Total Resource Benefit	\$245,590,310	\$327,453,747	\$	40%	\$292,599	\$390,132	
<b>Resource Acquisition Performance Award</b>				<b>70%</b>	<b>\$512,048</b>	<b>\$682,731</b>	
<b>Customer Equity</b>				<b>Fraction of Award</b>	<b>Award Milestone</b>	<b>Target Award</b>	
				17%	75%	\$165,806.10	
<b>KEY FOCUS AREAS</b>	<b>Milestone</b>	<b>Target</b>	<b>Metrics</b>	<b>Award Breakout</b>	<b>Milestone Award Breakout</b>	<b>Target Award Breakout</b>	
<b>Economically Disadvantaged</b>	<b>75%</b>	<b>100%</b>					
• Small Business Direct Install	469	625	Customers served				
	5,175,000	6,900,000	kWh	7%	\$51,205	\$68,273.10	
• Multifamily Direct Install	3,225	4,300	Customers served				
	975,000	1,300,000	kWh				
<b>Island Equity</b>							
• County of Hawaii	NA	13%	Target spend must be met in				
• County of Maui	NA	13%	Hawaii & Maui Counties	10%	NA	\$97,533	
• City & County of Honolulu	NA	74%	for Milestone and Target Award				
<b>Market Transformation</b>				<b>Fraction of Award</b>	<b>Award Milestone</b>	<b>Target Award</b>	
				10%	NA	\$97,533	
<b>KEY FOCUS AREAS</b>	<b>Milestone</b>	<b>Target</b>	<b>Metrics</b>	<b>Award Breakout</b>	<b>Milestone Award Breakout</b>	<b>Target Award Breakout</b>	
<b>Behavior Modification</b>		<b>100%</b>					
• Workshops and Presentations	NA	2,100	Number of participant-hours of Training				
• Gamification Campaigns and Competitions	NA	200	Number of participants	4%	NA	\$39,013	
• Social Media and Mobile Messaging	NA	3,250	Digital Engagement (followers/subscriptions)				
• Transformational Videos	NA	3	Number of videos produced				
<b>Professional Development &amp; Technical Training</b>		<b>100%</b>					
• Clean Energy Ally Support	NA						
• Targeted Ally Training Opportunities	NA						
• Targeted Participant Training Opportunities	NA	8,370	Number of participant-hours of Training	4%	NA	\$39,013	
• Educator Training and Grants.	NA						
• Energy Industry Workforce Development	NA						
<b>Energy in Decision Making</b>		<b>100%</b>					
• Strategic Energy Management (SEM)	NA	2	Cohort participants	1%	NA	\$9,753	
<b>Codes and Standards</b>		<b>100%</b>					
• Code Adoption - County Level	NA	9	Advocacy Events	1%	NA	\$9,753	
• Code-Related Training & Compliance	NA	70	Number of participant-hours of training				
• Leading Edge Technologies and Strategies	NA	4 / 1	Stakeholder Meetings / Report				
<b>Clean Energy Collaboration</b>							
• iDSM pilot project	NA	1	Number of pilot projects	0%	NA	0%	
<b>Customer Satisfaction</b>				<b>Fraction of Award</b>	<b>Award Milestone</b>	<b>Target Award</b>	
				3%	NA	\$29,260	
<b>KEY FOCUS AREA</b>	<b>Milestone</b>	<b>Target</b>	<b>Metrics</b>	<b>Award Breakout</b>	<b>Milestone Award Breakout</b>	<b>Target Award Breakout</b>	
<b>Customer Satisfaction</b>		<b>100%</b>					
• Application Processing Customer Experience	NA	> 8.5	Overall customer satisfaction score	3%	NA	\$29,260	
<b>Market Transformation and Customer Satisfaction Performance Award</b>				<b>30%</b>	<b>\$51,205</b>	<b>\$292,599</b>	
<b>TOTAL PERFORMANCE AWARD:</b>				<b>100%</b>	<b>\$563,253</b>	<b>\$975,330</b>	

## 9.0 RESPONSE TO PREVIOUS ANNUAL PLAN COMMENTS

Each year, Hawai'i Energy carefully considers all comments provided on our Annual Plan along with feedback received during other stakeholder engagement activities, including the Technical Advisory Group (TAG) meetings and our formalized collaboration work with the Hawaiian Electric Companies. Over the past few years, there have been several recurring themes that we wanted to address more directly in the PY17 Annual Plan.

### 9.1 Performance Goals and Metrics

*Addressing the concerns expressed about the lowering of targets from one program year to the next.*

**On the whole, the cost-effectiveness of the program has increased substantially in the first year of Hawai'i Energy 2.0**, which will be fully reported in the PY16 Annual Report. While the total budget for PY16 was reduced by about 25% over PY15, resource acquisition targets actually increased (kWh, kW, TRB) as compared to PY15.

One of the key benefits of a 3-year contract term, is the additional clarity around funding. This has allowed the resource acquisition targets to be established for the entire 3-year term, with adjustments being applied to the targets only as funding is adjusted. PY17 and PY18 resource acquisition targets were established at the beginning of the 3-year contract term and currently have been updated to reflect additional kWh achievable from funding rolled forward in PY16 and the anticipated PY18 backfill.

Transformational metrics are handled a bit differently. **Most importantly, all of our transformational program metrics have either remained the same or become more challenging for PY17, even as funding remains the same.** As part of Hawai'i Energy 2.0, we are committed to maintaining transformational program metrics unless there are significant reductions in funding or shifting priorities expressed by the PUC. When those situations occur, the reasons behind any proposed changes will be fully described and reported.

As we improve our transformational program offerings, we strive to continually evaluate and evolve our metrics in order to more accurately measure success. As an example, participant hours (introduced in PY16) are a more refined measure than simply number of participants (utilized in PY15 and prior). In years past, one participant could have been involved in a 1-hour training class or a 5-day, 8-hour training class. Another example is social media tracking, where an online "like" or "share" was utilized as the engagement metric in the past. Over time, it was determined online conversions, which are more robust engagements than likes or shares, were more meaningful metrics to measure program performance.

### 9.2 HECO Collaboration

*In both filed comments and in the Technical Advisory Group meetings, several stakeholders have repeatedly mentioned the need to work closely with the utilities to integrate planning efforts in order to avoid duplication and coordinate to help resolve issues around the growth of distributed generation through energy efficiency, time of use, and demand response. The Hawaiian Electric Companies have also noted the need to make sure our joint efforts are coordinated to reduce confusion while increasing customer awareness and understanding on energy efficiency.*

A main focus of Hawai'i Energy 2.0 is increased collaboration with key stakeholders, especially the Hawaiian Electric Companies. Throughout PY16, and continuing in PY17, Hawai'i Energy has increased these efforts in a number of areas, which are coordinated under our HECO – Hawai'i Energy collaboration framework formalized earlier this year. The objective of the framework is to help increase the effectiveness of both parties' Demand Side Management (DSM) efforts, resulting in the most efficient use of customer dollars through shared learnings alignment on common endeavors and identification of new partnership opportunities. Our alignment through these efforts aims at developing strategies to best engage customers while reducing confusion and limiting duplication of effort.

The major areas of collaboration include:

- *Planning* – Outlines data sharing between parties to develop forecasts for various end uses such as program design and system planning.
- *Outreach* – Coordinated efforts to engage and educate the public including education programs and workshops.
- *Programs* – Joint development of DSM programs, ranging from technology identification to use case development, administering of pilots and ultimately the establishment of cost-effective programs.

We hold regularly cadenced collaboration meetings with the HECO demand response team, as well as meetings for specific initiatives being pursued within the various departments of the Hawaiian Electric Companies. In addition, Hawai'i Energy has invited the Hawaiian Electric Companies to participate in a number of customer and Clean Energy Ally events ranging from our annual CEA breakfast to our talk story "Cup of Joe" events. Hawai'i Energy has appreciated inclusion with the Companies events such as the Clean Energy Fair and their help distributing Hawai'i Energy program material at other events the HECO Companies participate in.

Moreover, Key Account Managers from the Hawaiian Electric Companies and Hawai'i Energy Advisors work together to meet with large commercial clients and promote energy efficiency projects and host technical trainings. We are also collaborating on communications ranging from continued inclusion on bill inserts, to new initiatives such as social media campaigns and some potential joint advertising opportunities.

Hawai'i Energy will take direction from the PUC on how to best integrate our efforts to support increased renewable energy on the grid, assuming there is additional funding for these efforts. Both HECO and the Commission acknowledge the synergy of providing DR and EE benefits at the same time and that coordinated efforts can greatly reduce costs and customer confusion.

Hawai'i Energy recognizes the evolutionary changes are occurring on the energy grid and will adapt its programs based on the grid needs as they change over the course of the day. Interval data, coupled with time and locational values of energy usage, remains one of the biggest necessities for developing more robust programs that can provide additional value to the grid. When locational and temporal values are established, a true shift in the programs can happen that will enable increasing renewable generation on the grid.

That being said, Hawai'i Energy believes that energy efficiency should be maximized as the cleanest, cheapest clean energy source. Most measures and end uses save energy both during the day and during peak hours, while also providing significant savings to customers.

### 9.3 Forecasting & Evaluation, Measurement and Verification (EM&V)

*Previous comments to the Annual Plan propose that the Commission should require Hawai'i Energy or any future PBFA to provide a longer-term forecast with each Annual Plan.*

Hawai'i Energy feels the Annual Plan is not the appropriate document for forecasts. In addition, our focus and expertise is not in long-term forecasting. This may be a function for the EM&V contractor or other entity. We can and have provided a forecast outside of the Annual Plan, though heavy with disclaimers as the timing of a decision to invest in energy efficiency is complex and dependent on a number of factors. Work can be done to put Program results and forecasts in relation to the State's overall EEPs goals. This will be done in conjunction with the Program's Contract Manager. In the interim, Hawai'i Energy has always provided the bulk of the savings towards the State's EEPs goals and understands these goals to be the de-facto long-term EE forecast.

Additionally, under the Uniform Methods Project, the U.S. Department of Energy is developing a set of protocols for determining savings from energy efficiency measures and programs. The protocols provide a straightforward method for evaluating gross energy savings for residential, commercial, and industrial measures commonly



offered in ratepayer-funded programs in the United States. The measure protocols are based on a particular International Performance Verification and Measurement Protocol (IPMVP) option, but provide a more detailed approach to implementing that option. Each chapter has been written by technical experts in collaboration with their peers, reviewed by industry experts, and subject to public review and comment. We are following these developments and expect EM&V to continue to evolve and improve for the Hawai'i Energy program.

#### 9.4 Peer Group Comparison

*Previous comments have raised concerns about the savings attributed to this measure.*

Hawai'i Energy works closely with our EM&V contractor to continue to provide visibility into the peer group comparison program design and the composition of the recipient customer base. This program has been part of Hawai'i Energy's residential portfolio for the last six years. During that time it has undergone a number of evaluation cycles. Currently, the percent savings of .89% is based on EM&V research and fixed effects billing analysis. This level of savings attribution is significantly less than that of other jurisdictions, which range between 1-3% of residential energy use.

#### 9.5 Surcharge Design

*There continues to be ongoing concern over the PBF surcharge design; in particular around ratepayers who reduce their billed energy consumption providing a smaller or no contribution to the PBF. This has been exacerbated with the self-generation market expansion over the past few years.*

Hawai'i Energy agrees with these concerns and suggested in the last TAG meeting in March that the PBFA might be better restructured. Evaluating the surcharge design, as well as the overall investment in energy efficiency as the most cost effective resources in the clean energy portfolio, are things the Program supports but is not in a position to lead these efforts.

#### 9.6 Performance Amount

*Questions have been raised around the need to have compensation provided in the form of a performance amount.*

As part of the new contract, a greater amount of the risk has been transferred from ratepayers to Leidos through the performance amount in the contract. Essentially, this is a penalty to Leidos if the goals are not achieved, as hourly rates were reduced to further shift the risk of goal achievement from ratepayers to Leidos. As noted earlier, while PY16 total budget was reduced by about 25% from PY15, resource acquisition targets actually increased (kWh, kW, TRB) compared to PY15. This presents significantly more risk that is being borne by Leidos to achieve savings more cost-effectively.

#### 9.7 Utility Avoided Cost and System Loss Factors

*It has been noted that Hawai'i Energy's application of utility avoided cost and system loss factor for program performance metric calculations needs to be revisited to incorporate updated values provided by the Hawaiian Electric Companies.*

Hawai'i Energy recognizes the need to update both variables to reflect most recent values. Through our ongoing collaboration efforts with the Hawaiian Electric Companies, we are working to identify and incorporate them. Once approved values are identified for both utility avoided cost and system loss factor, they will be applied to all Program calculations and submitted to the Program's Contract Manager, EM&V contractor and the PUC for review and inclusion in an updated PY17 Performance Metrics table.

## 10.0 CONCLUSION

Living in Hawai'i, we believe that preservation and prosperity go hand in hand. Protecting the environment isn't just the right thing to do, it is vital to the future health and independence of Hawai'i. By using our precious resources wisely, we serve as role models to our most precious resource of all, Hawai'i's keiki. This is why at Hawai'i Energy, we're committed to putting Hawai'i on the fast track to 100% clean energy. Our state has made a commitment to achieve 100% clean energy by 2045. We believe we can get there faster and cheaper with the help of Hawai'i's families and businesses. Our role is to help them to know what to do and how to do it. Hawai'i Energy's goal is to make it easy for everyone to play their part in the clean energy movement.

We are excited to launch the 8<sup>th</sup> year of the Hawai'i Energy program and the 2<sup>nd</sup> year of this 3 year program cycle. The Leidos team will continue to build upon its past success to increase program awareness and participation. We will continue to educate island families and businesses about the many lasting benefits of energy efficiency and clean energy. We will encourage and reward practical, everyday energy-savings decisions. In doing so, we can save businesses and families save money, grow our economy, and reduce the demand for electricity and foreign imports.

Our primary focus is maximize resource acquisition to achieve the Energy Efficiency Portfolio Standard and this Annual Plan has laid out how we intend to do so at an acquired cost significantly less than PY15 and less than a very cost-effective PY16. Additionally, we will continue our efforts on market transformation programs to affect long-lasting and meaningful change. The transformational program will continue to provide education to residents, training and energy solutions for businesses, adoption of energy codes, collaboration with public and private sectors, and review of Hawai'i's innovative emerging technologies. This important and strategic groundwork is critical in creating long-term, impactful results.

As we stated last year, we fully expect our programs to continue to evolve as needs for energy efficiency change based on grid requirements and markets develop and innovate, creating new opportunities for savings. We will continue to explore what works best for Hawai'i's energy efficiency and related clean energy efforts in this rapidly changing energy environment.

We look forward to our continued collaboration with residents, businesses, and industry to help Hawai'i achieve its clean energy goals.

Mahalo,

The Leidos Hawai'i Energy Team

11.0 APPENDIX

APPENDIX A PY17 Program-Level Budget (Expanded)

<b>Residential Programs</b>	
<u>Residential Program Ops and Management</u>	
REEM	1,140,000
CREEM	115,000
RESM	35,000
RHTR	215,000
Subtotal Residential Programs	1,505,000
Residential Market Evaluation	39,603
Residential Outreach	785,000
<i>Total Residential Non-Incentive</i>	<i>2,329,603</i>
<u>Residential Incentives</u>	
REEM	6,934,747
CREEM	408,000
RESM	275,000
RHTR	847,310
Subtotal Residential Incentives	8,465,057
Residential Transformational	851,373
<i>Total Residential Incentives</i>	<i>9,316,430</i>
<b>Total Residential Programs</b>	<b>11,646,033</b>
<b>Business (C&amp;I) Programs</b>	
<u>Business Programs Ops and Management</u>	
BEEM	990,000
CBEEM	740,000
BESM	55,000
BHTR	450,000
Subtotal Business Programs	2,235,000
Business Evaluation	78,371
Business Outreach	410,000
<i>Total Business Non-Incentive</i>	<i>2,723,371</i>
<u>Business Incentives</u>	
BEEM	4,786,212
CBEEM	2,668,522
BESM	203,500
BHTR	2,951,577
Subtotal Business Incentive	10,609,811
Business Transformational	898,627
<i>Total Business Incentives</i>	<i>11,508,438</i>
<b>Total Business Programs</b>	<b>14,231,809</b>
<b>Supporting Services</b>	<b>1,942,708</b>
<b>Infrastructure/Facility Fee</b>	<b>476,404</b>
Subtotal Non-Incentive (Prior to Tax)	7,472,086
Total Tax on Non-Incentive	352,085
Performance Amount (Inclusive of Tax)	975,330
<i>Subtotal Non-Incentive Billed</i>	<i>8,799,501</i>
<i>Subtotal Residential and Business Customer Incentives</i>	<i>19,074,868</i>
<i>Subtotal Transformational Incentives</i>	<i>1,750,000</i>
<i>Subtotal Customer and Transformational Incentives</i>	<i>20,824,868</i>
<b>Total Estimated Contractor Costs</b>	<b>29,624,369</b>

## APPENDIX B Residential Program Offerings

Consistent with PY16, the residential portfolio is organized by budget source, delivery channel, and measure type, allowing for the alignment of planning efforts across marketing, operations, and finance. Below is a brief description of each budget source, followed by a summary table describing the residential offerings for PY17 by measure type.

- **Residential Energy Efficiency Measures (REEM)**  
This budget category contains the core of Hawaii Energy's residential portfolio and undergoes incremental developments responding to market conditions (i.e. retail pricing) and consumer need. Customer channels include direct consumer purchases (retail and online), trade ally installed measures and program communicated education/behavioral change efforts.
- **Custom Residential Energy Efficiency Measures (CREEM)**  
This budget category provides a measure of flexibility within the prescriptive portfolio to accommodate unforeseen market opportunities. For PY17, Hawai'i Energy will allocate this budget to emerging energy efficiency technology and innovation, and a customized Residential New Construction offering.
- **Residential Energy Services & Maintenance (RESM)**  
This budget category includes 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 budget category includes various projects among geographies and demographics that have been traditionally underserved. Efforts in PY17 will continue to address historical participation barriers through direct installation programs.

Behavioral Energy Awareness / Responsibility	
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Program Communication</li> <li>• <b>Budget Source:</b> REEM</li> </ul>	<p style="text-align: center;"><b>Program Description</b></p> <p>The Peer Group Comparison program began in PY11, and Hawai'i Energy has incrementally expanded it since then. The program distributes quarterly printed reports to eligible customers, comparing their energy usage to that of similar nearby households, and encouraging them to undertake energy-saving measures and behaviors. Eligibility is determined by the household's energy profile, and the ability to make a reliable comparison to its peer households.</p> <p>In PY16, the program expanded to reach all eligible customers, for a total of 237,000 households, including nearly 20,000 new recipients. In PY17, Hawai'i Energy anticipates that roughly the same number of households will meet the eligibility criteria, but the program will be enhanced through the use of emailed peer group comparisons. In addition to the quarterly print reports, emailed reports will be sent monthly, ultimately resulting in more persistent energy-saving choices. The program also offers an online portal for recipients to log on at any time, view their comparison report, commit to specific energy-saving actions and update efficiency measures implemented within their residence.</p>
<b>Measures</b>	
<ul style="list-style-type: none"> <li>• <b>Peer Group Comparison</b></li> </ul>	

## High Efficiency Lighting

High Efficiency Lighting	
Program Description	
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Upstream</li> <li>• <b>Budget Source:</b> REEM</li> </ul>	<p>Lighting rebates are offered upstream through manufacturer direct incentives which are provided as point of sale cost reductions. PY17 marks the first year in which CFLs have been completely phased out of the portfolio, and the only lights eligible for incentives will be LEDs.</p> <p>The process includes:</p> <ul style="list-style-type: none"> <li>• Distributors, retailers and manufacturers complete a program application in which they commit to advertising and promotion for instant rebates for the LEDs sold to customers.</li> <li>• 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.</li> <li>• Retailers agree to promote consumer education, undergo staff training and follow proper procedures.</li> <li>• Manufacturers provide accurate, timely data on point of purchase information by store by SKU for rebate reimbursement.</li> </ul> <p><b>Implementation with Clean Energy Allies</b>                      The program is implemented through strong working relationships between the program, the major LED manufacturers and retailers. The participating LED manufacturers include: Cree, Feit, Philips, General Electric, Acuity, Leedarson, Greenlite, Green Creative, Sylvania, Dangoo, Westinghouse, TCP, and Lighting Science Group. Participating retailers include: Costco, Sam’s Club, City Mill, Home Depot, Lowes, Ace Hardware, Safeway, Hardware Hawai’i, Read Lighting, Lighting Concepts &amp; Design, The Light Bulb Source, and Batteries Plus Bulbs.</p>
Measures	
<ul style="list-style-type: none"> <li>• <b>LEDs</b> <ul style="list-style-type: none"> <li>○ A19</li> <li>○ Flood</li> <li>○ Globe</li> <li>○ Kit</li> </ul> </li> </ul>	

## Scheduling & Control Systems

	Program Description
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Upstream</li> <li>• <b>Budget Source:</b> REEM</li> </ul>	
Measures	
<ul style="list-style-type: none"> <li>• <b>Smart Strips</b> <ul style="list-style-type: none"> <li>○ Tier I (master device) Advanced Power Strips</li> </ul> </li> <li>• <b>Occupancy Controls, Sensors &amp; Timers</b> <ul style="list-style-type: none"> <li>○ Room Occupancy Sensors &amp; Timers</li> </ul> </li> <li>• <b>Smart Thermostats</b></li> </ul>	<p><b>Smart Strips</b>            These advanced power strips save energy by shutting off the power to accessory electronics (such as entertainment, sound systems and gaming systems) when a master device (such as a television) is turned off.</p> <p><b>Room Occupancy Sensors &amp; Timers</b>            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.</p> <p><b>Smart Thermostats</b>            Hawai'i Energy will introduce smart thermostats in its residential portfolio in PY17. This technology is characterized by automatic learning and scheduling features, as well as two-way communication. These features save energy by ensuring the most efficient use of air conditioning and present future opportunities for savings through demand response programs when rolled out by the utility.</p> <p><b>Implementation with Clean Energy Allies</b>            Hawai'i Energy will incentivize the purchase of these devices by working with retailers and distributors to establish point of sale cost reductions, as well as promotional material to educate consumers on the devices' energy saving benefits. HVAC Contractors will also be a channel to deliver smart thermostats.</p>

## High Efficiency Electronics

High Efficiency Electronics	
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Upstream</li> <li>• <b>Budget Source:</b> REEM</li> </ul>	<p style="text-align: center;"><b>Program Description</b></p> <p>Hawai'i Energy will continue its successful Consumer Electronics program, introduced in PY16. The program promotes the purchase of high efficiency televisions and sound bars through participating retailers.</p>
<b>Measures</b>	
<ul style="list-style-type: none"> <li>• <b>Televisions</b></li> <li>• <b>Sound Bars</b></li> </ul>	<p>In PY16, Hawai'i Energy partnered with Sears and Best Buy to promote the purchase of these energy efficient consumer electronics, and plan to expand the program to other retailers in PY17.</p>



## High Efficiency Appliances

High Efficiency Appliances	
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Traditional Retail / Trade Ally Provided</li> <li>• <b>Budget Source:</b> REEM / BEEM</li> </ul>	<p><b>Program Description</b></p>
<p><b>Measures</b></p>	
<ul style="list-style-type: none"> <li>• <b>Refrigerators</b> <ul style="list-style-type: none"> <li>○ Garage Refrigerator / Freezer Recycle Only</li> <li>○ Refrigerator (with Recycling of Old)</li> </ul> </li> <li>• <b>Pool VFD Controlled Pumps</b></li> <li>• <b>Clothes Washers</b></li> <li>• <b>Clothes Dryers</b></li> </ul>	<p>This program provides prescriptive incentives to residential customers who purchase and install energy efficiency measures that meet or exceed ENERGY STAR® standards.</p> <p>The process includes:</p> <ul style="list-style-type: none"> <li>• The customer purchases a qualified high efficiency appliance.</li> <li>• The customer may apply online or obtains an application through the Program’s website, in hard copy from Hawai’i Energy, or through point of sale retailer displays.</li> <li>• For Hawai’i Energy’s “Rid-A-Fridge” program, Hawai’i Energy coordinates the pick-up of refrigerators and freezers through local recycling companies, distributing incentives to both the customer and the recycler.</li> </ul> <p>In PY17, the program will continue to shift its rebates from direct-to-consumer to a midstream or upstream model. Moving rebates upstream streamlines the rebate process, and helps reduce supply barriers in a market restricted by distributor and retailer stocking decisions.</p> <p>Hawai’i Energy will also bring high efficiency clothes washers back into the portfolio for PY17, and introduce high efficiency clothes dryers. A survey of the local market revealed that a significant savings opportunity exists within certain high efficiency model models of washers and dryers.</p>

## High Efficiency HVAC

Program Description
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Traditional Retail / Trade Ally Provided</li> <li>• <b>Budget Source:</b> REEM / RESM</li> </ul>
Measures
<ul style="list-style-type: none"> <li>• <b>Fans</b> <ul style="list-style-type: none"> <li>○ Solar Attic Fans</li> <li>○ Whole House Fans</li> </ul> </li> <li>• <b>Window AC</b> <ul style="list-style-type: none"> <li>○ Window AC with Recycling</li> </ul> </li> <li>• <b>VRF Split System AC</b> <ul style="list-style-type: none"> <li>○ VRF Split System (small)</li> <li>○ VRF Split System (large)</li> <li>○ Residential AC Tune-Up</li> </ul> </li> <li>• <b>Central Air Conditioner</b> <ul style="list-style-type: none"> <li>○ Central AC Retrofit</li> <li>○ Residential AC Tune-Up</li> </ul> </li> </ul>
<p>Hawai'i Energy's Residential High Efficiency HVAC program provides incentives for undertaking a variety of energy saving measures, including the purchase and installation of new high efficiency air conditioners and fans, the recycling of old Window ACs, and the tune-up of existing central and VRF split ACs.</p> <p><b>Window AC with Recycling</b> Hawai'i Energy will continue to work with local retailers, haulers and recyclers to offer rebates on the purchase of high efficiency window ACs when accompanied by the recycling of an old working unit.</p> <p><b>Residential AC Tune-Up</b> In PY17, Hawai'i Energy will continue its highly successful Residential AC Tune Up program, first introduced in PY16. This measure includes the completion of a multipoint checklists on both indoor and outdoor units for central and split air conditioners. Hawai'i Energy was able to launch this program successfully by working directly with contractors to ensure program awareness and quality assurance.</p> <p><b>Central AC Retrofits</b> Hawai'i Energy will work with contractors and distributors to introduce a Central AC retrofit offering in PY17, which will incentivize the retrofit of an old, inefficient central AC unit with a new model of SEER 17 or better.</p> <p>As with other trade-ally provided measures, a portion of Hawai'i Energy's tune up and retrofit rebates will be subject to inspection for the purpose of quality assurance.</p> <p><b>Implementation with Clean Energy Allies</b> In PY17, we will continue to work with Allies who install these efficient products in homes. 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, such as ACEEE, ASHRAE and ENERGY STAR® when qualifying technologies to be incentivized.</p>

Energy Savings Kits	
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> On-Line Retail</li> <li>• <b>Budget Source:</b> REEM</li> </ul>	<p style="text-align: center;"><b>Program Description</b></p> <p>In PY17, Hawai'i Energy will continue to offer customers pre-incentivized energy saving measures through its online "Energy Marketplace". The program will build upon its successful PY16 campaign, which saw the introduction of the online marketplace, a permanent online store in which customers can purchase individual measures depending on their needs. Combined with promotional "kits" offered through temporary campaigns throughout each program year, Hawai'i Energy's online offerings provide customers a quick, easy way to access quality energy efficiency measures at a reduced price.</p>
<b>Measures</b>	
<ul style="list-style-type: none"> <li>• <b>LED</b> <ul style="list-style-type: none"> <li>○ A19</li> <li>○ Flood</li> <li>○ Globe</li> </ul> </li> <li>• <b>Smart Strips</b> <ul style="list-style-type: none"> <li>○ Tier I (master device) Advanced Power Strips</li> <li>○ Tier II (occupancy sensor) Advanced Power Strips</li> </ul> </li> <li>• <b>Water Conservation Device</b> <ul style="list-style-type: none"> <li>○ Bathroom Faucet Aerator</li> <li>○ Kitchen Faucet Aerator</li> <li>○ Low Flow Showerhead</li> </ul> </li> </ul>	<p>The online store presents an additional delivery mechanism to ensure that Hawai'i Energy's programs reach a diverse set of customers. With many customers favoring online commerce over brick-and-mortar stores, Hawai'i Energy's online presence plays an increasingly important role in program awareness, participation and new technology adoption. Other measures, such as smart thermostats, or occupancy sensors could be introduced to the Energy Marketplace in PY17.</p>

High Efficiency Water Heating	
	Program Description
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Trade Ally Provided</li> <li>• <b>Budget Source:</b> REEM / RESM</li> </ul>	<p><b>Heat Pump Water Heater</b>  Hawai'i Energy will continue to offer rebates on heat pump water heaters in PY17. Rebate applications for water heaters are provided by the retailers at the time of purchase or a customer can visit the Hawai'i Energy website and apply online or download the form. The program will also deploy a midstream offering with the manufacturers into the existing retail channels. Promotional efforts will focus on heat pump applications in multifamily settings.</p>
Measures	
<ul style="list-style-type: none"> <li>• <b>Heat Pump Water Heater</b></li> <li>• <b>Solar Water Heater</b> <ul style="list-style-type: none"> <li>○ Solar Water Heater (SWH)</li> <li>○ PV Direct Water Heater</li> <li>○ Solar Water Heater Interest Buy Down</li> <li>○ Solar Water Heater Tune-Up</li> </ul> </li> </ul>	<p><b>Solar Water Heating</b>  <i>Solar Water Heater (SWH) &amp; PV Direct Water Heater System Installations</i>  The Program provides a rebate for Solar &amp; PV hot water systems installed by qualified participating contractors. Contractors will provide an instant rebate to the customer at the point of sale, and submit an application directly to Hawai'i Energy for reimbursement. A portion of post-installation inspections is conducted to ensure specification compliance.</p> <p><i>Solar Water Heater Interest Buy Down</i>  The Program works with participating lending institutions 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. The customer works with a participating contractor to complete the standard installation process.</p> <p><i>Solar Water Heater Tune-Up</i>  The Solar Water Heater Tune-Up program provides an incentive to residential customers for the maintenance and tune up of an existing solar water heater by participating contractors. The program aims to demonstrate the benefits of tune-ups, educate customers of potential savings and system longevity. Like the system installations, tune-ups will be subject to random inspections for quality assurance.</p>

High Efficiency Custom Measure(s)	
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Potentially Any and All Channels</li> <li>• <b>Budget Source:</b> CREEM</li> </ul>	<p style="text-align: center;"><b>Program Description</b></p> <p>The CREEM budget allocates incentive money for custom projects and unique offerings for residential customers. In PY17, the program plans to use this budget on a customized Residential New Construction program by incentivizing builders, architects, and/or developers to exceed code compliance and prioritize energy efficiency in the construction of new housing.</p>
<b>Measures</b>	
<ul style="list-style-type: none"> <li>• <b>Residential New Construction</b> <ul style="list-style-type: none"> <li>○ TBD</li> </ul> </li> <li>• <b>Emerging Tech. &amp; Innovation</b> <ul style="list-style-type: none"> <li>○ TBD</li> </ul> </li> </ul>	<p>There will be an additional allocation under the CREEM budget for emerging energy efficiency technology and innovation. Hawai'i Energy continuously reviews new technologies as they become available, and evaluates them for energy saving potential and cost-effectiveness.</p>

Direct Install	
Measures	Program Description
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Program Direct Install</li> <li>• <b>Budget Source:</b> RHTR / BHTR</li> </ul>	<p><b>Multifamily Direct Install (MFDI)</b>  This program will continue the turn-key installation of energy-saving technologies like high efficiency showerheads, faucet aerators, advanced power strips and high efficiency light bulbs. PY17 will be the first year in which Hawai'i Energy's MFDI program installs 100% LEDs, having eliminated CFLs from its portfolio. This change reflects market trends, and is consistent with the plan for the rest of the residential lighting portfolio.</p> <p>The target for PY17 is 5,142 households to participate in the offering; this includes multifamily properties with individually-metered residential accounts and commercial master-metered accounts. Additionally, the program will also be breaking down the existing market segments to deliver focused strategic marketing campaigns to further acquire new properties.</p> <p>All measures are installed with no customer co-pay required. Hawai'i Energy will manage sales efforts to recruit buildings, customer education, scheduling and installation for multifamily properties in hard-to-reach locations.</p> <p><b>Direct Install &amp; Bulk Purchase - Refrigerator (w/recycling)</b>  In PY17, Hawai'i Energy will continue to offer refrigerator trade-ins (with the recycling of old units) at an increased incentive level for hard-to-reach customers. The program is also working with local distributors, haulers, and recyclers to expand this offering to Moloka'i and Lana'i through event-based trade-in programs.</p> <p><i>Clothes Washers &amp; Dryers and Room Air-Conditioners</i>  New for PY17, Hawai'i Energy will offer high efficiency clothes washers, dryers and room air-conditioners through its hard-to-reach direct install channels. In an effort to diversify the program's offerings to hard-to-reach customers, Hawai'i Energy will build on its pre-existing stakeholder relationships to deliver energy saving washers, dryers and room air-conditioners to customers who might not otherwise be able to afford or access them.</p>
<ul style="list-style-type: none"> <li>• <b>Multifamily Direct Install</b> <ul style="list-style-type: none"> <li>○ Tier I (master device) Advanced Power Strips</li> <li>○ Water Conservation Devices <ul style="list-style-type: none"> <li>▪ Bathroom Faucet Aerator</li> <li>▪ Kitchen Faucet Aerator</li> <li>▪ Low Flow Showerhead (Fixed)</li> <li>▪ Low Flow Showerhead (Handheld)</li> </ul> </li> <li>○ LED <ul style="list-style-type: none"> <li>▪ A19</li> <li>▪ 5W Candelabra</li> </ul> </li> <li>○ Project Direct Cost (Installation Cost &amp; Site Visit Fee)</li> </ul> </li> <li>• <b>Direct Install &amp; Bulk Purchase</b> <ul style="list-style-type: none"> <li>○ Refrigerator (with recycling of old)</li> <li>○ Clothes Washers</li> <li>○ Clothes Dryers</li> <li>○ Window AC with Recycling</li> </ul> </li> </ul>	

Consistent with PY16, the business portfolio is organized by budget source, delivery channel, and measure type, allowing for the alignment of planning efforts across marketing, operations, and finance. Below is a brief description of each budget source, followed by a summary table describing the residential offerings for PY17 by measure type.

- **Business Energy Efficiency Measures (BEEM)**  
This budget 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 budget category offers incentives for non-standard energy efficiency technologies often needed for commercial and industrial customers who need to invest in energy efficiency opportunities specific to unique projects and designs. Incentive award amounts are determined via calculations performed to quantify specific energy savings related to unique applications. Customized projects by their very nature require trade allies to propose, sell and execute; and, often involve program Energy Advisors and engineering support from the start.
- **Business Energy Service and Maintenance (BESM)**  
This budget category focuses on developing viable projects through collaboration and direct support in the form of expertise and/or equipment (i.e. metering) from both allies and directly from the program. Guided by past years, this budget category is leaner than prior budgets with a greater focus on intentions and expected outcomes.
- **Business Hard-to-Reach (BHTR)**  
This budget category aims to secure various projects among geographies and demographics that have been traditionally underserved such as small businesses, restaurants as well as lower-income residential multifamily properties that happen to be on a commercial-rated meter.

## High Efficiency Lighting

High Efficiency Lighting	
Measures	Program Description
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Trade Ally Provided / Midstream</li> <li>• <b>Budget Source:</b> BEEM / CBEEM</li> </ul>	<p>The special features of the next phase of the commercial lighting program will include an expansion of the Midstream program. This program has proven to be the most cost-effective way to deliver a lighting incentive program to the local market, and the program makes it easy for customers to participate. By offering the incentive at the point of purchase and without requiring applications, Hawai'i Energy simplifies program participation resulting in more customers benefitting from the program. Further, by concentrating multiple customer transactions into a single data exchange between the distributor and Hawai'i Energy, we leverage the tracking and sales software of our partnering distributors to reduce the cost to process customer transactions.</p> <p>Program enhancements will include creating more standard prescriptive rebates for new light-emitting diode (LED) technologies. For instance, when new exterior LED fixtures entered the market there was little standardization on what wattage LED fixture would replace a particular wattage high intensity discharge (HID) fixture. This made it difficult to set standard, prescribed incentive levels for these fixtures and, consequently, all exterior LED installations were treated as customized lighting projects. As the market has matured, and as LED fixtures have become even more efficient, there is enough standardization to create prescriptive incentives for these measures. Prescriptive incentive levels are easier for customers to understand and to adopt, thereby increasing participation. As a result, Hawai'i Energy will seek to create more prescriptive incentives for LED measures.</p>
<ul style="list-style-type: none"> <li>• <b>Linear Fluorescent</b> <ul style="list-style-type: none"> <li>○ T12/T8 to T8 Low Wattage (4 ft. lamps)</li> <li>○ T12 to T8 Standard (2 &amp; 3 ft. lamps)</li> </ul> </li> <li>• <b>Delamping</b> <ul style="list-style-type: none"> <li>○ Delamp with Reflector Kit (2, 4 &amp; 8 ft. lamp)</li> <li>○ Delamp Only (2, 4 &amp; 8 ft. lamp)</li> </ul> </li> <li>• <b>LED</b> <ul style="list-style-type: none"> <li>○ Linear T8 to Linear LED Tube: w/ Integrated Driver - Plug &amp; Play (Type A)</li> <li>○ Linear T12/T8 to Linear LED Tube: w/ Remote Driver (Type C)</li> <li>○ Omni-Directional (Screw-In &amp; Pin)</li> <li>○ Specialty (Screw-In &amp; Pin)</li> <li>○ LED HID Replacements</li> <li>○ LED Flat Panel Drop-In Replacements</li> <li>○ LED Refrigerated Case Lighting</li> <li>○ LED Exit Signs</li> </ul> </li> <li>• <b>Occupancy Controls, Sensors &amp; Timers</b> <ul style="list-style-type: none"> <li>○ Occupancy Light Sensors</li> </ul> </li> <li>• <b>Customized LED</b></li> <li>• <b>Customized Non-LED</b></li> </ul>	



## High Efficiency HVAC

High Efficiency HVAC	Program Description
<ul style="list-style-type: none"> <li>● <b>Delivery Channel:</b> Trade Ally Provided</li> <li>● <b>Budget Source:</b> BEEM / BESM / CBEEM</li> </ul>	<p>In PY17 Hawai'i Energy will work with HVAC distributors to determine if instant rebates can be offered on all package, split, and VRF AC units that qualify for the standard rebate program. Other HVAC equipment, such as chillers and variable frequency drives (VFDs), are typically more complicated projects that still require incentives to promote, but don't lend themselves well to a midstream program.</p>
Measures	Program Description
<ul style="list-style-type: none"> <li>● <b>Chillers:</b> Meets IECC 2015 Energy Code</li> <li>● <b>Package AC Units:</b> Better than Current Code</li> <li>● <b>VFD Speed Controlled</b> <ul style="list-style-type: none"> <li>○ Air Handler Units</li> <li>○ Chilled Water / Condenser Water</li> </ul> </li> <li>● <b>VRF Air Conditioners</b> <ul style="list-style-type: none"> <li>○ Existing Facility</li> <li>○ New Construction</li> </ul> </li> <li>● <b>Ventilation</b> <ul style="list-style-type: none"> <li>○ Garage Active Ventilation Control</li> </ul> </li> <li>● <b>Optimized Chiller Selection</b></li> <li>● <b>Custom HVAC</b></li> <li>● <b>ECM on Fan Coil Units</b> (see High Efficiency Motors section)</li> </ul>	<p><b>Chillers:</b> Both air-cooled and water-cooled that have efficiencies meeting the International Energy Conservation Code (IECC) 2015 energy code. Significant savings can be achieved with this measure particularly when you consider the life expectancy of a chiller is 20 years.</p> <p><b>Package Units:</b> Air-cooled package units are most often found in small facilities as they offer the lowest upfront cost and least maintenance intensive of HVAC options to this market. The opportunity to reduce energy consumption in these units which offers the greatest return on investment is 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.</p> <p><b>Variable Frequency Drives (VFD):</b> 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.</p> <p><b>Inverter driven variable refrigerant flow (VRF)</b> air conditioning systems utilize variable speed compressors along with most often multiple individual zone evaporators to provide the ability to more closely match the building's cooling requirements. Energy savings from VRF air conditioning are primarily from increased part-load efficiency operation.</p>

**High Efficiency Motors**

<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Trade Ally Provided</li> <li>• <b>Budget Source:</b> BEEM</li> </ul>	<p><b>Program Description</b></p>
<p><b>Measures</b></p>	<p><b>Electronically Commutated Motors (ECM):</b>                  ECM motors 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. The two main program applications include HVAC and refrigeration.</p>
<ul style="list-style-type: none"> <li>• <b>ECM</b> <ul style="list-style-type: none"> <li>○ Fan Coil Fans (HVAC)</li> <li>○ Evaporator Fan Motors (with Controller) (Refrigeration)</li> </ul> </li> </ul>	

## High Efficiency Water Heating

High Efficiency Water Heating	
	Program Description
<ul style="list-style-type: none"><li>• <b>Delivery Channel:</b> Trade Ally Provided</li><li>• <b>Budget Source:</b> BEEM</li></ul>	
Measures	
<ul style="list-style-type: none"><li>• <b>Solar Water Heater</b></li><li>• <b>Heat Pump Water Heater</b></li></ul>	<p><b>Solar Water Heating:</b> 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.</p> <p><b>Heat Pumps:</b> 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 facility's domestic water needs or swimming pools. Heat pumps can also be air-source and provide heat mitigation in areas such as commercial kitchens and can function as a stand-alone water heater for pools. 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.</p>

## Water Pumping Efficiency

Water Pumping Efficiency	
Measures	Program Description
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Trade Ally Provided</li> <li>• <b>Budget Source:</b> BEEM/BESM</li> </ul>	<p><b>VFD Speed Controlled Pumps:</b>                      The replacement of single speed staged domestic water booster pumps can provide up to 70% energy savings by providing constant pressure regardless of flow and reducing pump speed during low use periods, therefore increasing system efficiency.                      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.</p> <p><b>Water System Upgrade Assistance:</b>                      The energy-water nexus continues to be a focus of programs across the country as well as our efforts here in Hawai'i Energy. The program will be delivered to the water and wastewater industry through communication and outreach to facilities division and their administration/management. We will provide information about the value of energy efficiency, the attributes of the program, and how incentive funding can be provided to motivate implementation of energy saving projects.</p> <p>Stand-alone educational programs will be provided to educate the industry on the value of energy efficiency and will be integrated with program information. We will raise awareness with CEA's and other industry consultants regarding energy efficiency value, the importance of integrating efficiency into their designs, and the financial benefit an energy-efficient design can bring to the clients they serve. Further, continual contact with regulatory agencies will keep them informed about the program and the value it can bring to the water and wastewater industry. Continual contact with other organizations and programs, such as the Rural Water Association, will continue to promote the program's value to all community sizes. The Hawaii Rural Water Association provides valuable interface with all of the midsize utilities and, importantly, the small systems.</p>

Envelope Improvements	
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Trade Ally Provided</li> <li>• <b>Budget Source:</b> BEEM</li> </ul>	<p align="center"><b>Program Description</b></p>
<p align="center"><b>Measures</b></p>	<p><b>Window tinting</b> 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.</p>
<ul style="list-style-type: none"> <li>• <b>Window Tinting</b></li> </ul>	

## Scheduling & Control Systems

	Program Description
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Trade Ally Provided</li> <li>• <b>Budget Source:</b> BEEM</li> </ul>	
Measures	
<ul style="list-style-type: none"> <li>• <b>Occupancy Controls, Sensors &amp; Timers</b> <ul style="list-style-type: none"> <li>○ Hotel Room Occupancy Controls</li> </ul> </li> <li>• <b>Vending Machine Occupancy Controls</b></li> <li>• <b>Garage Exhaust Ventilation</b></li> </ul>	<p>Hawaii Energy will target the installation of energy management systems that gives <b>thermostat control</b> to existing guest room air conditioning systems using occupancy sensors. Controls can significantly reduce the energy consumption of <b>vending machine lighting and refrigeration</b> systems. Qualifying controls must power down these systems during periods of inactivity but, in the case of refrigerated machines, must always maintain a cool product that meets customer expectations. This measure applies to refrigerated beverage vending machines, non-refrigerated snack vending machines, and glass front refrigerated coolers. This measure should not be applied to ENERGY STAR® qualified vending machines, as they already have built-in controls.</p> <p>Demand-controlled ventilation (DCV) using carbon monoxide (CO) sensing is a combination of two technologies: Sensors that monitor CO levels in the parking garage, and an air-handling system that uses data from the sensors to regulate the amount of ventilation air admitted. CO sensors continually monitor the air in a parking garage. Given a predictable activity level, automobiles will exhaust CO at a predictable level. Thus CO production in the parking garage will closely track activity. Given these two characteristics, a CO measurement can be used to measure and control the amount of outside air that is being introduced to dilute the CO generated by automobiles. The result is that ventilation rates can be measured and controlled to a specific cfm/ft<sup>2</sup>. This is in contrast to the traditional method of ventilating at a fixed rate regardless of occupancy. Codes for enclosed parking areas require ventilation during all hours of operation to protect against an unhealthy buildup of carbon monoxide (CO). As a result, exhaust fans generally run 100% of operating hours. Although some buildings use timers to cut fan run time, it is important to note that the use of timers may not meet code compliance and health considerations. To achieve major energy savings and meet all health requirements, carbon monoxide sensors have now been authorized by code and mandated in some jurisdictions for new construction. Sensors measure CO levels, activating fans only when necessary to maintain CO at an acceptable level, saving upwards to 90% of energy cost.</p>

## High Efficiency Equipment & Appliances

High Efficiency Equipment & Appliances	
Program Description	
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Trade Ally Provided</li> <li>• <b>Budget Source:</b> BEEM</li> </ul>	<p><b>ENERGY STAR® Refrigerators:</b> There is a 32 to 62% energy reduction opportunity in the replacement of the “old” office refrigerator with a modern ENERGY STAR® model. The offering of a \$100 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.</p>
Measures	
<ul style="list-style-type: none"> <li>• <b>Refrigerator (with Recycling of Old)</b></li> <li>• <b>Garage Refrigerator / Freezer Recycle Only</b></li> </ul>	<p><b>Distribution Transformer:</b> The incentive for distribution transformers has been discontinued. This is the result of the elimination of the Consortium for Energy Efficiency (CEE) Distribution Transformer Initiative. CEE discontinued the program after a new federal minimum standard was instituted in January 2016. The new DOE standards are closely aligned with the former CEE specification. CEE worked with a group of manufacturers in 2015 to consider a new, higher specification level, but the manufacturers indicated clearly that it would not be cost effective for them to build and sell equipment that significantly exceeded the minimum standard. This prompted CEE to discontinue their initiative.</p>

## Refrigeration Improvements

	Program Description
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Trade Ally Provided</li> <li>• <b>Budget Source:</b> BEEM</li> </ul>	<p>Commercial refrigeration equipment includes self-contained and remote-condensing refrigerators, freezers, and commercial refrigerator-freezers. Commercial refrigeration equipment is used for food storage and merchandising purposes in the food retail industry (i.e. grocery stores, supermarkets, convenience stores, specialty food stores) and the foodservice industry (i.e. restaurants and cafeterias). Energy conservation measures that reduce the operational time or intensity of refrigeration equipment while still maintaining a comfortable shopping and work environment can offer substantial savings. Refrigeration is, by far, the largest load in a grocery store. Significant energy savings can be gained not only from refrigeration tune-ups and maintenance, but also through retrofits and cost-effective replacement of older equipment.</p> <p>There are many market segments that require commercial refrigeration, which includes independent grocers (i.e. Times, Don Quote, KTA) and national chain supermarkets (i.e. Costco, Safeway, Wholefoods), restaurants, mini-markets/gas stations, and smaller convenience stores.</p> <p>This program is delivered to the commercial market through the refrigeration suppliers. Information about the available incentives is disseminated first to the refrigeration suppliers and vendors to leverage their reach into the commercial market. We also communicate with facility managers, engineers, and their administration/management to inform them about the value of energy efficiency, the attributes of the program, and how funding can be provided to motivate implementation. Attendance and participation at the various trade shows and conferences will continue to make the industry aware of the program. Stand-alone educational programs will also be provided to educate the industry on energy efficiency value.</p>
Measures	
<ul style="list-style-type: none"> <li>• <b>Refrigerated Night Covers</b></li> <li>• <b>ECM on Evaporator Fan Motors (see High Efficiency Motors sections)</b></li> </ul>	



## High Efficiency TBD (Custom Projects)

<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Trade Ally Provided</li> <li>• <b>Budget Source:</b> CBEEM</li> </ul>	<p style="text-align: center;"><b>Program Description</b></p> <p>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.</p> <p>Our custom project program will provide an 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.</p> <ul style="list-style-type: none"> <li>• Projects that have longer life measures often have longer paybacks, which makes it difficult for businesses to gain approvals for them.</li> <li>• 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.</li> </ul>
<b>Measures</b>	
<ul style="list-style-type: none"> <li>• <b>Customized Project Measures with &gt; 5 Year Life:</b> TBD - Committed</li> <li>• <b>Customized Project Measures with &lt;5 Year Life:</b> TBD - Uncommitted</li> </ul>	

## Behavioral Energy Awareness / Responsibility

Behavioral Energy Awareness / Responsibility	
	Program Description
<ul style="list-style-type: none"><li>• <b>Delivery Channel:</b> Trade Ally Provided</li><li>• <b>Budget Source:</b> BEEM / BESM</li></ul>	<p>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.</p> <p>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.</p> <p>This also provides the AOAO an opportunity to receive an energy audit of the property and participate in other Hawai'i Energy incentives for conservation in all common areas. Possible additional incentives could include A/C, lighting, pool pumps, domestic water pumps and parking garage exhaust fans.</p>
Measures	
<ul style="list-style-type: none"><li>• <b>Submetering</b><ul style="list-style-type: none"><li>○ Condominium</li><li>○ Commercial Property</li></ul></li></ul>	

**Commissioning / Retro-Commissioning**

<b>Commissioning / Retro-Commissioning</b>	
	<b>Program Description</b>
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Trade Ally Provided</li> <li>• <b>Budget Source:</b> BESM</li> </ul>	
<b>Measures</b>	
<ul style="list-style-type: none"> <li>• <b>System Retro-commissioning</b></li> </ul>	<p>The recommissioning/retro-commissioning measure incentivizes building owners to evaluate and/or periodically re-evaluate the effectiveness and efficiency of current building systems for optimal performance. Savings are achieved by optimizing building systems and assemblies to operate as efficiently as possible based on design criteria, data evaluation, and operational parameters. These savings opportunities will likely be a combination of no/low cost operational adjustments and sequencing, low-cost equipment optimization, and capital improvement projects, such as:</p> <ul style="list-style-type: none"> <li>• Implementation of an automated building management system to control lighting and HVAC schedules and set-points.</li> <li>• An education and training component for building operations personnel on how to operate the building efficiently, focusing particularly on O&amp;M changes implemented during the retro-commissioning project.</li> <li>• Inspect HVAC duct work for leaks and damage. Include findings in RCx report.</li> <li>• Identify peak load shaving options that can be implemented during peak periods.</li> <li>• Reduce customer operating costs during peak and off-peak periods.</li> <li>• Develop a plan to educate and train the building personnel how to operate the building efficiently.</li> <li>• Document findings and develop an action plan to implement recommended measures that reduce electricity usage.</li> <li>• Reduce energy consumption in commercial and industrial facilities by incentivizing energy conservation measures through the customized incentive program.</li> </ul>

## Strategic Energy Management (SEM)

Strategic Energy Management (SEM)	
Delivery Channel:	Program Description
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Program Direct</li> <li>• <b>Budget Source:</b> BESM</li> </ul>	<p>SEM is a holistic, longer-term approach to energy savings with a focus on the specific needs of individual customers. It can encompass a broad array of strategies such as staff training, executive buy-in, energy studies, joint marketing promotions and integrating incentive payments with the customers’ financial tracking systems. SEM promises to deliver deeper and more sustained savings.</p> <p>Continuous Energy Improvement (CEI) is a structured initiative within the SEM program centered on behavioral and work process changes to achieve deeper energy savings – i.e. sustained organizational change akin to continuous quality improvement initiatives. Customers are provided training on identifying savings opportunities in their daily work, technical support on energy usage measurement/modeling, and ongoing coaching until CEI becomes ingrained in the organizations’ cultures. Capital projects may result from CEI efforts but are not the main focus.</p> <p>The heightened awareness and engagement with energy throughout participating organizations will be the driver for identifying deeper savings opportunities as well as creating a multiplier effect for energy-conscious behavior at work and at home.</p>
Measures	
<ul style="list-style-type: none"> <li>• <b>Various, including Energy Studies, Operational Savings, Training, Behavioral Change, and Capital Projects</b></li> </ul>	

Influenced - Non-Incentivized Efforts	
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Program Direct</li> <li>• <b>Budget Source:</b> BESM</li> </ul>	<b>Program Description</b>
<b>Measures</b>	
<ul style="list-style-type: none"> <li>• <b>Influenced – Non-Incentivized Efforts</b></li> </ul>	<p><b>Influenced - Non-incentivized efforts</b></p> <p>In PY17, we will continue to explore claim-only project savings. This includes energy efficiency savings that are claimed by a Program without the payment of a financial incentive. A claim-only project can arise from a project opportunity that was unknown to the customer until it was identified by an Energy Advisor or a Hawai'i Energy activity, such as an energy team meeting. Claim-only projects are influenced by the Program in design or implementation but are not provided with an incentive for some reason, including (but not limited to): the Program helped overcome technical barriers; payback period was too short for Program guidelines; savings were adjusted upward after the original estimate was determined to be too small; or savings were derived from a project receiving an outside funding source, but which the Program helped to leverage, or the participant received Public Benefit Fee funds in a different way (i.e. 0% loan from GEMS). The fact that a Program implementer or activity identified the opportunity attests that it is Program-induced, even without an incentive. The customer will be asked to provide a signed Impact Statement asserting that the Program influence was the initiating factor.</p>

Kitchen Equipment	
<ul style="list-style-type: none"> <li>• <b>Delivery Channel:</b> Traditional Retail / Trade Ally Provided</li> <li>• <b>Budget Source:</b> BHTR</li> </ul>	<p align="center"><b>Program Description</b></p> <p><b>Kitchen ventilation with demand control hood exhaust</b> uses temperature and/or smoke sensors to adjust ventilation rates. This saves significant energy comparing with the traditional 100% on/off controls.</p>
<b>Measures</b>	
<ul style="list-style-type: none"> <li>• <b>Kitchen Exhaust Hood Demand Ventilation</b></li> <li>• <b>Commercial Ice Machine</b></li> <li>• <b>Commercial Electric Steam Cooker</b></li> <li>• <b>Commercial Electric Griddle</b></li> <li>• <b>Commercial Fryer</b></li> <li>• <b>Commercial Hot Food Holding Cabinet</b></li> <li>• <b>Commercial Combination Oven</b></li> <li>• <b>Commercial Convection Oven</b></li> <li>• <b>Commercial Reach-In Refrigerator</b></li> <li>• <b>Commercial Reach-In Freezer</b></li> </ul>	<p>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.</p> <p>Restaurants are extremely energy intensive, using about 5 to 7 times more energy per square foot than other commercial buildings, such as office buildings and retail stores. High-volume, quick service restaurants may even use up to 10 times more energy per square foot than other commercial buildings. Restaurant operators and commercial or institutional kitchens can save energy and money annually and over the equipment lifetime by choosing ENERGY STAR® certified models. To meet ENERGY STAR's stringent requirements for energy efficiency, manufacturers use high-quality components and innovative technologies that often lead to other benefits such as shorter cook times, improved recovery times, higher production rates, and longer product lifetimes. Hawai'i Energy will provide incentive for ENERGY STAR's seven commercial food services equipment categories, including: fryers, griddles, hot food holding cabinets, ice makers, ovens, refrigerators and freezers, and steam cookers.</p>

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

Small Business Direct Install Lighting (SBDIL)	
<ul style="list-style-type: none"> <li><b>Delivery Channel:</b> Program Direct Install</li> <li><b>Budget Source:</b> BHTR</li> </ul>	Program Description
Measures	
<ul style="list-style-type: none"> <li><b>LED</b> <ul style="list-style-type: none"> <li>Refrigerated Case to LED</li> <li>Exit Sign</li> <li>A19 Incandescent to LED</li> <li>Decorative to LED</li> <li>MR16</li> <li>PAR CFL to LED</li> <li>PAR CFL to PAR LED</li> <li>PAR CFL to BR LED</li> <li>PAR Halogen to PAR LED</li> <li>PAR Halogen to BR LED</li> <li>T12 40W to LED</li> <li>A19 LED</li> </ul> </li> <li><b>Linear Fluorescent</b> <ul style="list-style-type: none"> <li>T12 to T8</li> <li>T12 to T8 LED Instant Start</li> <li>T12HO to T8</li> <li>T12 to F17</li> </ul> </li> <li><b>Custom Lighting</b></li> <li><b>Project Direct Cost</b> <ul style="list-style-type: none"> <li>Installation Cost &amp; Cost Adder for Fixtures above or out of the reach of a 10' Ladder</li> </ul> </li> </ul>	<p>Small Business Lighting retrofits provide a “turnkey” program consisting of audits, installation by participating Hawaii Energy Participating contractors and a high level of subsidies by Hawai‘i Energy, sometimes up to 100% of the cost of the installation.</p> <p>The incentive levels in this program are based on \$0.28/kWh for first year savings resulting from the lighting retrofit. In many cases this level of incentive results in a free installation for some customers. In other cases, where lower burn hours result in lessor savings, a small copayment may be required by the business owner. Small business customers receiving electric power under a Schedule “G” rate are eligible under this program. 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. Key targets include:</p> <ul style="list-style-type: none"> <li><b>Restaurants</b> – 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 proven effective in generating attention and participation. It also allows the Program to gather information on equipment and operations, and present opportunities for greater energy savings through other programs, such as the ENERGY STAR® Kitchen Equipment program.</li> <li><b>Landlords-Tenants</b> – 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. 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.</li> </ul>

## History

Market transformation seeks to identify, assess and help overcome market barriers that inhibit residents and businesses from adopting energy-efficient technologies and practices. Formally initiated in PY11, the Program's market transformation efforts continue to become more robust and meaningful, as strong customer and participant relationships and increased knowledge of market nuances have led to the development of more specialized, thoughtful offerings. By collaborating with several key subcontractors, we continue to encourage greater participation and deepen community impact, as well as remain committed to servicing "hard-to-reach" ratepayers who are traditionally underserved by energy efficiency and conservation programs.

The Hawaii Energy Market Transformation programs fall within the following support segments: **behavior modification, professional development and technical training, energy in decision-making, codes and standards, and clean energy collaboration.**

## Key Objectives

The goal of the transformational program is to achieve lasting change in the market that results in energy savings within three to five years. The market transformation efforts complement the residential and business resource acquisition programs. The key objectives of the transformational program include the following:

- Leverage the work of others in the community to reach across all islands and ratepayers;
- Implement projects that will reduce energy consumption in the state within a five year period;
- Leverage resources to support the development of self-sustaining efforts;
- Support the continued development of a robust Clean Energy Ally program to leverage energy industry professionals to multiply energy efficiency projects;
- Develop programs that support institutional change for energy efficiency that include strategic energy management, benchmarking and renewables integration;
- Identify and assess emerging technologies for development into demonstration projects and support the market introduction of new residential and commercial efficient technologies; and
- Increase energy literacy and help Hawai'i's residents and businesses make smart energy choices.

## Focus Areas

### Behavior Modification

Behavior modification is the outreach and education work that influences daily decisions to result in lower energy use through efficiency and conservation. This approach is multifaceted, augments overall Hawai'i Energy marketing efforts and is tailored across different demographics to build a foundation of energy literacy, particularly in "hard-to-reach" or underserved communities. The delivery mechanisms are diverse and leverage community partnerships, gamification initiatives and social media in order to scale messaging while maximizing cost-effectiveness.

Hawai'i Energy's behavior modification programs focus on communicating transformative messages and portfolio-wide participation through face-to-face engagement in community and grade school education, gamification solutions, social media and online tracking tools, and support of events coordinated by likeminded community organizations.



### Community Workshops and Presentations

Hawai'i Energy's community workshop series is designed to present the often confusing concepts behind energy usage and reduction to the average consumer. The workshops are provided in a group setting and the Program prioritizes using local facilitators who can creatively deliver the curriculum through fun, relatable exercises. Ideal audiences include community organizations, local businesses, and local and state government agencies with access to a large number of residential customers (e.g. municipalities, hotels, etc.). The Program utilizes existing relationships with public housing, faith-based organizations, community organizations, nonprofits, schools, utility companies, and others to reach underserved communities.

The workshops are also scheduled in coordination with the Energy Smart 4 Homes (multifamily direct installation) program as an introductory session for those tenants of apartment buildings retrofitted with energy efficiency measures. Because of the diverse and dynamic audience, leveraging the core competencies of key community partners is necessary to assist with the development of effective and innovative content that fosters action and encourages participation. The workshops may be coupled with additional gamification campaigns to further engage and help the participants consider ways to become energy-efficient.

### Gamification Campaigns

Gamification is a fun and effective way to deploy initiatives that enhance savings through improved program efficacy and influence real-world actions that reduce energy use. Effective gamified approaches drive program objectives by: 1) encouraging multiple interactions between participants, 2) providing timely feedback on individual or collective progress towards a goal, and 3) offering useful support systems to optimize the experience.

Figure 7 - Key Ingredients of Gamified Programs:



### Student Energy Education

Hawai'i Energy believes that a strong investment in young audiences is a crucial part of sustaining Hawai'i's energy future, and seeks to equip students and teachers with the knowledge and tools to solve future energy issues. Educational resources provided by Hawai'i Energy will touch on a variety of energy efficiency topics, complete with multimedia, video content and gamified challenges.

### Social Media

Social media serves as an excellent vehicle to heighten awareness, solicit participation and shape the public's perception of the benefits of energy efficiency. Over the last few years, Hawai'i Energy has been able to elevate its social media content to include many in-house produced videos, externally-produced viral videos, infographics, and other announcements and continued engagement with followers and other brands. Social media provides an easy outlet to convey technical energy issues in a locally unique, easily understood, and engaging manner, while providing a call to action to make smart energy choices and to

participate in the programs. In addition, Hawai'i Energy continues to leverage community organizations' large audience base to broadcast these messages.

### Professional Development & Technical Training

The Hawai'i Energy program continues to focus on technical training and professional development to create a workforce knowledgeable in energy efficiency. Our proposed initiatives in this focus area increase the core competencies for Clean Energy Allies, decision-makers, influencers and operators. Our approach addresses both the current (buyers and sellers) and future (students) market players to ensure the viability of long-term savings.

#### *Clean Energy Ally Support*

Formalized in 2014, the Hawai'i Energy Clean Energy Ally network plays a critical role in energy efficiency program delivery and savings acquisition through its established, trusted customer relationships.

Support will be primarily through education and training activities to ensure they have a firm foundation in the *Hawai'i Energy 2.0* program offerings and guidelines and that they benefit from preferential access to networking events, professional sales, technical and certification trainings. Additionally, trade ally-specific events like "Cup-of-Joe" and recognition mechanisms will provide motivation for Clean Energy Ally participation and celebrate their accomplishments.

#### Targeted Ally Training Opportunities

Hawai'i Energy offers a portfolio of targeted training opportunities for Clean Energy Allies, such as efficiency sales training, and technical certification programs to advance their knowledge base and reputation.

- **Energy Efficiency Sales and Financial Analysis**

Education for energy industry professionals on how to successfully acquire approval for energy efficiency projects. Recent updates to this model included enhancing the trainings to include tools, templates and case studies to support market penetration of effective sales techniques.

- **Technical Training**

Hawai'i Energy has seen significant impact through offering various vocational and technical training certification programs, which are designed to strengthen the growing energy efficiency market by certifying a highly-skilled work force. Hawai'i Energy offers these types of certification to working professionals who directly support commercial facilities in achieving and sustaining energy efficiency, and seeks out additional technical training sessions for energy-efficient technologies and practices in conjunction with manufacturers, suppliers, universities and allies. Offerings include the Certified Energy Manager (CEM) course and other HVAC and specialty lighting offerings.

- **Co-Op Event Funding**

In PY16, Hawai'i Energy launched its co-op event funding program for Clean Energy Allies, which maximizes cost-effectiveness by providing financial support for educational offerings incorporated into other industry events, such as trade ally sales calls, vendor "lunch & learns, professional association meetings (IES, ASHRAE, etc.) and trade shows. We will expand these efforts in PY17 to encourage more business-to-business and business-to-customer learning opportunities.

#### *Targeted Participant Training Opportunities*

In addition to the offers listed above, Hawai'i Energy's Energy Advisors will continue to identify customer-specific training opportunities. As we look to build capacity amongst trade allies so they can sell efficiency projects, we also recognize that decision-makers must have the skillsets to scope, approve, procure and manage energy-saving projects. Training focuses on technical and business skills, including financial analysis and contracting basics.

- **Organizational Support & Industry Sponsorships**

In PY16, Hawai'i Energy increased its sponsorship support and collaboration efforts with a number of industry organizations (Hawaii Hotel and Lodging Association, Hawaii Society for Healthcare Engineers, Hawaii RA, etc.) in order to make training opportunities more accessible and cost-effective for end-use customers. There will be targeted events for specific market segments, such as small business owners and healthcare providers.

- **Facilities Management Training**

The Program offers training for existing facilities staff, managers and technicians to support their role in implementing energy efficiency upgrades. This includes technical certifications, like the Building Operator Certification Level I and II offered through with University of Hawai'i's Manoa Outreach College and Maui College's Sustainable Living Institute of Maui (SLIM), as well as other workshops on HVAC, lighting, pumps, motors, etc. to be promoted throughout the year.

### *Educator Training & Grants*

In order to truly transform the market, the Program must build capacity for Hawai'i's future generation of decision-makers and trade allies. Hawai'i Energy and its nonprofit allies have worked with hundreds of teachers, and subsequently, thousands of students to develop a deeper understanding of Hawai'i's energy opportunities and challenges. The goals of the educator training include:

- Introducing the concepts of energy efficiency while showing activities to address those concepts; raising awareness of Hawai'i's unique energy conditions;
- Helping teachers craft lessons that will fit most appropriately with particular classes, subjects, and grade levels; and
- Collaborating with teachers to assist with specific needs and help produce meaningful and high-quality work from the students through mentorship and expert consultations.

Hawai'i Energy recognizes there are many entities providing energy educator training, and is always looking to convene relevant stakeholders in order to design a cohesive roadmap of efforts that are underway. A series of facilitated events will be proposed to identify effective areas of teacher professional development, to avoid duplicating efforts already underway by other entities, and to enhance connections among related parties in the energy education space that will spur collaboration and maximize efforts to reach students.

### *Energy Industry Workforce Development*

Hawai'i Energy will continue to work with Kupu Hawai'i's Rewarding Internships for Sustainable Employment (RISE) program to draw high-caliber students and recent graduates into the energy industry, while providing cost-effective support to the Program. Fellows will work on Hawai'i Energy programs as needed, including direct-install programs for the hard-to-reach sector and the Clean Energy Ally Program. These Hawai'i Energy fellows will be given assignments that will benefit the program coupled with professional mentorship and applicable training opportunities to grow their capacity, enhance their quality of work and groom them to enter the energy field with skills and first-hand experience. The Hawai'i Energy Fellows will be a part of the broader Kupu Hawai'i internship cohort designed to develop community-based energy vocational training and young professional development programs, with the intent to broaden the reach and impact of Hawai'i Energy in the community. In addition, Leidos will launch its own internship program to provide island students similar opportunities as the Kupu RISE program at a reduced cost to the program.

### *Energy in Decision-Making*

While the use of incentives plays a significant role in influencing energy-saving projects, the Program recognizes there are other barriers to participation and has been working to address them through specialized initiatives.

These offerings employ comprehensive services and engagement tools to assist end-use customers in making the best, fact-based decisions concerning their energy consumption over the immediate and long term.

The initiatives to influence and change energy decision-making focus on providing services, information and tools to change organizational and business practices. The efforts are targeted to specific and significant market sectors or consumer types. They also enhance customer engagement through building energy opportunity analysis, driving increased adoption of energy efficiency projects and practices.

#### Strategic Energy Management (SEM)

Hawai'i Energy formally initiated its SEM program in PY16. SEM efforts provide continual guidance to larger organizations to affect ongoing improvements in their energy management practices so that more energy efficiency measures can be implemented. This makes it both a resource acquisition and market transformation effort

In the last year, the Program has introduced the processes of SEM and began developing a set of tools and resources to assist large institutions to comprehensively plan for effective energy management as a critical part of their business decision making. Future plans include building upon ongoing SEM efforts with the University of Hawai'i and Kamehameha Schools to include staff training, executive buy-in, energy studies, joint marketing promotions and integrating incentive payments with the customers' financial tracking systems. Initiatives will continue to be closely coordinated with business program strategies, and incorporate strategies and input received from our work with Vermont Energy Investment Corporation (VEIC) to ensure we are aligned nationally recognized best practices.

Additionally, with the creation of the Office of Sustainability within the City and County of Honolulu, the Hawai'i Energy program is working closely with the sustainability director to develop energy efficiency initiatives. SEM work will continue with the Hawai'i Department of Education, both on any GEMS financed projects or CIP funds focusing on energy efficiency.

#### Commercial Engagement through Data Analytics and Benchmarking

In PY16, Hawai'i Energy coupled our internal benchmarking and data analytics capabilities with First Fuel's First Advisor customer engagement platform in an effort to accelerate and reinforce customer participation. In PY17, we will continue to increase our use of these types of screening analytics to improve targeting and engagement. These efforts deliver actionable customer intelligence allowing the Hawai'i Energy staff to build more relationships with commercial customers and further enhance cost-effectiveness and customer equity.

#### Codes and Standards

Hawai'i Energy contributes significantly to the advancement of energy codes and standards in Hawai'i. In the past year alone, Hawai'i Energy provided written and oral testimony in support of passing the 2015 International Energy Conservation Code (IECC) and also supported legislation to maximize energy efficiency in new homes.

In PY17, Hawai'i Energy will continue with its holistic approach to codes & standards, in order to ensure these efforts remain in lockstep with the evolving energy landscape. As the authors of a California energy code resource guide explain:

*Updating the energy code every few years ensures that beneficial strategies can be implemented as soon as they are proven to be cost-effective and reliable. Incentive programs further increase building energy efficiency by enabling customers to install high-efficiency equipment, and regulators to evaluate emerging technologies and strategies. These emerging technologies and*

*strategies are usually adopted as requirements in subsequent codes, in an iterative cycle that drives a process of continual improvement.*<sup>6</sup>

In one sense, Hawai'i Energy's offers explore market reaction to new technologies and can inform advancing energy codes. As we strive for 100% clean energy, this relationship will be of key importance.

Building on past work, the proposed programs are designed with the following goals in mind. These three are connected in continual advancement of energy efficiency, as illustrated in the diagram.

- Support adoption of IECC 2015, with Hawai'i amendments, in all counties
- Increase energy code compliance
- Investigate leading-edge technologies & strategies for integration with building code



#### Adoption of IECC 2015 in Honolulu, Maui and Hawai'i Counties

Governor Ige signed IECC 2015 into law on March 20, 2017, nearly two years after the State Building Code Council (SBCC) successfully approved the IECC 2015 for adoption on July 15, 2015.

#### Increase Energy Code Compliance

Hawai'i Energy's code compliance studies and new construction work over the last few years reveal that there is still a great deal of uncertainty surrounding the level of energy code compliance throughout the state. Additionally, the 2015 IECC was designed with controls, commissioning, flexibility, and performance based alternatives in mind. While this enhances the code, it also adds complexity. This can lead to misunderstanding or misapplication of code requirements, potentially resulting in an overall increase in non-compliance and an increase in energy consumption.

To date, Hawai'i Energy has already developed informational resources and checklists to assist building designers, architects, plan reviewers and code officials in evaluating design characteristics against IECC 2015 requirements. The Program proposes to approach compliance in innovative ways that better relate to the industry and to measure the impact of Program efforts towards improving compliance. We will continually assess barriers to compliance and develop user-centered solutions and quantify energy impact from improved compliance and work with evaluators to apply these savings toward Program goals. These efforts for increasing compliance may include: marketing for IECC 2015, outreach with technology-specific trainings and information guides, innovative training approaches (videos, social media, etc.) and the exploration of incentives for compliance.

We will also look for ways to improve the Program's training session on codes. The workshop will be facilitated by national experts on building code adoption, certification, and benchmarking to create an interactive session to help roadmap roles and responsibilities for the numerous areas of focus to ensure code adoption, education, and compliance, as well as the availability of materials and equipment that meet or beat code requirements.

---

<sup>6</sup> Benningfield Group, Inc. "BayREN Codes & Standards, PROP Final Report and Energy Code Resource Guide." Association of Bay Area Governments, 2015. Retrieved 5/17/17 from: [https://bayrencodes.org/wp-content/uploads/2017/03/BayREN\\_CS\\_PROP\\_Final\\_Report\\_2015\\_0401\\_0.pdf](https://bayrencodes.org/wp-content/uploads/2017/03/BayREN_CS_PROP_Final_Report_2015_0401_0.pdf)

## Investigate Leading-Edge Technologies & Strategies

Hawai'i's commitment to 100% clean energy by 2045 requires that we continue to explore the latest technologies and practices to advance energy code policy and market adoption.

After three years of working with the State Building Code Council's (SBCC) and proposing a committee regarding energy efficiency measures, Hawai'i Energy will lead the **SBCC Investigative Committee on Energy Efficiency Code Coordination**. This committee will address leading-edge energy concepts, providing insight and support to the SBCC regarding the latest energy practices as technology advances and further integrates with our habitable spaces.

Examples of energy efficiency code coordination outside the IECC include:

- Residential & Commercial Building Energy Use Disclosure
- Energy and energy cost impact of non-compliance
- Maximizing new construction energy efficiency
- Building energy labeling
- Demand Response
- Hawai'i-specific energy code amendment compliance issues
- Support for permitting departments

The aim of facilitating these stakeholder meetings is to provide a venue to discuss integrating energy efficiency with future policy goals around the design of built environments, end-use interaction with the grid, energy consumption data, and advancing electric grid design (i.e. smart grid).

## Clean Energy Collaboration

### Integrated Demand-Side Management

We will continue the significant strides made within the formalized collaboration framework with the Hawaiian Electric Companies to work towards integrated demand-side management (IDSM) goals. The objective of this framework is to help increase the effectiveness of both parties' Demand Side Management (DSM) efforts, resulting in the most efficient use of customer dollars through shared learnings and alignment on common endeavors and identification of new partnership opportunities.

The Collaboration parties are committed to coordinate our incentives, education, Clean Energy Ally Network and planning efforts to assist the utilities towards the State's 100% renewable energy goal.

Focus areas include:

- *Planning* – outlines data sharing between parties to develop forecasts for various end uses such as program design and system planning.
- *Outreach* – coordinated efforts to engage and educate the public including education programs and workshops.
- *Programs* – joint development of DSM programs, ranging from technology identification to Use Case development, administering of pilots and ultimately the establishment of cost effective programs.

### Innovation and Emerging Technologies

Emerging technologies are new, energy-efficient technologies, systems, or practices with significant energy savings potential that have not yet, for a variety of reasons, achieved sufficient market share to be considered self-sustaining or commercially viable. Emerging technologies may include prototypes, pre-commercial or recently commercialized equipment, as well as software, design tools, or energy services. In our efforts to build a pipeline of innovative projects incorporating emerging technologies, the Program will continue our ongoing work with the Elemental Excelsior (EEx) and VEIC. This includes companies targeting hard-to-reach sectors, smart grid technology, energy efficiency, demand response and water efficiency with energy savings.

Hawai'i has the most ambitious clean energy goals in the nation and to transform the way residents think about the state's energy future, Hawai'i Energy will explore collaborations with public and private entities to provide an energy exhibit or display that will be accessible to all demographics. Whether in a stationary museum-type venue or in a traveling pop-up setting, the use of digital technologies through interactive smart displays and exhibits provide an immersive user experience while creating dialogue and motivating change. Bringing together an array of individuals with different expertise and perspectives will form the interdisciplinary process of crafting an entertaining and educational experience.

# APPENDIX E Summary of Programs by Measure

Incentives		PY17	44.4%	Resource Acquisition										Customer Savings		
Residential Resource Acquisition Programs		\$8,465,057.12		kw	kWh	TRB	Avg \$/kWh	Avg. Life	kWh - Life	\$/kWh - Life	Residential Program	1st Year C.L. kWh	Lifetime C.L. kWh			
Business Resource Acquisition Programs		\$10,609,810.70	55.6%	11,814	57,788,595	\$129,404,804	\$0.1435	11.0	641,671,938	\$0.0132	82,177,553	726,850,094				
<b>Sub-Total: Resource Acquisition Programs</b>		<b>\$19,074,868</b>		<b>21,629</b>	<b>130,144,871</b>	<b>\$327,453,747</b>	<b>\$0.1466</b>	<b>12.8</b>	<b>1,661,026,977</b>	<b>\$0.0115</b>	<b>146,026,210</b>	<b>1,912,827,989</b>				

Incentives		PY17	Demand Savings										Customer Savings		
Residential Transformational Programs		\$ 851,373	Demand Savings per Unit (kW)	Energy Savings per Unit (kWh)	Program-Level 1st Year Demand Savings (kW)	Program-Level 1st Year Energy Savings (kWh)	Utility Avoided Cost Total Resource Benefit (TRB)	Program-Level 1st Year \$/kWh	Measure Life	Program-Level Lifetime Energy Savings (kWh)	Program-Level Lifetime \$/kWh	Customer-Level 1st Year Demand Savings (kW)	Customer-Level 1st Year Energy Savings (kWh)	Customer-Level Lifetime Energy Savings (kWh)	
Business Transformational Programs		\$ 898,627													
<b>Sub-Total: Transformational Programs</b>		<b>\$ 1,750,000</b>													

Program	Quantity	Unit	Average Incentive per Unit	Incentive Budget per Measure	% of Budget	Demand Savings per Unit (kW)	Energy Savings per Unit (kWh)	Program-Level 1st Year Demand Savings (kW)	Program-Level 1st Year Energy Savings (kWh)	Utility Avoided Cost Total Resource Benefit (TRB)	Program-Level 1st Year \$/kWh	Measure Life	Program-Level Lifetime Energy Savings (kWh)	Program-Level Lifetime \$/kWh	Customer-Level 1st Year Demand Savings (kW)	Customer-Level 1st Year Energy Savings (kWh)	Customer-Level Lifetime Energy Savings (kWh)
<b>REEM</b>				<b>\$6,934,747</b>	<b>36.4%</b>			<b>11,236</b>	<b>55,586,280</b>	<b>\$125,040,267</b>			<b>620,757,847</b>		<b>59,999,121</b>	<b>706,256,616</b>	
Program Communication																	
Behavioral Energy Awareness / Responsibility	227,000	each	\$5	\$1,192,323	6.3%	0.0197	59.0	4,942	14,834,519	2,533,809	\$0.0804	1	14,834,519	\$0.0804	4,464	13,400,650	13,400,650
Peer Group Comparison - Quarterly Paper Report	227,000	each	\$5	\$1,192,323	6.3%	0.0197	59.0	4,942	14,834,519	2,533,809	\$0.0804	1	14,834,519	\$0.0804	4,464	13,400,650	13,400,650
<b>Upstream</b>																	
High Efficiency Lighting: LED	1,550,000	each	\$2.30	\$3,565,000	18.7%	0.0032	22.5	4,338	30,499,234	\$90,442,882	\$0.1169	15	457,488,506	\$0.0078	4,960	34,875,000	523,125,000
LED (upstream)	1,550,000	each	\$2.30	\$3,565,000	18.7%	0.0032	22.5	4,338	30,499,234	\$90,442,882	\$0.1169	15	457,488,506	\$0.0078	4,960	34,875,000	523,125,000
Scheduling & Control Systems: Occupancy Controls, Sensors & Timers	1,000	each	\$7.00	\$7,000	0.0%	0.0046	20.8	5	36,380	\$44,400	\$0.2087	14	209,188	\$0.0149	6	41,600	239,200
Room Occupancy Sensors & Timers (upstream)	500	each	\$6	\$3,000	0.0%	0.0046	20.8	5	36,380	\$44,400	\$0.2087	14	209,188	\$0.0149	6	41,600	239,200
Advanced Power Strip - Tier I (upstream)	500	each	\$8	\$4,000	0.0%	0.0071	62.4	3.1	27,285.3	\$26,801.27	\$0.1466	5	136,426.7	\$0.0293	2.3	31,200.0	156,000.0
High Efficiency Electronics: Televisions	17,000	each	\$120.00	\$2,040,000	1.0%	0.0100	82.7	135	1,162,338	\$1,416,572	\$0.1659	6	7,051,510	\$0.0277	154	1,329,100	8,063,200
Electronics - TVs	15,000	each	\$12	\$180,000	0.9%	0.0100	82.7	131.2	1,084,854.5	\$1,321,960.92	\$0.1659	6	6,509,126.8	\$0.0277	150.0	1,240,500.0	7,443,000.0
Electronics - Soundbars	2,000	each	\$10	\$20,000	0.1%	0.0020	44.3	3.5	77,483.4	\$94,610.94	\$0.2581	7	542,383.5	\$0.0369	4.0	88,600.0	620,200.0
<b>Traditional Retail</b>																	
High Efficiency Appliances	7,750	each	\$86.58	\$670,815	3.0%	0.0340	859.0	196	2,859,878	\$6,811,606	\$0.0666	14	40,038,297.4	\$0.0048	224	3,270,189	45,782,646
Garage Refrigerator / Freezer Bounty (Customer Incentive)	500	each	\$50	\$25,000	0.1%	0.0340	859.0	14.9	375,610.6	\$833,762.99	\$0.0666	14	5,258,548.9	\$0.0048	17.0	429,500.0	6,013,000.0
Garage Refrigerator / Freezer Bounty (Recycler Incentive)	500	each	\$25	\$12,500	0.1%	0.0000	0.0	0.0	0.0	\$0.00	\$0.0000	0	0.0	\$0.0000	0.0	0.0	0.0
Refrigerator (with Recycling of Old)	2,750	each	\$150	\$412,500	2.2%	0.0340	822.0	81.8	1,976,875.1	\$4,407,952.04	\$0.2087	14	27,676,250.9	\$0.0149	93.5	2,260,500.0	31,647,000.0
Clothes Washers - Tier I	1,500	each	\$20	\$30,000	0.2%	0.0220	114.1	28.9	149,636.5	\$460,949.58	\$0.2005	14	2,094,910.4	\$0.0149	33.0	171,105.0	2,395,470.0
Clothes Washers - Tier II	800	each	\$30	\$24,000	0.1%	0.0300	156.8	21.0	109,701.0	\$336,982.93	\$0.2188	14	1,535,814.6	\$0.0156	24.0	125,440.0	1,756,160.0
Clothes Washers - Tier III	200	each	\$40	\$8,000	0.0%	0.0340	176.4	5.9	30,848.2	\$95,011.50	\$0.2593	14	431,874.4	\$0.0185	6.8	35,274.0	493,836.0
Clothes Dryers	1,500	each	\$35	\$52,500	0.3%	0.0330	165.6	43.3	217,207.0	\$676,947.16	\$0.2417	14	3,040,898.2	\$0.0173	49.5	248,370.0	3,477,180.0
High Efficiency HVAC	1,110	each	\$467.50	\$518,825	0.4%	0.0000	0.0	\$229	\$254,491	\$2,038,524	\$0.2417	14	4,322,686.8	\$0.0173	262	290,660	4,942,880
Solar Attic Fans	230	each	\$50	\$11,500	0.1%	0.0000	158.0	0.0	31,780.4	\$83,786.28	\$0.3619	20	635,608.4	\$0.0181	0.0	36,340.0	726,800.0
Whole House Fans	480	each	\$75	\$36,000	0.2%	0.5000	365.0	209.9	153,217.7	\$1,793,167.63	\$0.2350	20	3,064,353.1	\$0.0117	240.0	175,200.0	3,504,000.0
Window AC with Recycling	400	each	\$50	\$20,000	0.1%	0.0540	197.8	18.9	69,192.8	\$161,569.97	\$0.2890	9	622,735.3	\$0.0321	21.6	79,120.0	712,080.0
High Efficiency Water Pumping	300	each	\$125	\$37,500	0.2%	0.0060	597.0	2	156,628	\$241,936	\$0.2394	10	1,566,283	\$0.0239	2	179,100	1,791,000
Pool VFD Controller Pumps	300	each	\$125	\$37,500	0.2%	0.0060	597.0	1.6	156,628.3	\$241,936.38	\$0.2394	10	1,566,283.2	\$0.0239	1.8	179,100.0	1,791,000.0
<b>On-Line Retail</b>																	
Energy Savings Kits	21,600	each	\$51.12	\$1,104,192	0.6%	0.0048	22.5	114	494,059	\$1,462,846	\$0.2541	15	6,405,679	\$0.0169	131	564,942	7,324,710
LED (online)	20,000	each	\$5.00	\$100,000	0.5%	0.0048	22.5	84.0	393,538.5	\$1,334,975.58	\$0.2541	15	5,903,077.5	\$0.0169	96.0	450,000.0	6,750,000.0
Advanced Power Strip - Tier I (online)	500	each	\$10.00	\$5,000	0.0%	0.0071	62.4	3.1	27,285.3	\$26,801.27	\$0.1832	5	136,426.7	\$0.0366	3.6	31,200.0	156,000.0
Aerator Bathroom (online)	300	each	\$0.58	\$174	0.0%	0.0224	29.9	5.9	7,849.8	\$15,385.48	\$0.0222	5	39,248.9	\$0.0044	6.7	8,976.0	44,880.0
Aerator Kitchen (online)	100	each	\$1.50	\$1,500	0.0%	0.0224	29.9	2.0	2,616.6	\$5,128.49	\$0.0573	5	13,083.0	\$0.0115	2.2	2,992.0	14,960.0
Showerhead (online)	200	each	\$3.00	\$600	0.0%	0.0785	73.9	13.7	12,920.3	\$31,571.77	\$0.0464	5	64,601.5	\$0.0093	15.7	14,774.0	73,870.0
Advanced Power Strips - Tier II (online)	500	each	\$15.00	\$7,500	0.0%	0.0130	114.0	5.7	49,848.2	\$48,983.28	\$0.1505	5	249,241.1	\$0.0301	6.5	57,000.0	285,000.0
<b>Trade Ally Provided</b>																	
High Efficiency HVAC	3,020	each	\$150.69	\$454,884	2.4%	0.0340	859.0	715.9	2,558,699.9	\$9,700,080.35	\$0.1745	15	38,380,498	\$0.0116	819	2,925,800	43,887,000
VRF Split System AC <2 tons	2,500	each	\$125	\$312,500	1.6%	0.2300	819.0	502.9	1,790,600.2	\$6,799,562.19	\$0.1745	15	26,859,002.6	\$0.0116	575.0	2,047,500.0	30,712,500.0
VRF Split System AC 2-3 tons	500	each	\$250	\$125,000	0.7%	0.4600	1,651.0	201.1	721,924.5	\$2,731,829.13	\$0.1731	15	10,828,867.7	\$0.0115	230.0	825,500.0	12,382,500.0
Central AC Retrofit	20	each	\$1,000	\$20,000	0.1%	0.6780	2,640.0	11.9	46,175.2	\$168,689.03	\$0.4331	15	692,627.8	\$0.0289	13.6	52,800.0	792,000.0
Scheduling & Control Systems	1,000	each	\$30.00	\$30,000	0.2%	0.0000	138.0	0	120,711	\$197,282	\$0.2485	11	1,327,825.1	\$0.0226	0	138,030	1,518,330
Smart Thermostats	1,000	each	\$30	\$30,000	0.2%	0.0000	138.0	0	120,711.4	\$197,281.51	\$0.2485	11	1,327,825.1	\$0.0226	0	138,030.0	1,518,330.0
High Efficiency Water Heating	1,475	each	\$474.58	\$697,884	3.7%	0.2100	1,644.0	560.6	2,609,641.2	\$10,150,330.67	\$0.1739	10	49,132,844	\$0.0174	641	2,984,050	56,182,000
Heat Pumps	150	each	\$250	\$37,500	0.2%	0.4600	2,066.0	27.5	215,659.1	\$430,361.16	\$0.2767	15	2,156,591.0	\$0.0174	31.5	246,600.0	2,466,000.0
PV Water Heating	100	each	\$500	\$50,000	0.3%	0.4600	2,066.0	40.2	180,677.9	\$623,008.36	\$0.2767	15	2,710,168.5	\$0.0184	46.0	206,600.0	3,099,000.0
Solar Water Heater (SWH) Incentive	1,200	each	\$500	\$600,000	3.1%	0.4600	2,066.0	482.7	2,168,134.8	\$8,911,308.89	\$0.2767	20	43,362,695.5	\$0.0138	552.0	2,479,200.0	49,584,000.0
Solar Water Heater Interest Buy down	25	each	\$500	\$12,500	0.1%	0.4600	2,066.0	10.1	45,169.5	\$185,652.27	\$0.2767	20	903,389.5	\$0.0138	11.5	51,650.0	1,033,000.0
<b>CREEM</b>				<b>\$408,000</b>	<b>2.1%</b>			<b>0</b>	<b>787,028</b>	<b>\$1,081,561</b>			<b>7,083,250</b>		<b>899,944</b>	<b>8,099,494</b>	
Trade Ally Provided																	
TBD	1,299,944	kWh	\$0.12	\$408,000	2.1%	0.0000	1.0	\$0	\$787,028	\$1,081,561	\$0.1372	9	7,083,250	\$0.0152	0	899,944	8,099,494
New Construction	899,944	kWh	\$0.12	\$108,000	0.6%	0.0000	1.0	0.0	787,028	\$1,081,560.78	\$0.1372	9	7,083,250.3	\$0.0152	0.0	899,943.8	8,099,493.8
Emerging Tech. & Innovation	400,000	kWh	\$0.75	\$300,000	1.6%	0.0000	1.0	0.0	349,812.0	\$480,723.73	\$0.8576	9	3,148,308.0	\$0.0953	0.0	400,000.0	3,600,000.0
<b>RESM</b>				<b>\$275,000</b>	<b>1.4%</b>			<b>97</b>	<b>423,710</b>	<b>\$72,372</b>			<b>423,710</b>				



	Quantity	Unit	Average Incentive per Unit	Incentive Budget per Measure	% of Budget	Demand Savings per Unit (kW)	Energy Savings per Unit (kWh)	Program-Level 1st Year Demand Savings (kW)	Program-Level 1st Year Energy Savings (kWh)	Utility Avoided Cost Total Resource Benefit (TRB)	Program-Level 1st Year \$/kWh	Measure Life	Program-Level Lifetime Energy Savings (kWh)	Program-Level Lifetime \$/kWh	Customer-Level 1st Year Demand Savings (kW)	Customer-Level 1st Year Energy Savings (kWh)	Customer-Level Lifetime Energy Savings (kWh)
<b>Direct Incentives</b>																	
<b>COMMERCIAL RESOURCE ACQUISITION</b>																	
<b>BCEM</b>				<b>\$4,786,212</b>	<b>25.1%</b>			<b>5,482</b>	<b>41,249,316</b>	<b>\$117,405,862</b>			<b>609,217,688</b>			<b>49,683,006</b>	<b>733,776,197</b>
<b>Midstream</b>																	
<b>High Efficiency Lighting</b>	<b>120,895</b>			<b>\$632,401</b>	<b>3.3%</b>			<b>825</b>	<b>10,264,314</b>	<b>\$26,396,126</b>			<b>152,759,934</b>			<b>12,362,920</b>	<b>183,992,684</b>
Occupancy Controls, Sensors & Timers: Controls: Occupancy Sensor	400	Sensors	\$20	\$8,000	0.0%	0.0070	67.8	2.3	22,529.7	\$35,223.80	\$0.3551	8	\$180,237.31	\$0.0444	2.8	27,136.0	217,088.0
Fluorescent: Delamping with Reflectors [ 2 ft. Lamp ]	8	lamps removed	\$5	\$40	0.0%	0.0060	71.4	0.0	474.2	\$1,171.07	\$0.0843	14	\$6,639.34	\$0.0060	0.0	571.2	7,996.8
Fluorescent: Delamping with Reflectors [ 3 ft. Lamp ]	8	lamps removed	\$8	\$60	0.0%	0.0090	102.3	0.1	679.3	\$1,692.52	\$0.0883	14	\$9,509.88	\$0.0063	0.1	818.2	11,454.2
Fluorescent: Delamping with Reflectors [ 4 ft. Lamp ]	20	lamps removed	\$10	\$200	0.0%	0.0110	133.2	0.2	2,211.0	\$5,442.02	\$0.0905	14	\$30,953.38	\$0.0065	0.2	2,663.0	37,282.0
Fluorescent: Delamping with Reflectors [ 8 ft. Lamp ]	8	lamps removed	\$15	\$120	0.0%	0.0250	297.2	0.2	1,973.9	\$4,875.20	\$0.0608	14	\$27,634.17	\$0.0043	0.2	2,377.4	33,284.2
Fluorescent: T12 to Standard T8 with electronic ballast [ 2 ft. Lamp ]	20	lamps	\$3	\$60	0.0%	0.0060	71.8	0.1	1,192.1	\$2,940.60	\$0.0503	14	\$16,689.02	\$0.0036	0.1	1,435.8	20,101.2
Fluorescent: T12 to Standard T8 with electronic ballast [ 3 ft. Lamp ]	20	lamps	\$4	\$80	0.0%	0.0060	71.8	0.1	1,192.1	\$2,940.60	\$0.0671	14	\$16,689.02	\$0.0048	0.1	1,435.8	20,101.2
Fluorescent: Blended T12/T8 to LW18 [ 4 ft. Lamp ]	20	lamps	\$2	\$40	0.0%	0.0010	11.6	0.0	192.3	\$477.33	\$0.2080	14	\$2,692.00	\$0.0149	0.0	231.6	3,242.4
LED: Corn Cob [ <29W ]	160	lamps	\$20	\$3,200	0.0%	0.0240	281.7	3.2	37,426.3	\$98,171.80	\$0.0855	15	\$561,395.12	\$0.0057	3.8	45,078.4	676,176.0
LED: Corn Cob [ 30-49W ]	167	lamps	\$25	\$4,175	0.0%	0.0440	528.7	6.1	73,310.7	\$191,432.88	\$0.0569	15	\$1,099,660.89	\$0.0038	7.3	88,299.6	1,324,493.7
LED: Corn Cob [ 50-79W ]	175	lamps	\$35	\$6,125	0.0%	0.0780	930.1	11.3	135,140.6	\$353,408.33	\$0.0453	15	\$2,027,109.34	\$0.0030	13.7	162,771.0	2,441,565.0
LED: Corn Cob [ 80-125W ]	180	lamps	\$45	\$8,100	0.0%	0.1130	1,350.8	16.9	201,870.3	\$527,664.53	\$0.0401	15	\$3,028,054.59	\$0.0027	20.3	243,144.0	3,647,160.0
LED: Corn Cob (Exterior) [ <29W ]	160	lamps	\$20	\$3,200	0.0%	0.0550	319.7	7.3	42,474.3	\$133,549.06	\$0.0753	15	\$637,113.92	\$0.0050	8.8	51,158.4	767,376.0
LED: Corn Cob (Exterior) [ 30-49W ]	167	lamps	\$25	\$4,175	0.0%	0.1030	600.1	14.3	83,199.4	\$261,415.96	\$0.0502	15	\$1,247,990.54	\$0.0033	17.2	100,210.0	1,503,150.3
LED: Corn Cob (Exterior) [ 50-79W ]	175	lamps	\$35	\$6,125	0.0%	0.1810	1,055.6	26.3	153,369.2	\$481,726.98	\$0.0399	15	\$2,300,537.65	\$0.0027	31.7	184,726.5	2,770,897.5
LED: Corn Cob (Exterior) [ 80-125W ]	180	lamps	\$45	\$8,100	0.0%	0.2630	1,533.0	39.3	229,099.2	\$719,715.00	\$0.0354	15	\$3,436,487.78	\$0.0024	47.3	275,940.0	4,139,100.0
LED: Exit Sign [ New LED Fixture ]	300	lamps	\$15	\$4,500	0.0%	0.0350	306.6	8.7	76,366.4	\$213,593.14	\$0.0589	15	\$1,145,495.93	\$0.0039	10.5	91,980.0	1,379,700.0
LED: Linear Type A [ 2 ft. Lamp ]	1,800	lamps	\$3	\$5,400	0.0%	0.0030	36.7	4.5	54,786.5	\$142,606.53	\$0.0986	15	\$821,798.06	\$0.0066	5.4	65,988.0	989,820.0
LED: Linear Type A [ 4 ft. Lamp ]	64,000	lamps	\$4	\$256,000	1.3%	0.0040	52.1	212.5	2,768,385.6	\$7,121,925.87	\$0.0925	15	\$41,525,784.00	\$0.0062	256.0	3,334,400.0	50,016,000.0
LED: Linear Type B [ 2 ft. Lamp ]	301	lamps	\$3	\$903	0.0%	0.0040	44.4	1.0	11,090.8	\$29,421.13	\$0.0814	15	\$166,361.92	\$0.0054	1.2	13,358.4	200,375.7
LED: Linear Type B [ 4 ft. Lamp ]	10,667	lamps	\$4	\$42,668	0.2%	0.0050	61.8	44.3	546,875.1	\$1,420,660.20	\$0.0780	15	\$8,203,126.34	\$0.0052	53.3	658,687.3	9,880,308.8
LED: Linear Type C [ 2 ft. Lamp ]	69	lamps	\$5	\$345	0.0%	0.0040	44.4	0.2	2,542.4	\$6,744.38	\$0.1357	15	\$38,136.12	\$0.0090	0.3	3,062.2	45,933.3
LED: Linear Type C [ 4 ft. Lamp ]	2,134	lamps	\$8	\$17,072	0.1%	0.0050	61.8	8.9	109,405.8	\$284,211.95	\$0.1560	15	\$1,641,086.68	\$0.0104	10.7	131,774.5	1,976,617.5
LED: Omni-Directional [ Pin Base ]	5,000	lamps	\$5	\$25,000	0.1%	0.0050	75.5	20.8	313,585.4	\$786,803.61	\$0.0797	15	\$4,703,781.38	\$0.0053	25.0	377,700.0	5,665,500.0
LED: Omni-Directional [ Screw Base ]	6,667	lamps	\$2	\$13,334	0.1%	0.0050	75.5	27.7	418,134.8	\$1,049,123.93	\$0.0319	15	\$6,272,022.09	\$0.0021	33.3	503,625.2	7,554,377.7
LED: MR16	6,858	lamps	\$6	\$41,148	0.2%	0.0150	205.7	85.4	1,171,282.8	\$2,986,115.07	\$0.0351	15	\$17,569,242.14	\$0.0023	102.9	1,410,759.2	21,617,387.7
LED: PAR20	8,572	lamps	\$6	\$51,432	0.3%	0.0140	193.0	99.6	1,373,633.4	\$3,498,837.40	\$0.0374	15	\$20,604,501.72	\$0.0025	120.0	1,654,481.7	24,817,225.8
LED: PAR30	8,572	lamps	\$6	\$51,432	0.3%	0.0190	265.9	135.2	1,892,384.5	\$4,807,905.92	\$0.0272	15	\$28,385,767.62	\$0.0018	162.9	2,279,294.8	34,189,422.0
LED: PAR38	1,372	lamps	\$6	\$8,232	0.0%	0.0150	212.6	17.1	242,173.3	\$613,971.26	\$0.0340	15	\$3,632,599.47	\$0.0023	20.6	291,687.2	4,375,308.0
LED: Refrigerated Case Lighting [ 4 ft. retrofit kit ]	167	lamps	\$25	\$4,175	0.0%	0.0340	233.7	4.7	32,407.1	\$33,413.46	\$0.1288	5	\$162,035.37	\$0.0258	5.7	39,032.9	195,164.6
LED: Refrigerated Case Lighting [ 5 ft. retrofit kit ]	134	lamps	\$50	\$6,700	0.0%	0.0430	292.2	4.8	32,503.8	\$33,598.94	\$0.2061	5	\$162,519.11	\$0.0412	5.8	39,149.4	195,747.2
LED: Refrigerated Case Lighting [ 6 ft. retrofit kit ]	134	lamps	\$50	\$6,700	0.0%	0.0510	350.6	5.7	39,004.4	\$40,215.75	\$0.1718	5	\$195,021.82	\$0.0344	6.8	46,979.1	234,895.3
LED: Troffer [ 1 ft. x 4 ft. ]	400	lamps	\$20	\$8,000	0.0%	0.0090	102.7	3.0	34,093.4	\$89,937.36	\$0.2346	15	\$511,400.79	\$0.0156	3.6	41,064.0	615,960.0
LED: Troffer [ 2 ft. x 2 ft. ]	400	lamps	\$20	\$8,000	0.0%	0.0010	9.3	0.3	3,075.2	\$8,487.54	\$2.6014	15	\$46,128.69	\$0.1734	0.4	3,704.0	55,560.0
LED: Troffer [ 2 ft. x 4 ft. ]	400	lamps	\$50	\$20,000	0.1%	0.0220	267.1	7.3	88,693.9	\$231,154.50	\$0.2255	15	\$1,330,409.21	\$0.0150	8.8	106,828.0	1,602,420.0
LED: U-bend Type A [ 2 ft. x 2 ft. Conversion Kit ]	200	lamps	\$10	\$2,000	0.0%	0.0070	81.6	1.2	13,554.7	\$35,600.98	\$0.1476	15	\$203,319.92	\$0.0098	1.4	16,326.0	244,890.0
LED: U-bend Type A [ 4 ft. Lamp Equivalent ]	160	lamps	\$4	\$640	0.0%	0.0050	54.6	0.7	7,254.4	\$19,306.27	\$0.0882	15	\$108,815.89	\$0.0059	0.8	8,737.6	131,064.0
LED: U-bend Type B [ 2 ft. x 2 ft. Conversion Kit ]	200	lamps	\$10	\$2,000	0.0%	0.0070	89.4	1.2	14,836.6	\$38,308.88	\$0.1348	15	\$222,548.51	\$0.0090	1.4	17,870.0	268,050.0
LED: U-bend Type B [ 4 ft. Lamp Equivalent ]	160	lamps	\$4	\$640	0.0%	0.0050	64.3	0.7	8,536.3	\$22,013.36	\$0.0750	15	\$128,044.48	\$0.0050	0.8	10,281.6	154,224.0
LED: U-bend Type C [ 2 ft. x 2 ft. Conversion Kit ]	200	lamps	\$15	\$3,000	0.0%	0.0070	89.4	1.2	14,836.6	\$38,308.88	\$0.2022	15	\$222,548.51	\$0.0135	1.4	17,870.0	268,050.0
LED: U-bend Type C [ 4 ft. Lamp Equivalent ]	160	lamps	\$8	\$1,280	0.0%	0.0050	64.3	0.7	8,536.3	\$22,013.36	\$0.1499	15	\$128,044.48	\$0.0100	0.8	10,281.6	154,224.0

Direct Incentives

COMMERCIAL RESOURCE ACQUISITION

BEEEM (Continued)

Trade Ally Provided

Quantity	Unit	Average Incentive per Unit	Incentive Budget per Measure	% of Budget	Demand Savings per Unit (kW)	Energy Savings per Unit (kWh)	Program-Level 1st Year Demand Savings (kW)	Program-Level 1st Year Energy Savings (kWh)	Utility Avoided Cost Total Resource Benefit (TRB)	Program-Level 1st Year \$/kWh	Measure Life	Program-Level Lifetime Energy Savings (kWh)	Program-Level Lifetime \$/kWh	Customer-Level 1st Year Demand Savings (kW)	Customer-Level 1st Year Energy Savings (kWh)	Customer-Level Lifetime Energy Savings (kWh)
<b>High Efficiency Lighting</b>																
Occupancy Controls, Sensors & Timers: Controls: Occupancy Sensor	600	Sensors	\$20	\$12,000	5.0%	0.0070	6.8	1,238	15,410,864	\$39,630,788		229,347,221		18,561,715	276,238,748	
Linear Fluorescent: Fluorescent: Delamping with Reflectors [ 2 ft. Lamp ]	12	lamps removed	\$5	\$60	0.0%	0.0060	71.4	3.5	33,794.5	\$52,835.70	8	\$270,355.97	\$0.0444	4.2	40,704.0	325,632.0
Linear Fluorescent: Fluorescent: Delamping with Reflectors [ 3 ft. Lamp ]	12	lamps removed	\$8	\$90	0.0%	0.0090	102.3	0.1	711.4	\$1,756.60	14	\$9,959.01	\$0.0060	0.1	856.8	11,995.2
Fluorescent: Delamping with Reflectors [ 4 ft. Lamp ]	30	lamps removed	\$10	\$300	0.0%	0.0110	133.2	0.2	2,960.8	\$8,163.03	14	\$46,430.07	\$0.0065	0.3	3,994.5	55,923.0
Fluorescent: Delamping without Reflectors [ 2 ft. Lamp ]	12	lamps removed	\$3	\$30	0.0%	0.0030	71.4	0.1	711.4	\$1,756.60	14	\$9,959.01	\$0.0030	0.1	856.8	11,995.2
Fluorescent: Delamping without Reflectors [ 3 ft. Lamp ]	12	lamps removed	\$4	\$45	0.0%	0.0090	102.3	0.1	1,018.9	\$2,538.78	14	\$14,264.82	\$0.0063	0.1	1,227.2	17,181.4
Fluorescent: Delamping without Reflectors [ 4 ft. Lamp ]	60	lamps removed	\$5	\$300	0.0%	0.0110	133.2	0.5	6,632.9	\$16,326.07	14	\$92,860.14	\$0.0032	0.7	7,989.0	111,846.0
Fluorescent: Delamping without Reflectors [ 8 ft. Lamp ]	12	lamps removed	\$7.50	\$90	0.0%	0.0250	297.2	0.2	2,960.8	\$7,312.80	14	\$41,451.26	\$0.0022	0.3	3,566.2	49,926.2
Fluorescent: T12 to Standard T8 with electronic ballast [ 2 ft. Lamp ]	30	lamps	\$3	\$90	0.0%	0.0060	71.8	0.1	1,788.1	\$4,410.91	14	\$25,033.53	\$0.0036	0.2	2,153.7	30,151.8
Fluorescent: T12 to Standard T8 with electronic ballast [ 3 ft. Lamp ]	30	lamps	\$4	\$120	0.0%	0.0060	71.8	0.1	1,788.1	\$4,410.91	14	\$25,033.53	\$0.0048	0.2	2,153.7	30,151.8
Fluorescent: Blended T12/T8 to LW T8 [ 4 ft. Lamp ]	400	lamps	\$2	\$800	0.0%	0.0010	11.6	0.3	3,845.7	\$9,546.62	14	\$53,840.05	\$0.0149	0.4	4,632.0	64,848.0
LED: Corn Cob [ <29W ]	240	lamps	\$20	\$4,800	0.0%	0.0240	281.7	4.8	56,139.5	\$147,257.70	15	\$842,092.69	\$0.0057	5.8	67,617.6	1,014,264.0
LED: Corn Cob [ 30-49W ]	250	lamps	\$25	\$6,250	0.0%	0.0250	281.7	9.1	109,746.6	\$286,576.17	15	\$1,646,198.94	\$0.0038	11.0	132,185.0	1,982,775.0
LED: Corn Cob [ 50-79W ]	263	lamps	\$35	\$9,205	0.0%	0.0780	930.1	17.0	203,097.1	\$531,122.23	15	\$3,046,455.75	\$0.0030	20.5	244,621.6	3,669,323.4
LED: Corn Cob [ 80-125W ]	270	lamps	\$45	\$12,150	0.1%	0.1130	1,350.8	25.3	302,805.5	\$791,496.79	15	\$4,542,081.89	\$0.0027	30.5	364,716.0	5,470,740.0
LED: Corn Cob [ Exterior ] [ <29W ]	240	lamps	\$20	\$4,800	0.0%	0.0240	281.7	4.8	56,139.5	\$147,257.70	15	\$842,092.69	\$0.0050	13.2	76,737.6	1,151,064.0
LED: Corn Cob [ Exterior ] [ 30-49W ]	250	lamps	\$25	\$6,250	0.0%	0.0250	281.7	9.1	109,746.6	\$286,576.17	15	\$1,646,198.94	\$0.0033	25.8	150,015.0	2,250,225.0
LED: Corn Cob [ Exterior ] [ 50-79W ]	263	lamps	\$35	\$9,205	0.0%	0.0780	930.1	17.0	203,097.1	\$531,122.23	15	\$3,046,455.75	\$0.0027	47.6	277,617.5	4,164,263.1
LED: Corn Cob [ Exterior ] [ 80-125W ]	270	lamps	\$45	\$12,150	0.1%	0.1130	1,350.8	25.3	302,805.5	\$791,496.79	15	\$4,542,081.89	\$0.0024	71.0	413,910.0	6,208,650.0
LED: Exit Sign [ New LED Fixture ]	450	lamps	\$15	\$6,750	0.0%	0.0350	306.6	59.0	343,648.8	\$1,079,572.50	15	\$5,154,731.66	\$0.0024	15.8	137,970.0	2,069,550.0
LED: Linear Type A [ 2 ft. Lamp ]	2,700	lamps	\$3	\$8,100	0.0%	0.0030	36.7	6.7	82,179.8	\$213,909.80	15	\$1,232,697.08	\$0.0066	8.1	98,982.0	1,484,730.0
LED: Linear Type A [ 4 ft. Lamp ]	96,000	lamps	\$4	\$384,000	2.0%	0.0040	52.1	318.8	4,152,578.4	\$10,682,888.81	15	\$62,288,676.00	\$0.0062	384.0	5,001,600.0	75,024,000.0
LED: Linear Type B [ 2 ft. Lamp ]	451	lamps	\$3	\$1,353	0.0%	0.0040	44.4	1.5	16,617.8	\$44,082.83	15	\$249,266.54	\$0.0054	1.8	20,015.4	300,230.7
LED: Linear Type B [ 4 ft. Lamp ]	16,001	lamps	\$4	\$64,004	0.3%	0.0050	61.8	66.4	820,338.3	\$2,131,056.89	15	\$12,305,074.02	\$0.0052	80.0	988,061.8	14,820,926.8
LED: Linear Type C [ 2 ft. Lamp ]	103	lamps	\$5	\$515	0.0%	0.0040	44.4	0.3	3,795.2	\$10,067.70	15	\$56,927.83	\$0.0090	0.4	4,571.1	68,567.1
LED: Linear Type C [ 4 ft. Lamp ]	3,201	lamps	\$8	\$25,608	0.1%	0.0050	61.8	13.3	164,108.7	\$426,317.92	15	\$2,461,630.02	\$0.0104	16.0	197,661.8	2,964,926.3
LED: Omni-Directional [ Pin Base ]	7,500	lamps	\$5	\$37,500	0.1%	0.0050	75.5	31.1	470,378.1	\$1,180,205.41	15	\$7,055,672.06	\$0.0053	37.5	566,550.0	8,498,250.0
LED: Omni-Directional [ Screw Base ]	10,000	lamps	\$2	\$20,000	0.1%	0.0050	75.5	41.5	627,170.9	\$1,573,607.21	15	\$9,407,562.75	\$0.0021	50.0	755,400.0	11,331,000.0
LED: MR16	10,286	lamps	\$6	\$61,716	0.3%	0.0150	205.7	128.1	1,756,753.4	\$4,478,737.18	15	\$26,351,301.35	\$0.0023	154.3	2,115,933.1	31,738,995.9
LED: PAR20	12,858	lamps	\$6	\$77,148	0.4%	0.0140	193.0	149.5	2,060,450.2	\$5,248,256.11	15	\$30,906,752.58	\$0.0025	180.0	2,481,722.6	37,225,838.7
LED: PAR30	12,858	lamps	\$6	\$77,148	0.4%	0.0190	265.9	202.8	2,838,576.8	\$7,211,858.88	15	\$42,578,651.42	\$0.0018	244.3	3,418,942.2	51,284,133.0
LED: PAR38	2,058	lamps	\$6	\$12,348	0.1%	0.0150	212.6	25.6	363,259.9	\$920,956.88	15	\$5,448,899.20	\$0.0023	30.9	437,530.8	6,562,962.0
LED: Refrigerated Case Lighting [ 4 ft. retrofit kit ]	250	lamps	\$25	\$6,250	0.0%	0.0340	233.7	7.1	48,513.6	\$50,020.15	5	\$242,567.92	\$0.0258	8.5	58,432.5	292,162.5
LED: Refrigerated Case Lighting [ 5 ft. retrofit kit ]	200	lamps	\$50	\$10,000	0.1%	0.0430	292.2	7.1	48,513.6	\$50,147.67	5	\$242,567.92	\$0.0412	8.6	58,432.0	292,160.0
LED: Refrigerated Case Lighting [ 6 ft. retrofit kit ]	200	lamps	\$50	\$10,000	0.1%	0.0510	350.6	8.5	58,215.5	\$60,023.51	5	\$291,077.35	\$0.0344	10.2	70,118.0	350,590.0
LED: Troffer [ 1 ft. x 4 ft. ]	600	lamps	\$20	\$12,000	0.1%	0.0090	102.7	4.5	51,140.1	\$134,906.05	15	\$767,101.19	\$0.0156	5.4	61,596.0	923,940.0
LED: Troffer [ 2 ft. x 2 ft. ]	600	lamps	\$20	\$12,000	0.1%	0.0010	9.3	0.5	4,612.9	\$12,731.31	15	\$69,193.04	\$0.1734	0.6	5,556.0	83,340.0
LED: Troffer [ 2 ft. x 4 ft. ]	600	lamps	\$50	\$30,000	0.2%	0.0220	267.1	11.0	133,040.9	\$346,731.75	15	\$1,995,613.81	\$0.0150	13.2	160,242.0	2,403,630.0
LED: U-bend Type A [ 2 ft. x 2 ft. Conversion Kit ]	300	lamps	\$10	\$3,000	0.0%	0.0070	81.6	1.7	20,332.0	\$53,401.48	15	\$304,979.88	\$0.0098	2.1	24,489.0	367,335.0
LED: U-bend Type A [ 4 ft. Lamp Equivalent ]	240	lamps	\$4	\$960	0.0%	0.0050	54.6	1.0	10,881.6	\$28,959.40	15	\$163,223.83	\$0.0059	1.2	13,106.4	196,596.0
LED: U-bend Type B [ 2 ft. x 2 ft. Conversion Kit ]	300	lamps	\$10	\$3,000	0.0%	0.0070	89.4	1.7	22,254.9	\$57,462.12	15	\$333,822.77	\$0.0090	2.1	26,805.0	402,075.0
LED: U-bend Type B [ 4 ft. Lamp Equivalent ]	240	lamps	\$4	\$960	0.0%	0.0050	64.3	1.0	12,804.4	\$33,020.04	15	\$192,066.71	\$0.0050	1.2	15,422.4	231,336.0
LED: U-bend Type C [ 2 ft. x 2 ft. Conversion Kit ]	300	lamps	\$15	\$4,500	0.0%	0.0070	89.4	1.7	22,254.9	\$57,462.12	15	\$333,822.77	\$0.0135	2.1	26,805.0	402,075.0
LED: U-bend Type C [ 4 ft. Lamp Equivalent ]	240	lamps	\$8	\$1,920	0.0%	0.0050	64.3	1.0	12,804.4	\$33,020.04	15	\$192,066.71	\$0.0100	1.2	15,422.4	231,336.0
<b>High Efficiency HVAC</b>																
Chillers: Meets 2015 Energy Code	13,100	Tons	\$45	\$589,500	3.1%	0.0550	267.8	598.2	2,912,666.4	\$11,638,383.54	20	\$58,253,328.90	\$0.0101	720.5	3,508,180.0	70,163,600.0
Package Units: Better than Current Code	4,435	Tons	\$175	\$776,125	4.1%	0.0560	552.2	206.2	2,033,288.1	\$5,531,494.97	15	\$24,499,320.93	\$0.0254	248.4	2,449,007.0	36,735,105.0
Split Units: Better than Current Code	270	Tons	\$175	\$47,250	0.2%	0.0870	725.2	19.5	162,566.3	\$460,360.78	15	\$2,438,494.07	\$0.0194	23.5	195,804.0	2,937,060.0
Packaged VRF Air Conditioners - Existing Facility	910	Tons	\$250	\$227,500	1.2%	0.0680	676.7	51.4	511,265.5	\$1,388,043.13	15	\$6,159,981.89	\$0.0259	61.9	615,797.0	9,236,955.0
Packaged VRF Air Conditioners - New Construction	120	Tons	\$250	\$30,000	0.2%	0.0680	676.7	6.8	67,419.6	\$183,038.65	15	\$1,011,294.32	\$0.0297	8.2	81,204.0	1,218,060.0
Split VRF Air Conditioners - Existing Facility	180	Tons	\$250	\$45,000	0.2%	0.0680	676.7	10.2	101,129.4	\$274,557.98	15	\$1,516,941.47	\$0.0297	12.2	121,806.0	1,827,090.0
Split VRF Air Conditioners - New Construction	25	Tons	\$250	\$6,250	0.0%	0.0680	676.7	1.4	14,045.8	\$38,133.05	15	\$210,686.32	\$0.0297	1.7	16,917.5	253,762.5
VFD - AHU	750	hp	\$50	\$37,500	0.2%	0.1900	764.7	118.3	476,169.1	\$1,715,681.88	15	\$7,142,536.97	\$0.0053	142.5	573,525.0	8,602,875.0
VFD - Chilled Water / Condenser Water	2,135	hp	\$80	\$170,800	0.9%	0.2720	986.7	482.1	1,749,026.1	\$6,587,450.36	15	\$26,235,391.68	\$0.0065	580.7	2,106,625.9	31,599,387.8
Garage Exhaust Fan	14,050	kWh	\$0	\$1,686	0.0%	0.0833	1.0	972.0	11,665.0	\$5,859,022.11	15	\$174,975.19	\$0.0096	1,170.8	14,050.0	210,750.0
<b>High Efficiency Motors</b>																
ECM - Fan Coil Fans	1,800	motors	\$50	\$90,000	0.5%	0.0270	232.1	40.4	346,921.6	\$974,808.10	15	\$5,203,824.35	\$0.0173	48.6	417,852.0	6,267,780.0
ECM w/Controller- Evaporator Fan Motors	1,380	motors	\$80	\$110,400	0.6%	0.0160	148.8	18.3	170,486.9	\$470,060.79	15	\$2,557,302.84	\$0.0432	22.1	205,344.0	3,080,160.0
<b>High Efficiency Water Heating</b>																
Commercial Solar Water Heating - Elec. Res.	160	Tons														

	Quantity	Unit	Average Incentive per Unit	Incentive Budget per Measure	% of Budget	Demand Savings per Unit (kW)	Energy Savings per Unit (kWh)	Program-Level 1st Year Demand Savings (kW)	Program-Level 1st Year Energy Savings (kWh)	Utility Avoided Cost Total Resource Benefit (TRB)	Program-Level 1st Year \$/kWh	Measure Life	Program-Level Lifetime Energy Savings (kWh)	Program-Level Lifetime \$/kWh	Customer-Level 1st Year Demand Savings (kW)	Customer-Level 1st Year Energy Savings (kWh)	Customer-Level Lifetime Energy Savings (kWh)
<b>Direct Incentives</b>																	
<b>COMMERCIAL RESOURCE ACQUISITION</b>																	
<b>CBEEM</b>				<b>\$2,668,522</b>	<b>14.0%</b>			<b>2,624</b>	<b>18,739,585</b>	<b>\$52,163,938</b>			<b>262,354,183</b>		<b>22,571,014</b>	<b>315,994,198</b>	
Trade Ally Provided																	
High Efficiency Lighting	16,571,014		\$1,988,521.70	\$1,988,521.70	10.4%			1,926	12,758,085	\$38,297,320			192,613,183		16,571,014	231,994,198	
Customized Project Measures - Over 5 Year Life: LED	15,571,014	kWh	\$0.12	\$1,868,521.70	9.8%	0.0001	1.0	1,809.9	12,927,834.5	\$35,986,217.10	\$0.1445	14	\$180,989,683.17	\$0.0103	2,179.9	15,571,014.2	217,994,198.3
Customized Project Measures - Over 5 Year Life: Non-LED	1,000,000	kWh	\$0.12	\$120,000.00	0.6%	0.0001	1.0	116.2	830,250.0	\$2,311,102.97	\$0.1445	14	\$11,623,500.00	\$0.0103	140.0	1,000,000.0	14,000,000.0
High Efficiency HVAC	5,000,000		\$600,000	\$600,000	3.1%			581	4,151,250	\$11,555,515			\$8,117,500		5,000,000	70,000,000	
Customized Project Measures - Over 5 Year Life: HVAC TBD	5,000,000	kWh	\$0.12	\$600,000.00	3.1%	0.0001	1.0	581.2	4,151,250.0	\$11,555,514.85	\$0.1445	14	\$58,117,500.00	\$0.0103	700.0	5,000,000.0	70,000,000.0
High Efficiency TBD	1,000,000		\$80,000.00	\$80,000.00	0.4%			116	830,250	\$2,311,103			\$11,623,500		1,000,000	14,000,000	
Customized Project Measures - Less than 5 Year Life: Non-LED	1,000,000	kWh	\$0.08	\$80,000.00	0.4%	0.0001	1.0	116.2	830,250.0	\$2,311,102.97	\$0.0964	14	\$11,623,500.00	\$0.0069	140.0	1,000,000.0	14,000,000.0
Customized Project Measures - TBD: TBD - Uncommitted	0	kWh	\$0.40	\$0	0.0%	0.0001	1.0	0.0	0.0	\$0.00	\$0.0000	10	\$0.00	\$0.0000	0.0	0.0	0.0
<b>BESM</b>				<b>\$203,500</b>	<b>1.1%</b>			<b>91</b>	<b>794,416</b>	<b>\$145,728</b>			<b>834,169</b>		<b>755,400</b>	<b>793,200</b>	
Trade Ally Provided																	
Behavioral Energy Awareness / Responsibility	5		\$1,000	\$1,000	0.0%			1	5,679	\$11,008			45,431		5,400	43,200	
Commercial Property Submetering (Pilot / TBD)	5	units metered	\$200	\$1,000	0.0%	0.2400	1,080.0	1.3	5,678.9	\$11,007.61	\$0.1761	8	\$45,431.28	\$0.0220	1.2	5,400.0	43,200.0
High Efficiency HVAC	5		\$12,500	\$12,500	0.1%			0	0	\$0.00			0		0	0	
Optimized Chiller Selection Engineering	5	Units	\$2,500	\$12,500	0.1%	0.0000	0.0	0.0	0.0	\$0.00	\$0.0000	20	\$0.00	\$0.0000	0.0	0.0	0.0
Energy Study Grant	75,000		\$55,000	\$55,000	0.3%			0	0	\$0.00			0		0	0	
Design Assistance	25,000	square feet	\$0.50	\$12,500	0.1%	0.0000	0.0	0.0	0.0	\$0.00	\$0.0000	1	\$0.00	\$0.0000	0.0	0.0	0.0
Energy Audits	25,000	square feet	\$0.85	\$21,250	0.1%	0.0000	0.0	0.0	0.0	\$0.00	\$0.0000	1	\$0.00	\$0.0000	0.0	0.0	0.0
Energy Study Assistance	25,000	square feet	\$0.85	\$21,250	0.1%	0.0000	0.0	0.0	0.0	\$0.00	\$0.0000	1	\$0.00	\$0.0000	0.0	0.0	0.0
Commissioning / Recommissioning	750,000		\$133,000.00	\$133,000.00	0.7%			90	788,737.5	\$134,720.23			788,737.5		750,000	750,000	
System Retrocommissioning Study Fee	5	Projects	\$15,000	\$75,000	0.4%	0.0000	0.0	0.0	0.0	\$0.00	\$0.0000	1	\$0.00	\$0.0000	0.0	0.0	0.0
System Retrocommissioning	750,000	kWh	\$0.08	\$60,000	0.3%	0.0001	1.0	90.0	788,737.5	\$134,720.23	\$0.0761	1	\$788,737.50	\$0.0761	85.6	750,000.0	750,000.0
<b>BHTR</b>				<b>\$2,951,577</b>	<b>15.5%</b>			<b>1,595</b>	<b>10,363,922</b>	<b>\$27,350,730</b>			<b>141,199,401</b>		<b>9,456,737</b>	<b>128,839,799</b>	
Trade Ally Provided																	
Kitchen Equipment	150		\$105,000	\$105,000	0.6%			74	432,838	\$1,358,067			6,492,563		394,950	5,924,250	
Kitchen Exhaust Hood Demand Ventilation	150	HP	\$700	\$105,000	0.6%	0.4500	2,633.0	74.0	432,837.6	\$1,358,066.88	\$0.2426	15	\$6,492,563.30	\$0.0162	67.5	394,950.0	5,924,250.0
Traditional Retail																	
Combination Oven	111		\$46,725	\$46,725	0.2%			113	559,785	\$1,507,048			6,717,424		510,786	6,129,428	
(None): <15 pans	3	Pans	\$500	\$1,500	0.0%	2.6000	11,604.0	8.5	38,151.5	\$106,711.49	\$0.0393	12	\$457,818.18	\$0.0033	7.8	34,812.0	417,744.0
(None): > 28 pans	3	Pans	\$2,400	\$7,200	0.0%	5.4000	23,756.0	17.8	78,104.7	\$219,638.71	\$0.0922	12	\$937,256.87	\$0.0077	16.2	71,268.0	855,216.0
(None): 15-28 pans	3	Pans	\$500	\$1,500	0.0%	3.7000	16,003.0	12.2	52,614.5	\$148,907.20	\$0.0285	12	\$631,374.04	\$0.0024	11.1	48,009.0	576,108.0
(None): Large Vat	3	Vats	\$250	\$750	0.0%	0.6100	2,659.0	2.0	8,742.2	\$24,669.08	\$0.0858	12	\$104,906.80	\$0.0071	1.8	7,977.0	95,724.0
(None): Standard Vat	3	Vats	\$250	\$750	0.0%	0.2500	1,093.0	0.8	3,593.6	\$10,129.05	\$0.2087	12	\$43,122.65	\$0.0174	0.8	3,279.0	39,348.0
(None): IHR > 1,500	3	Unit	\$325	\$975	0.0%	0.4160	3,641.0	1.4	11,970.8	\$27,392.45	\$0.0814	12	\$143,650.12	\$0.0068	1.2	10,923.0	131,076.0
(None): IHR 1,001-1,500	3	Unit	\$200	\$600	0.0%	0.2970	2,601.0	1.0	8,551.5	\$19,565.51	\$0.0702	12	\$102,618.50	\$0.0058	0.9	7,803.0	93,636.0
(None): IHR 101-300	3	Unit	\$100	\$300	0.0%	0.0920	805.0	0.3	2,646.7	\$6,056.67	\$0.1133	12	\$31,760.05	\$0.0094	0.3	2,415.0	28,980.0
(None): IHR 301-500	3	Unit	\$100	\$300	0.0%	0.1280	1,117.0	0.4	3,672.5	\$8,409.32	\$0.0817	12	\$44,069.54	\$0.0068	0.4	3,351.0	40,212.0
(None): IHR 501-1,000	3	Unit	\$100	\$300	0.0%	0.2060	1,807.0	0.7	5,941.0	\$13,567.69	\$0.0505	12	\$71,292.44	\$0.0042	0.6	5,421.0	65,052.0
(None): Full Size	3	Unit	\$350	\$1,050	0.0%	0.3600	1,879.0	1.2	6,177.8	\$16,350.95	\$0.1700	12	\$74,133.09	\$0.0142	1.1	5,637.0	67,644.0
(None): Half Size	3	Unit	\$275	\$825	0.0%	0.3800	1,988.0	1.2	6,536.1	\$17,285.05	\$0.1262	12	\$78,433.52	\$0.0105	1.1	5,964.0	71,568.0
(None): (None)	3	Linear Feet	\$1,250	\$3,750	0.0%	0.1700	758.0	0.6	2,492.1	\$6,973.11	\$1.5047	12	\$29,905.74	\$0.1254	0.5	2,274.0	27,288.0
(None): Full Size	3	Unit	\$800	\$2,400	0.0%	0.7200	3,942.0	2.4	12,960.5	\$33,764.14	\$0.1852	12	\$155,525.62	\$0.0154	2.2	11,826.0	141,912.0
(None): Half Size	3	Unit	\$125	\$375	0.0%	0.3300	1,807.0	1.1	5,941.0	\$15,476.68	\$0.0631	12	\$71,292.44	\$0.0053	1.0	5,421.0	65,052.0
Glass Door: 0<V<15 (1 Door)	3	Unit	\$0	\$0	0.0%	0.1780	1,562.2	0.6	5,136.2	\$11,745.51	\$0.0000	12	\$61,634.23	\$0.0000	0.5	4,686.6	56,239.2
Glass Door: 15<V<30 (1 Door)	3	Unit	\$100	\$300	0.0%	0.2290	2,003.9	0.8	6,588.2	\$15,076.41	\$0.0455	12	\$79,058.86	\$0.0038	0.7	6,011.6	72,138.6
Glass Door: 30<V<50 (2 Door)	3	Unit	\$150	\$450	0.0%	0.4420	3,869.0	1.5	12,720.5	\$29,107.01	\$0.0354	12	\$152,645.51	\$0.0029	1.3	11,607.0	139,284.0
Glass Door: 50<V (3 Door)	3	Unit	\$200	\$600	0.0%	0.7750	6,789.0	2.5	22,320.8	\$51,065.66	\$0.0269	12	\$267,849.68	\$0.0022	2.3	20,367.0	244,404.0
Solid Door: 0<V<15 (1 Door)	3	Unit	\$100	\$300	0.0%	0.0520	465.3	0.2	1,526.6	\$3,482.61	\$0.1961	12	\$18,355.73	\$0.0163	0.2	1,395.8	16,749.0
Solid Door: 15<V<30 (1 Door)	3	Unit	\$250	\$750	0.0%	0.0990	868.7	0.3	2,856.1	\$6,531.67	\$0.2626	12	\$34,273.24	\$0.0219	0.3	2,606.1	31,273.2
Solid Door: 30<V<50 (2 Door)	3	Unit	\$275	\$825	0.0%	0.1970	1,726.5	0.6	5,676.2	\$12,984.78	\$0.1453	12	\$68,114.46	\$0.0121	0.6	5,179.4	62,152.2
Solid Door: 50<V (3 Door)	3	Unit	\$300	\$900	0.0%	0.3990	3,493.1	1.3	11,484.4	\$26,277.91	\$0.0784	12	\$137,812.98	\$0.0065	1.2	10,479.2	125,749.8
Glass Door: 0<V<15 (1 Door)	3	Unit	\$100	\$300	0.0%	0.0820	719.1	0.3	2,364.1	\$5,407.30	\$0.1269	12	\$28,369.02	\$0.0106	0.2	2,157.2	25,885.8
Glass Door: 15<V<30 (1 Door)	3	Unit	\$200	\$600	0.0%	0.0770	671.6	0.3	2,208.1	\$5,056.73	\$0.2717	12	\$26,496.96	\$0.0226	0.2	2,014.8	24,177.6
Glass Door: 30<V<50 (2 Door)	3	Unit	\$225	\$675	0.0%	0.0820	715.4	0.3	2,352.1	\$5,386.19	\$0.2870	12	\$28,225.02	\$0.0239	0.2	2,146.2	25,754.4
Glass Door: 50<V (3 Door)	3	Unit	\$300	\$900	0.0%	0.1020	890.6	0.3	2,928.1	\$6,704.01	\$0.3074	12	\$35,137.27	\$0.0256	0.3	2,671.8	32,061.6
Solid Door: 0<V<15 (1 Door)	3	Unit	\$250	\$750	0.0%	0.0300	259.2	0.1	852.0	\$1,955.63	\$0.8802	12	\$10,224.37	\$0.0734	0.1	777.5	9,329.4
Solid Door: 15<V<30 (1 Door)	3	Unit	\$300	\$900	0.0%	0.0530	459.9	0.2	1,512.1	\$3,466.90	\$0.5952	12	\$18,144.66	\$0.0496	0.2	1,379.7	16,556.4
Solid Door: 30<V<50 (2 Door)	3	Unit	\$300	\$900	0.0%	0.0900	788.4	0.3	2,592.1	\$5,930.21	\$0.3472	12	\$33,110.12	\$0.0289	0.3	2,365.2	28,382.4
Solid Door: 50<V (3 Door)	3	Unit	\$500	\$1,500	0.0%	0.1260	1,102.3	0.4	3,624.1	\$8,293.84	\$0.4139	12	\$43,489.57	\$0.0345	0.4	3,306.9	39,682.8
Steam Cooker: 1 Pan	3	Unit	\$750	\$2,250	0.0%	0.7440	3,258.0	2.4	10,711.6	\$30,174.31	\$0.2101	12	\$128,539.44	\$0.0175	2.2	9,774.0	117,288.0
Steam Cooker: 2 Pans	3	Unit	\$750	\$2,250	0.0%	1.4880	6,516.0	4.9	21,423.2	\$60,348.62	\$0.1050	12	\$257,078.88	\$0.0088	4.5	19,548.0	234,576.0
Steam Cooker: 3 Pans	3	Unit	\$750	\$2,250	0.0%	2.2320	9,774.0										

<b>Transformational Incentives</b>		<b>Budget</b>	<b>% of Budget</b>
<b>RESIDENTIAL PROGRAMS</b>			
<b>RTRAN</b>		<b>\$851,373</b>	<b>48.6%</b>
<b>Program Management</b>		<b>\$254,118</b>	<b>1.3%</b>
	Program Management	\$254,118	1.3%
<b>Behavior Modification</b>		<b>\$336,796</b>	<b>1.8%</b>
	Workshops and Presentations, Energy Literacy	\$130,890	0.7%
	Gamification Campaigns / Competitions, Projects	\$104,712	0.5%
	Digital Engagement, Followers/Subscriptions	\$42,932	0.2%
	Community Education Support, Events	\$58,262	0.3%
<b>Professional Development and Technical Training</b>		<b>\$88,637</b>	<b>0.5%</b>
	Clean Energy Ally Support	\$51,725	0.3%
	Targeted Ally Training Opportunities	\$5,236	0.0%
	Targeted Participant Training Opportunities	\$0	0.0%
	Educator Training and Grants	\$27,749	0.1%
	Energy Industry Workforce Development	\$3,927	0.0%
<b>Energy in Decision Making</b>		<b>\$0</b>	<b>0.0%</b>
	Strategic Energy Management (SEM)	\$0	0.0%
<b>Codes and Standards</b>		<b>\$97,200</b>	<b>0.5%</b>
	Codes Training, Technical Support, Advocacy	\$39,267	0.2%
	Residential Energy Code Support	\$57,933	0.3%
<b>Clean Energy Collaboration</b>		<b>\$74,622</b>	<b>0.4%</b>
	Utility Collaboration	\$27,502	0.1%
	Coordinated Engagement with Customers	\$10,471	0.1%
	Innovation and Emerging Technologies	\$26,178	0.1%
	Leveraging External Funding Sources	\$10,471	0.1%
<b>COMMERCIAL PROGRAMS</b>			
<b>BTRAN</b>		<b>\$898,627</b>	<b>51.4%</b>
<b>Program Management</b>		<b>\$219,300</b>	<b>1.1%</b>
	Program Management	\$219,300	1.1%
<b>Behavior Modification</b>		<b>\$5,602</b>	<b>0.0%</b>
	Workshops and Presentations, Energy Literacy	\$0	0.0%
	Gamification Campaigns / Competitions, Projects	\$0	0.0%
	Digital Engagement, Followers/Subscriptions	\$0	0.0%
	Community Education Support, Events	\$5,602	0.0%
<b>Professional Development and Technical Training</b>		<b>\$370,986</b>	<b>1.9%</b>
	Clean Energy Ally Support	\$61,339	0.3%
	Targeted Ally Training Opportunities	\$179,276	0.9%
	Targeted Participant Training Opportunities	\$71,104	0.4%
	Educator Training & Grants	\$5,602	0.0%
	Energy Industry Workforce Development	\$53,665	0.3%
<b>Energy in Decision Making</b>		<b>\$170,587</b>	<b>0.9%</b>
	Strategic Energy Management, Customer Engagement	\$140,463	0.7%
	Strategic Energy Management, Remote Targeting & Benchmarking	\$30,124	0.2%
<b>Codes and Standards</b>		<b>\$73,976</b>	<b>0.4%</b>
	Codes Training, Technical Support, Advocacy	\$29,922	0.2%
	Commercial Energy Codes Support	\$44,054	0.2%
<b>Clean Energy Collaboration</b>		<b>\$58,176</b>	<b>0.3%</b>
	Utility Collaboration	\$22,027	0.1%
	Innovation and Emerging Technologies	\$36,149	0.2%

## Appendix F Total Resource Benefit (TRB) Utility Benefit Values

Demonstration TRB Values Using Modified Current EEPS Utility Avoided Cost								
			Discount Rate	Factored EEPS	Escalation Rate			
			6%	76%	3%			
			Utility Avoided Costs*		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.
2017	1	1.00		\$ 0.171	\$ -	\$ 0.1708	\$ -	\$ 0.1708
2018	2	0.94		\$ 0.176	\$ -	\$ 0.1660	\$ -	\$ 0.3368
2019	3	0.89		\$ 0.181	\$ -	\$ 0.1613	\$ -	\$ 0.4980
2020	4	0.84	\$ 904.0	\$ 0.187	\$ 759	\$ 0.1567	\$ 759	\$ 0.6548
2021	5	0.79	\$ 986.0	\$ 0.192	\$ 781	\$ 0.1523	\$ 1,540	\$ 0.8070
2022	6	0.75	\$ 856.0	\$ 0.198	\$ 640	\$ 0.1480	\$ 2,180	\$ 0.9550
2023	7	0.70	\$ 750.0	\$ 0.204	\$ 529	\$ 0.1438	\$ 2,708	\$ 1.0988
2024	8	0.67	\$ 663.0	\$ 0.210	\$ 441	\$ 0.1397	\$ 3,149	\$ 1.2385
2025	9	0.63	\$ 590.0	\$ 0.216	\$ 370	\$ 0.1358	\$ 3,519	\$ 1.3742
2026	10	0.59	\$ 527.0	\$ 0.223	\$ 312	\$ 0.1319	\$ 3,831	\$ 1.5061
2027	11	0.56	\$ 474.0	\$ 0.230	\$ 265	\$ 0.1282	\$ 4,096	\$ 1.6343
2028	12	0.53	\$ 1,020.0	\$ 0.236	\$ 537	\$ 0.1246	\$ 4,633	\$ 1.7589
2029	13	0.50	\$ 1,066.0	\$ 0.244	\$ 530	\$ 0.1210	\$ 5,163	\$ 1.8799
2030	14	0.47	\$ 964.0	\$ 0.251	\$ 452	\$ 0.1176	\$ 5,615	\$ 1.9975
2031	15	0.44	\$ 875.0	\$ 0.258	\$ 387	\$ 0.1143	\$ 6,002	\$ 2.1118
2032	16	0.42	\$ 795.0	\$ 0.266	\$ 332	\$ 0.1110	\$ 6,334	\$ 2.2228
2033	17	0.39	\$ 724.0	\$ 0.274	\$ 285	\$ 0.1079	\$ 6,619	\$ 2.3307
2034	18	0.37		\$ 0.282	\$ -	\$ 0.1048	\$ 6,619	\$ 2.4355
2035	19	0.35		\$ 0.291	\$ -	\$ 0.1019	\$ 6,619	\$ 2.5374
2036	20	0.33		\$ 0.300	\$ -	\$ 0.0990	\$ 6,619	\$ 2.6364
2037	21	0.31		\$ 0.308	\$ -	\$ 0.0962	\$ 6,619	\$ 2.7326
2038	22	0.29		\$ 0.318	\$ -	\$ 0.0935	\$ 6,619	\$ 2.8261
2039	23	0.28		\$ 0.327	\$ -	\$ 0.0908	\$ 6,619	\$ 2.9169
2040	24	0.26		\$ 0.337	\$ -	\$ 0.0883	\$ 6,619	\$ 3.0051
2041	25	0.25		\$ 0.347	\$ -	\$ 0.0858	\$ 6,619	\$ 3.0909