TECHNICAL ADVISORY GROUP

HAWAII PBF PROGRAM

May 9, 2022
1:30 to 3:00 p.m. HST

via Teams Webconference

JENNIFER BARNES

ENERGY EFFICIENCY MANAGER TEAM

MEETING KICK OFF

AGENDA

- 1:30 – Meeting Kick Off & Commissioner Introduction
- 1:35 – Hawai‘i Energy PY22+ Plan
- 2:00 – Q&A on PY22+ Plan
- 2:10 – EM&V Activities
- 2:50 – Q&A on EM&V Items
- 3:00 – Adjourn

MEETING KICK OFF

- This meeting is being recorded
  - Recording will be posted on HawaiiEEPS.org website
- Please remember to mute your lines when you are not speaking
- Feel free to ask your questions in the chat at any time; we will respond to them during the Q&A at the end of each set of presentations

WELCOME MESSAGE FROM COMMISSIONER POTTER

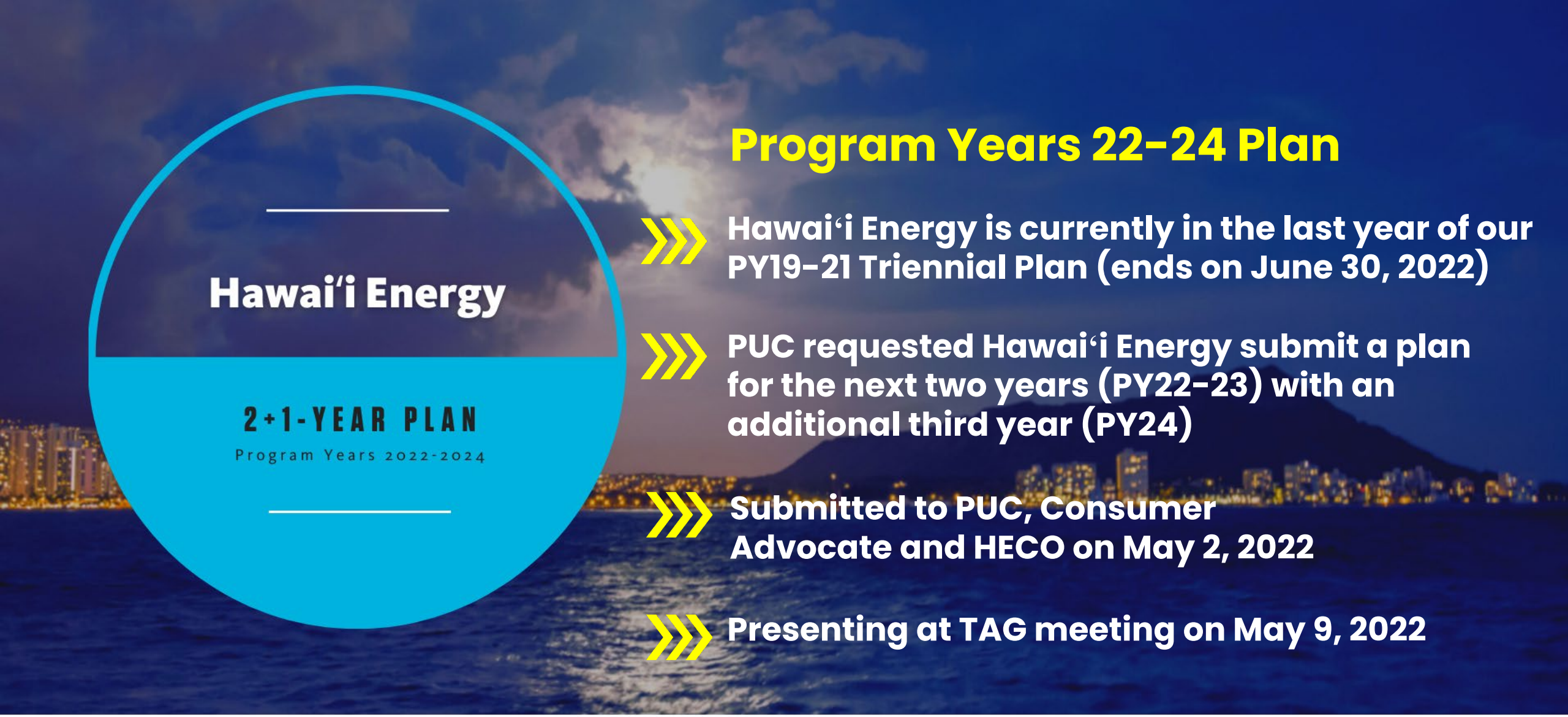
CAROLINE CARL
HAWAI'I ENERGY

HAWAIʻI ENERGY PY22+ PLAN OVERVIEW

Hawai‘i Energy

Program Update
Technical Advisory Group
May 9, 2022

Our mission is to **empower** island families and businesses to make **smarter energy choices** that **reduce energy consumption**, **save money** and achieve a **100% clean energy future**



Program Years 22-24 Plan

- Hawai'i Energy is currently in the last year of our PY19-21 Triennial Plan (ends on June 30, 2022)
- PUC requested Hawai'i Energy submit a plan for the next two years (PY22-23) with an additional third year (PY24)
- Submitted to PUC, Consumer Advocate and HECO on May 2, 2022
- Presenting at TAG meeting on May 9, 2022

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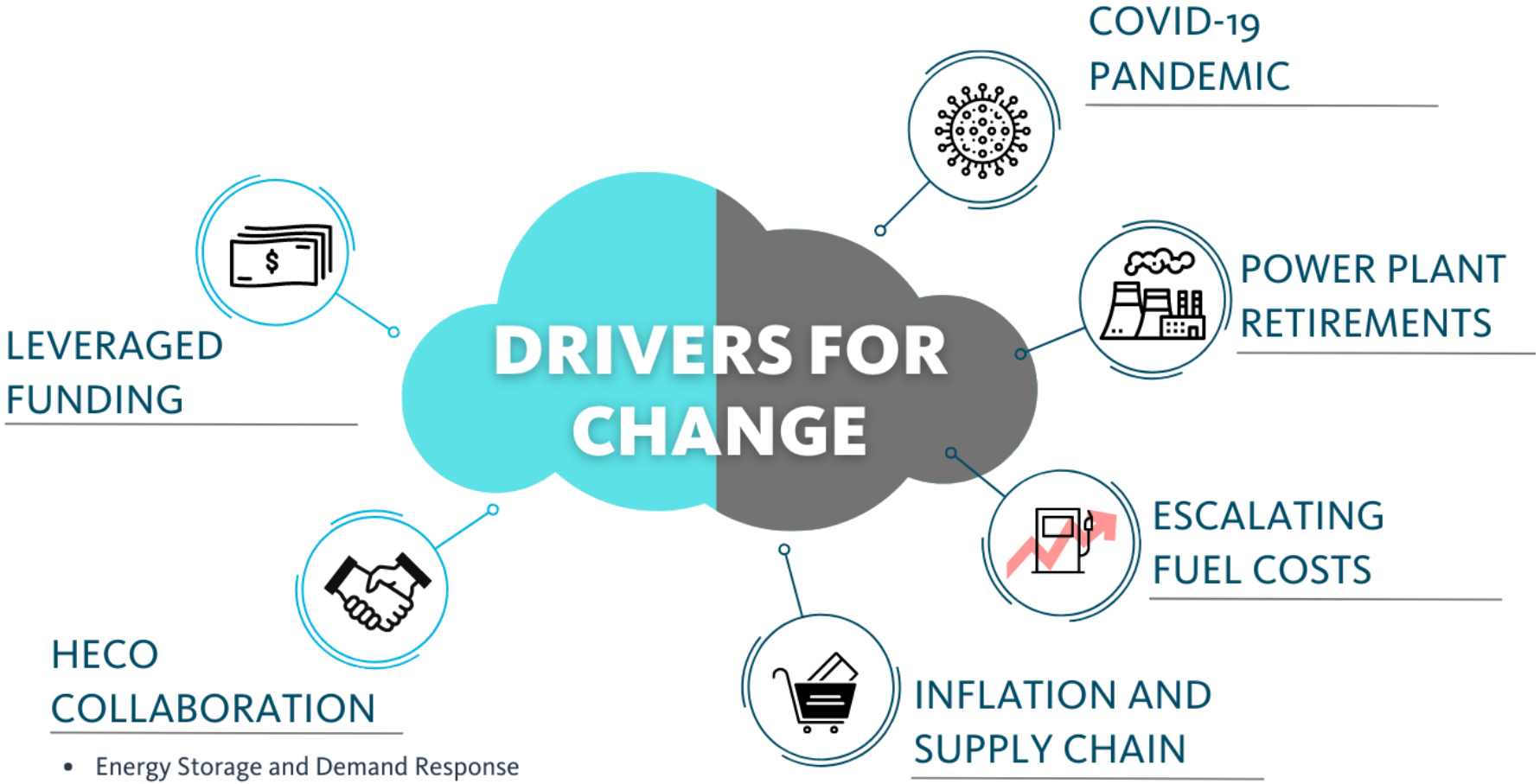
Hawai'i Energy leidos


DRIVERS FOR CHANGE
COVID-19 PANDEMIC
POWER PLANT RETIREMENTS
ESCALATING FUEL COSTS
INFLATION AND SUPPLY CHAIN
HECO COLLABORATION
Energy Storage and Demand Response
Low- to Moderate-Income Performance Incentive Mechanism
Outreach and Communications
LEVERAGED FUNDING

PY22-24 PLAN DELIVERABLES

» 46.4 MW

Total peak demand reduction (program level)

» 269,855,560 kWh

Total first-year savings (program level)

» $.020

Levelized cost of saved energy for resource acquisition

» $1.4 Billion

Total customer savings over the life of the measures

» $7.5 Million

Foundational investment to shift beyond traditional energy efficiency and deliver peak demand reduction and load flexibility to meet grid needs

» $.027

Levelized cost of saved energy for all incentives

Hawai'i Energy

2+1-YEAR PLAN

Program Years 2022-2024

Program Years 22–24 Plan

- Clean Energy Technologies & Energy Optimization Initiatives
- Accessibility & Affordability
- Market Transformation & Economic Development

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Clean Energy Technologies & Energy Optimization Initiatives

Accelerate Hawai'i's transition to clean, resilient, cost-effective energy systems

Reduce system peak demand (kW), support deployment of flexible load technologies, and reduce energy (kWh) usage in alignment with the state's Energy Efficiency Portfolio Standards (EEPS).

Measure and reduce greenhouse gas emissions from buildings and transportation. Pilot a program that incentivizes GHG reduction.

Transform buildings into smart, resilient, grid resources by expanding adoption of grid-interactive heat pump water heaters and load flexibility measures in commercial buildings.

Clean Energy Technologies & Energy Optimization Initiatives

Accelerate Hawai'i's transition to clean, resilient, cost-effective energy systems

BUSINESS PORTFOLIO

PY22-24 PRIORITIES

- Focus on peak demand reduction
- Continued refinement to custom projects
- Increased custom refrigeration and high-efficiency commercial kitchen equipment
- Increased Whole Building Assistance
  - Energy audits
  - Multifamily and commercial space submetering
  - New construction energy modeling support

Clean Energy Technologies & Energy Optimization Initiatives

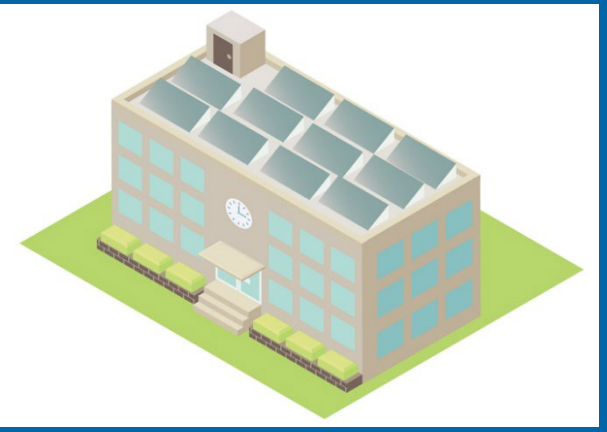
Accelerate Hawai'i's transition to clean, resilient, cost-effective energy systems

BUSINESS PORTFOLIO

POWER MOVE

Continue targeting large energy users by providing enhanced account management and engineering support to large coincident peak demand commercial and industrial facilities

- Retrofits, optimization and load shifting with increased incentives for systems with coincident peak operating hours
- Key technologies include:
  - Exterior and industrial lighting
  - Major HVAC systems
  - Transformers
  - Refrigeration systems
  - Commercial Energy Storage
    - Metering and Monitoring



Clean Energy Technologies & Energy Optimization Initiatives

Accelerate Hawai'i's transition to clean, resilient, cost-effective energy systems

BUSINESS PORTFOLIO

PY22-24 PRIORITIES

Demand Response Ready

- DR-Capable Hotel Guest Room Controls
- Smart Devices

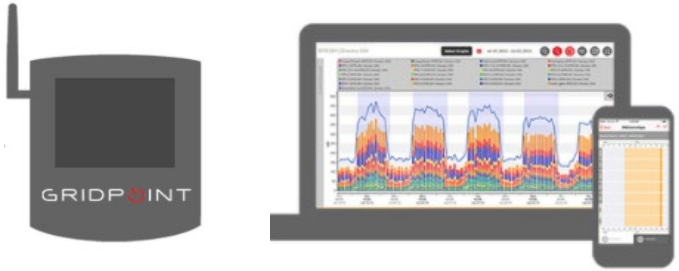


Image Credit: GridPoint

Clean Energy Technologies & Energy Optimization Initiatives

Accelerate Hawai'i's transition to clean, resilient, cost-effective energy systems

RESIDENTIAL PORTFOLIO

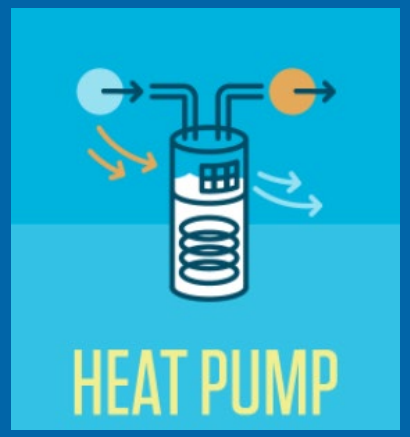
INCREASED INCENTIVES

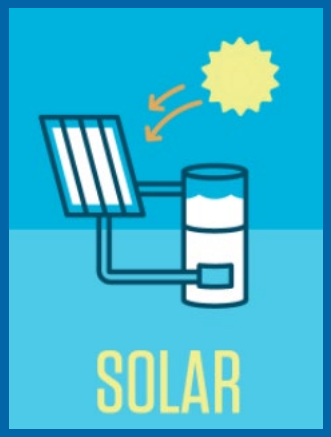
Water Heaters

- Heat-Pump Water Heaters
- Solar Water Heaters
- Maintenance

Appliances

- Refrigerators
- Household Air Conditioning





Clean Energy Technologies & Energy Optimization Initiatives

Accelerate Hawai'i's transition to clean, resilient, cost-effective energy systems

RESIDENTIAL PORTFOLIO

PROGRAM TRANSITIONS

Transitioning Upstream Lighting Program

- Omni-directional lighting counts will be reduced 42% in PY22
- Subsequent annual reductions toward removal from portfolio in PY24

Re-introducing Home Energy Reports PY23-24

- In alignment with Hawaiian Electric's AMI rollout
- Implementing Randomized Control Trial (RCT) for program savings evaluation
- Tailored messaging for specific technologies and/or communities

Clean Energy Technologies & Energy Optimization Initiatives

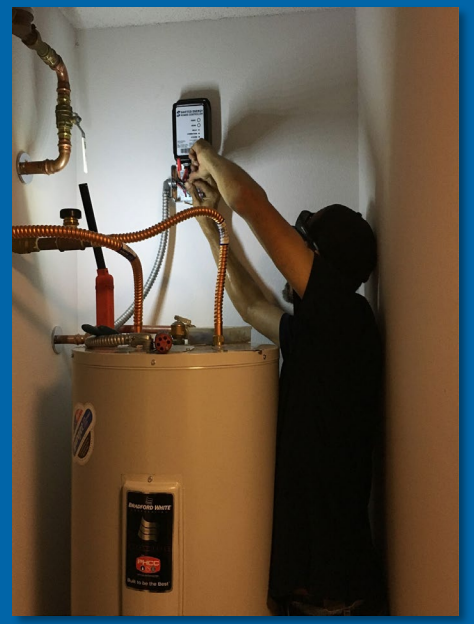
Accelerate Hawai'i's transition to clean, resilient, cost-effective energy systems

RESIDENTIAL PORTFOLIO

PY22-24 PRIORITIES

Demand Response

- Grid-Interactive Water Heaters in support of GSPA enrollment
- Heat-Pump Water Heaters with Controls
- Emerging Technologies
- Residential Energy Storage Systems – potential pilot for townhomes



PERFORMANCE INDICATORS:
Clean Energy Technologies

ENERGY EFFICIENCY & CONSERVATION	PY22 TARGET	PY23 TARGET	PY24 TARGET	TOTAL TARGET
First-Year Energy Reduction	89,894,943	87,323,049	92,637,568	269,855,560
Lifetime Energy Reduction	1,228,777,151	1,183,560,913	1,251,801,630	3,664,139,694
Peak Demand Reduction	17,615	14,185	14,599	46,400
Total Resource Benefit	$156,084,783	$147,070,107	$154,736,865	$457,891,755
Grid Services Ready	2,200	1,400	1,100	4,700
Demand Flexibility kW (new)	3,500	1,500	1,500	6,500
Greenhouse Gas Emissions / Barrels of Oil	63,720 / 147,030	61,897 / 142,823	65,664 / 151,515	

Accessibility & Affordability:

Include everyone in the clean energy transition

Provide critical assistance to low-income households, small businesses, and other hard-to-reach customer segments. Utilize partnerships where possible to expand impact.

Provide support to long-term projects supporting low-income, multifamily market segments.

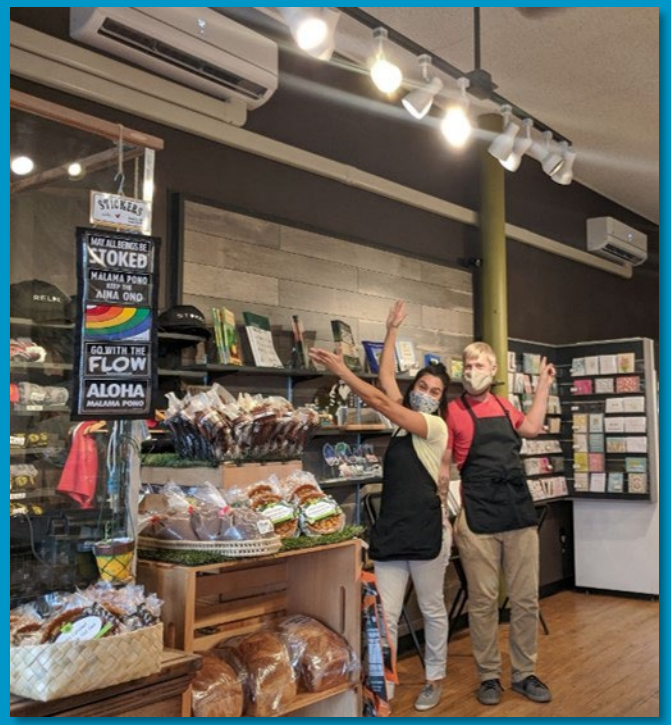
Accessibility & Affordability:

Include everyone in the clean energy transition

BUSINESS PORTFOLIO	PY22-24 PRIORITIES

Support small and hard-to-reach businesses and nonprofits

- Energy Advantage
- EmPOWER Grant



Accessibility & Affordability:

Include everyone in the clean energy transition

RESIDENTIAL PORTFOLIO | PY22-24 PRIORITIES

Community-Based Energy Efficiency

- Energy Smart 4 Homes (ES4H)
- Bulk Appliances
- Water Heating Direct Installs

Targeting 1,800 participants per Program Year

PERFORMANCE INDICATORS: *ACCESSIBILITY & AFFORDABILITY*

ECOMONICALLY DISADVANTAGED	PY22 TARGET	PY23 TARGET	PY24 TARGET	TOTAL TARGET
Business A&A (Energy Advantage, EmPOWER Grant)	500	500	500	1,500
	$1,240,037	$1,240,037	$1,240,037	$3,720,111
Residential A&A (Single & Multifamiy Direct Install, Water Heating Direct Install, Bulk Appliance, Maintenance)	1,800	1,800	1,800	5,400
	$2,334,523	$2,334,523	$2,334,523	$7,003,569
Community-Based Energy Efficiency	3	4	4	11
ISLAND EQUITY				
County of Hawai‘i	13%	13%	13%	13%
County of Maui	13%	13%	13%	13%
City & County of Honolulu	74%	74%	74%	74%

Market Transformation & Economic Development:

Strengthen local communities, businesses, and boost Hawai'i's economy

Establish shared vision and approach for market transformation (MT) with the PUC/EEM and stakeholders, based on MT theory of change and evaluation methods. Conduct an MT pilot building on foundational work on commercial kitchen equipment and refrigeration done in PY21.

Leverage federal, state, and local funding for clean energy technologies and workforce development.

Expand collaborative efforts to increase code training, building benchmarking technical assistance and training, and advocacy for county and state-level code and stretch code advancement. Implement approved methods to document and attribute savings for these activities.

Support the identification and advancement of clean energy and emerging technologies across residential, commercial and industrial sectors.

Market Transformation & Economic Development:

Strengthen local communities, businesses, and boost Hawai'i's economy

PY22-24 CORE ACTIVITIES

CONTINUED PROGRAMS

Behavior Change (Clean Energy Literacy)

- Education – 1,200 participants per Program Year
- Adult Workshops – 2,500 participants per Program Year

Professional Development & Technical Trainings

- 7,000 participants per Program Year

Market Transformation & Economic Development:

Strengthen local communities, businesses, and boost Hawai‘i’s economy

PY22-24 CORE ACTIVITIES | CODES & STANDARDS

Building Benchmarking

- Provide training support to the City and County of Honolulu on its Benchmarking ordinance, projected to be adopted in 2022, which would require energy benchmarking for large commercial and multifamily buildings over 25,000 square feet on O‘ahu

Training and Advocacy

- Expand collaborative role with the Hawai‘i State Energy Office and Blue Planet Foundation to increase code training, advocacy and engineering support for county and state level code and stretch code advancement

Market Transformation & Economic Development:

Strengthen local communities, businesses, and boost Hawai'i's economy

PY22-24 PRIORITIES

OUTCOME-BASED METRICS

Commercial Kitchen Equipment (CKE) Midstream Program

- Increase the # and market share of suppliers/distributors and contractors enrolled in Clean Energy Ally (CEA) program
- Increase % of sold inventory of energy-efficient electric CKE models
- Increase the types of promotion and program marketing

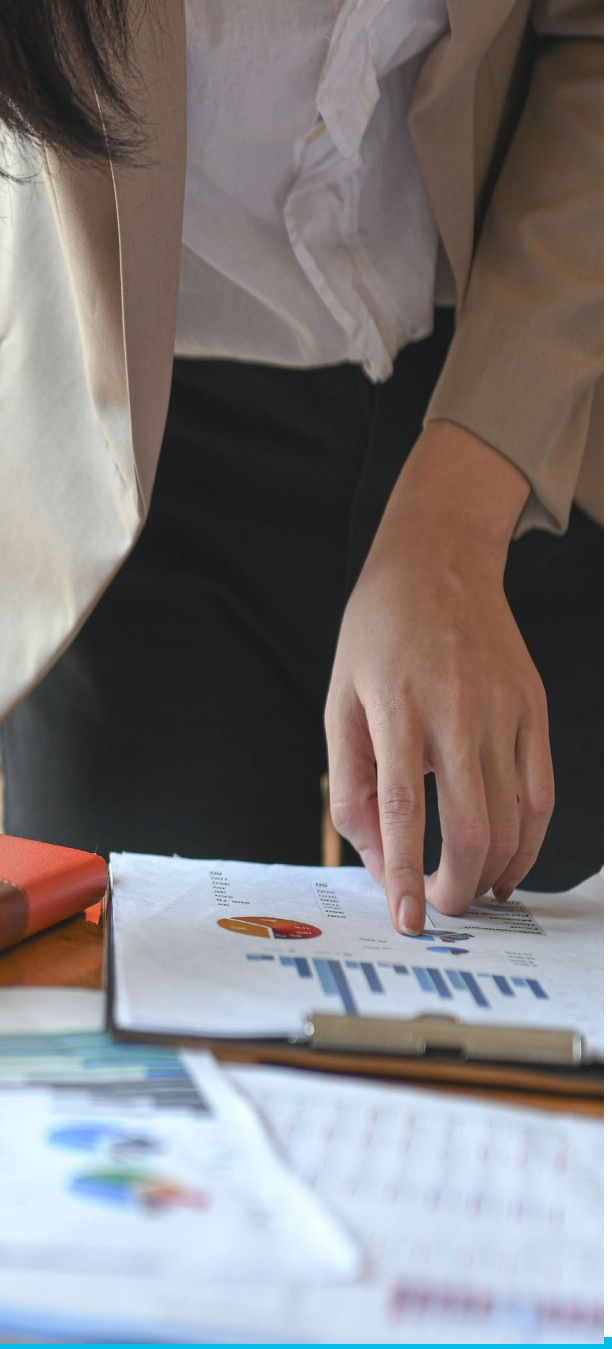
Refrigeration Training Effort

- Increase the overall # of refrigeration efficiency projects and project savings year-over-year
- Introduce more companies in the refrigeration supply chain to the CEA program
- Increase # of customers and customer types

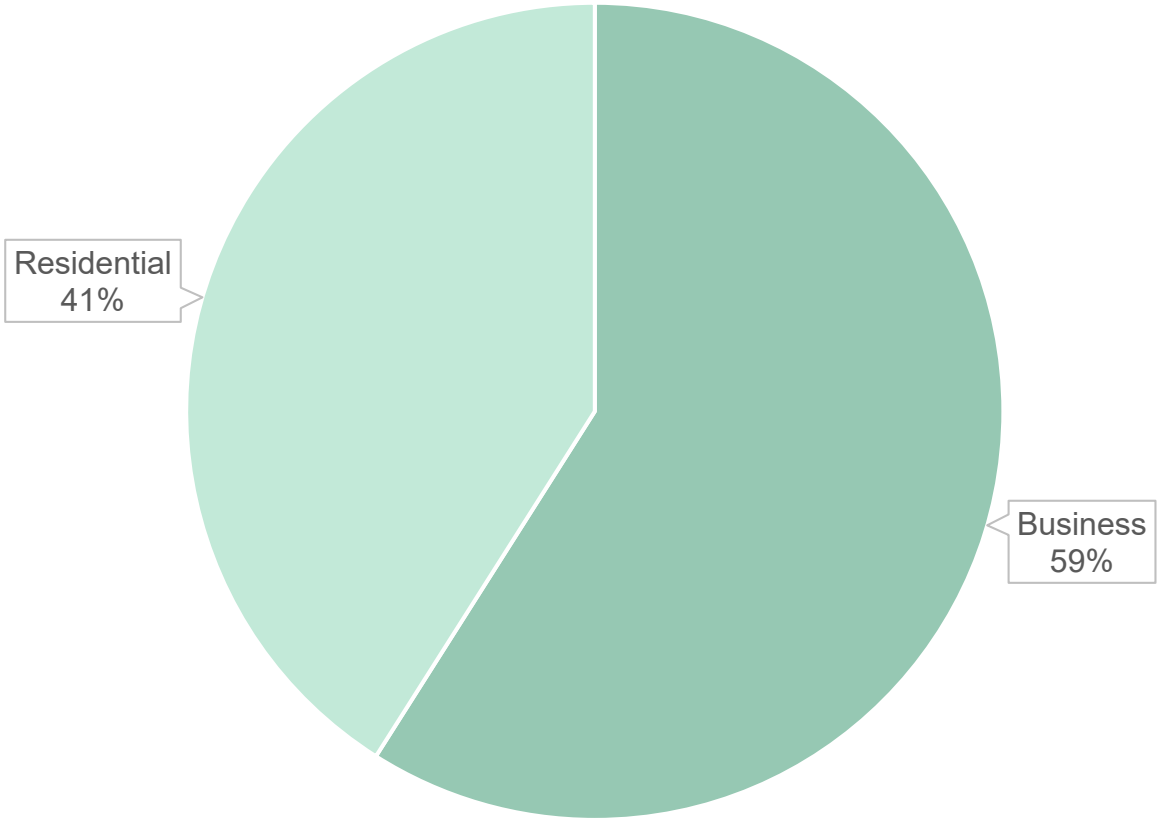
KEY METRICS

	PROGRAM-LVL MW	PROGRAM-LVL MWh	PROGRAM-LVL LIFETIME MWh	TOTAL RESOURCE BENEFIT
PY22	17.6 MW	90,000 MWh	1,200 MWh	$156M
PY23	14.2 MW	87,000 MWh	1,180 MWh	$147M
PY24	14.5 MW	93,000 MWh	1,250 MWh	$155M
TOTAL	**46.4 MW**	**270,000 MWh**	**3,664 MWh**	**$458M**

	CUSTOMER-LVL MW	CUSTOMER-LVL MWh	CUSTOMER-LVL LIFETIME MWh	TOTAL RESOURCE BENEFIT
PY22	20.4 MW	110,000 MWh	1,536,000 MWh	$156M
PY23	16.8 MW	106,000 MWh	1,471,000 MWh	$147M
PY24	17.2 MW	112,000 MWh	1,542,000 MWh	$155M
TOTAL	**54.4 MW**	**328,000 MWh**	**4,549,000 MWh**	**$458M**



AVERAGE INCENTIVE BUDGET SPLIT



AVERAGE FIRST YEAR $/kWh

$/kWh $.31

AVERAGE LIFETIME $/kWh

$/kWh $.02

NEW FLEXIBLE kW TARGETS

PY22 – 3.5 MW

PY23 – 1.5 MW

PY24 – 1.5 MW

Program Years 22-24 Plan

- Next Step – Feedback and Q&A from TAG participants
- Hawai'i Energy will file the plan with the PUC in mid-June

SUBMITTED BY

Hawai'i Energy leidos

Mahalo!

Stay Connected

Oahu: 537-5577 (Residential) **839-8880** (Business)

Neighbor Islands: 1-877-231-8222 toll-free

www.hawaiienergy.com

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QUESTIONS OR COMMENTS ON PY22+ PLAN?

MARY SUTTER

ENERGY EFFICIENCY MANAGER TEAM

EVALUATION MEASUREMENT AND VERIFICATION (EM&V) TOPICS

MAGGIE BUFFUM

APPLIED ENERGY GROUP (AEG)

PY20 VERIFICATION

SUMMARY OF VERIFICATION ACTIVITIES

CET

Tracking Database Replication

- All deemed and semi-deemed measures
- First-year kWh, lifetime kWh, and peak demand kW
- Total Resource Benefits

Desk Reviews

- Simple (BEEM, BHTR, REEM, and RHTR)
- Complex (CBEEM CREEM)
- Excluded RESM, BESM, and upstream lighting

Grid Services & GHG Emissions

- Count of grid services-eligible measures
- Used PY21 TRM for kWh/kW conversion to barrels of oil & tons of GHG

Non-CET

Affordability & Accessibility

- Economic Disadvantaged
  - *BHTR (SBDI) and RHTR (SF/MF DI)*
  - *Community-based energy efficiency*
  - *EmPOWER Hawaii Project*
- Island Equity

MTED & Customer Satisfaction

- Reviewed workshop attendance and other supporting documents
- Results of Medallia (business) and in-house survey results

LMI PIM Awards

- New in PY20 (trial)
- Awards go to HECO
- Associated with RHTR and A&A programs

CLEAN ENERGY TECHNOLOGIES (CET) KEY TAKEAWAYS

Hawai‘i Energy exceeded targets for RHTR during the pandemic.

Claimed program-level CET performance metrics reached nearly 200% of the target.

AEG verified claimed reductions at near 100% across the board.

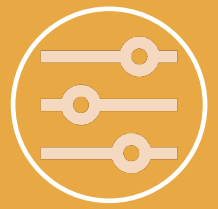
Hawai‘i Energy exceeded the target for Grid Service Ready measures.

Measures included grid-interactive water heaters, smart devices, and general equipment to support demand response (DR).

AEG verified 315% of the target relative to the claimed 301%.

Hawai‘i Energy’s implementation of the TRM algorithms for prescriptive programs was near perfect.

We made minimal impactful TRM adjustments, leading to TRM adjustment factors close to 1.0 for all programs.



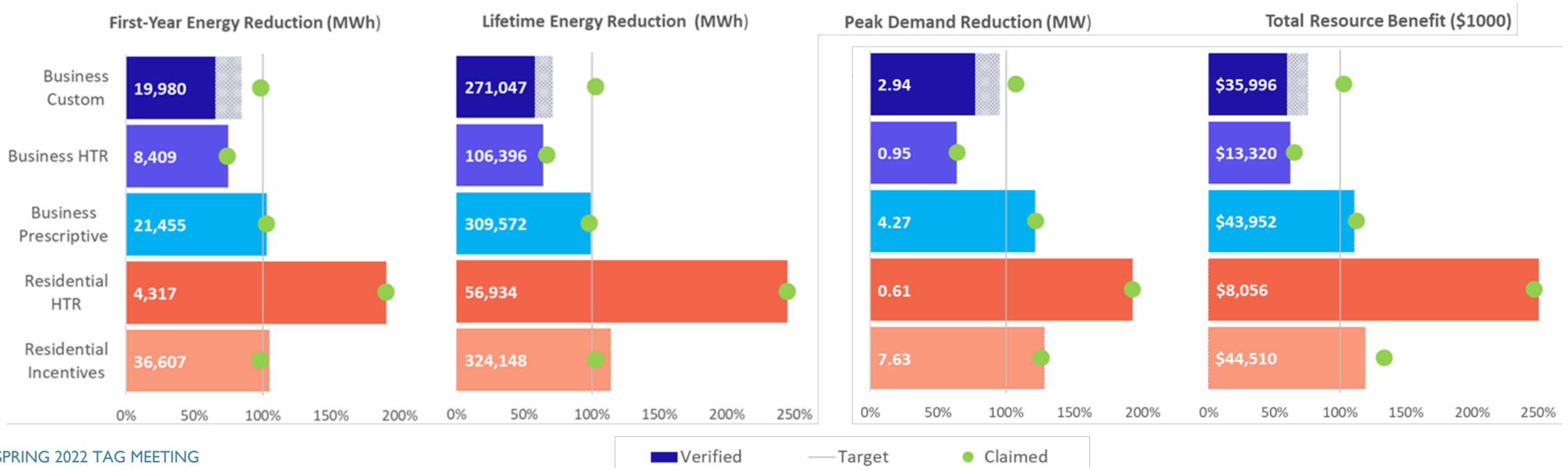
AEG made substantial reductions to CBEEM claimed savings.

The most impactful adjustments came from updating regression models that impacted CBEEM HVAC and general custom projects.

We also made updates to project Effective Useful Lives (EULs) and lifetime savings to incorporate dual baselines.

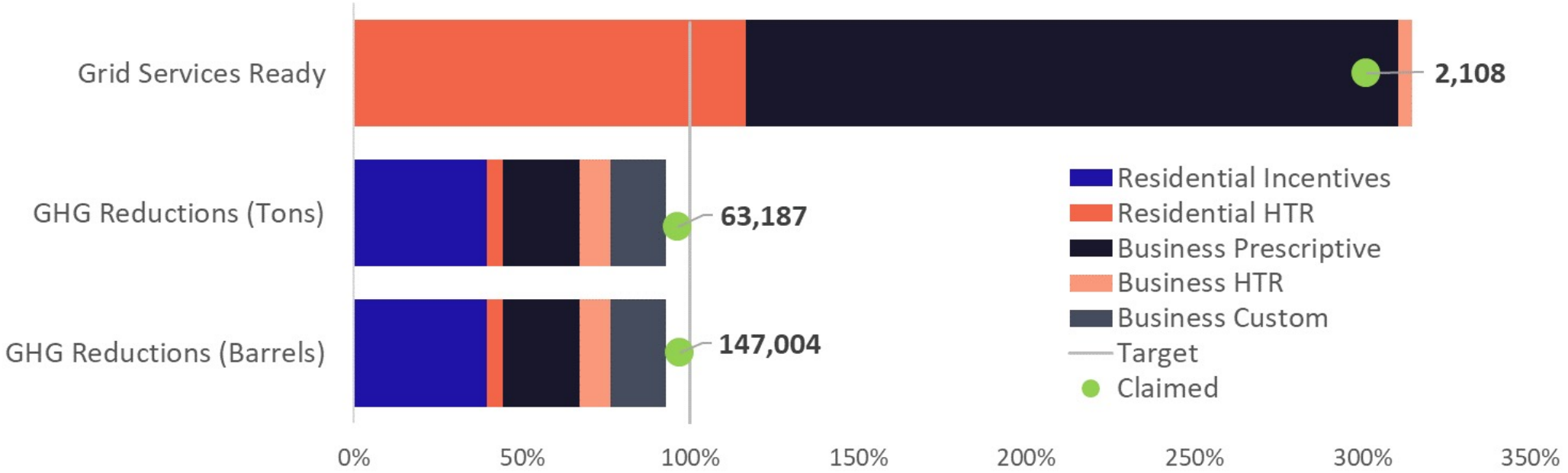
CET KEY TAKEAWAYS

- Hawai'i Energy met the CET targets for **Residential Hard-to-Reach**, **Residential Incentives**, and **Business Prescriptive** program categories.
- **Business Custom** (CBEEM) fell short of all but one of the targets because of verification adjustments to claimed savings.
- **Business Hard-to-Reach** (BHTR) fell short of all targets because of challenges with program delivery related to the COVID-19 pandemic such as disrupted supply chains, economic uncertainty, and direct installation of measures.



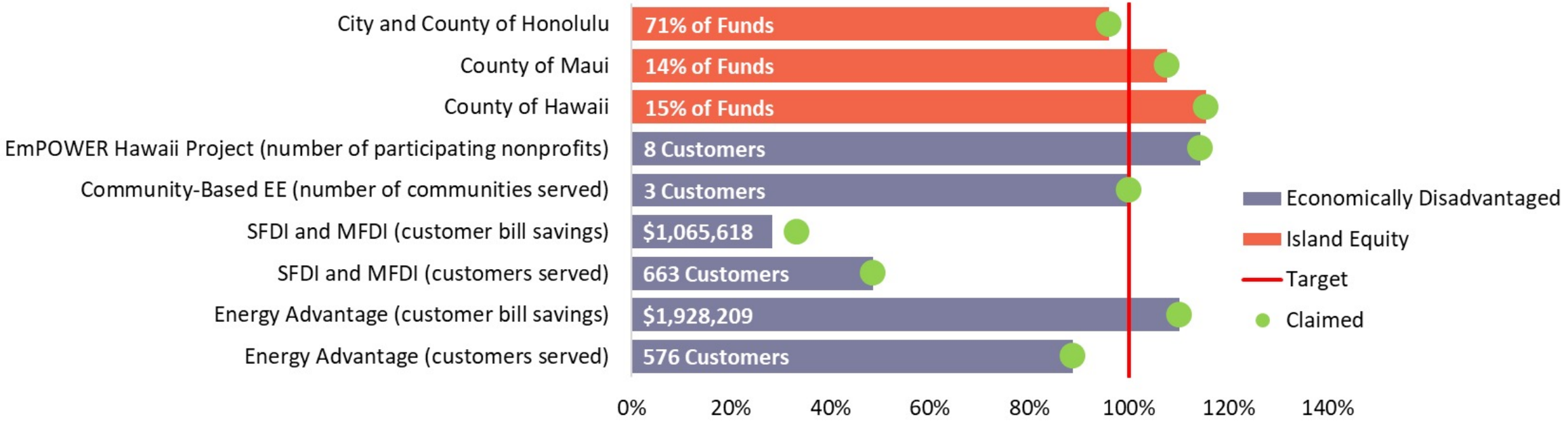
CET KEY TAKEAWAYS

- Hawai‘i Energy exceeded the Grid Services Ready target by over 300%.
- GHG Reduction targets were nearly achieved.



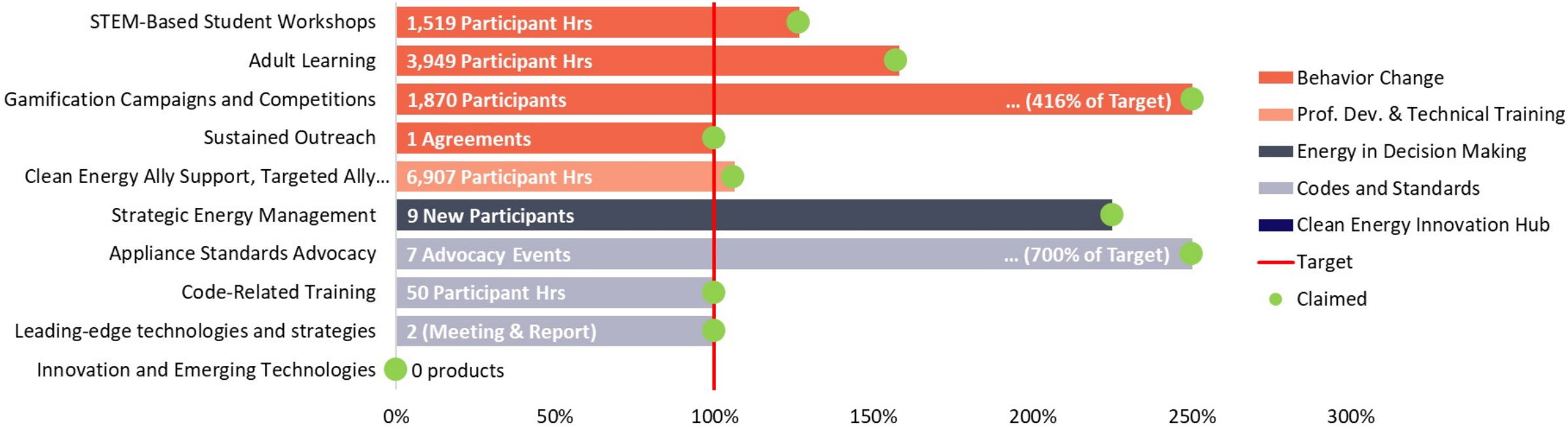
AFFORDABILITY & ACCESSIBILITY KEY TAKEAWAYS

- **Hawai‘i Energy met all A&A performance targets except for those associated with direct install portions of the BHTR and RHTR programs.** This is not unexpected, program managers noted during interviews that the pandemic resulted in limited in-person interactions.



MTED KEY TAKEAWAYS

- **Hawai‘i Energy PBFA programs met or exceeded targets for all Market Transformation & Economic Development (MTED) performance metrics except the Innovation and Emerging Technologies key focus area.**



LOW-TO-MODERATE INCOME (LMI) PERFORMANCE INCENTIVE MECHANISM (PIM)

- The LMI PIM seeks to incent Hawaiian Electric to collaborate with Hawai‘i Energy in the delivery of energy savings to LMI customers.
- AEG calculated the LMI PIM rewards associated with the RHTR and A&A programs implemented by Hawai‘i Energy as a test of the approach prior to the PIM coming into effect for the PY21 programs.
- The approach aims to calculate the additional net benefits customers received for RHTR and A&A initiatives by comparing first-year energy savings, peak demand savings, participation, and first-year bill savings targets to the verification results.
- Test of the approach shows that clarification is needed around certain metrics required in the LMI PIM calculations (e.g., the calculation required target RHTR first-year bill savings when the actual targets are for lifetime bill savings)

RECOMMENDATIONS

1

CBEEM

Ensure that regression models incorporate sufficient pre-and post-implementation data to cover the range of operating conditions experienced in a typical year.

This will improve the accuracy of savings estimates.

2

CBEEM

For CBEEM projects that include prescriptive rebates:

Include prescriptive rebates under the prescriptive track,

Or, indicate that the rebates are mixed while ensuring appropriate reporting.

3

CBEEM

Collect invoices (or an equivalent form of documentation) for all measures and projects prior to paying incentives.

4

Dual Baseline Calculations

Always account for dual baselines when calculating TRBs.

Some improvements from PY19, but still found persisting issues with both deemed and custom projects.

KELLY PARMENTER

AEG

PY22 TRM

SUMMARY OF PY22 UPDATES

Updated Residential Measures

- Smart Thermostat
- Heat Pump Water Heater

Updated Commercial Measures

- Freezer and Refrigerator
  - *Commercial-Style*
  - *Residential-Style*
- Demand-Controlled Ventilation

New Commercial Measures

- Dishwasher
- Heat Pump Water Heater
- LED Downlight Retrofit

Updated Cross-Cutting Content

- Avoided Costs
- System Loss Factors
- Codes & Standards Tracking

Program Criteria Modifications

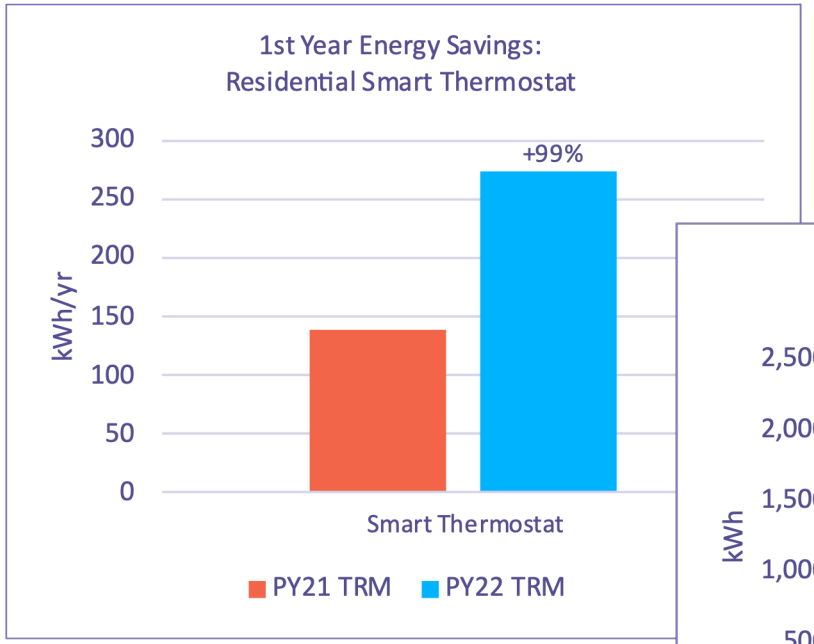
- Commercial HVAC
  - *Efficiency Requirements*
- Residential LED
  - *Program Applicability*

Measure Status Changes

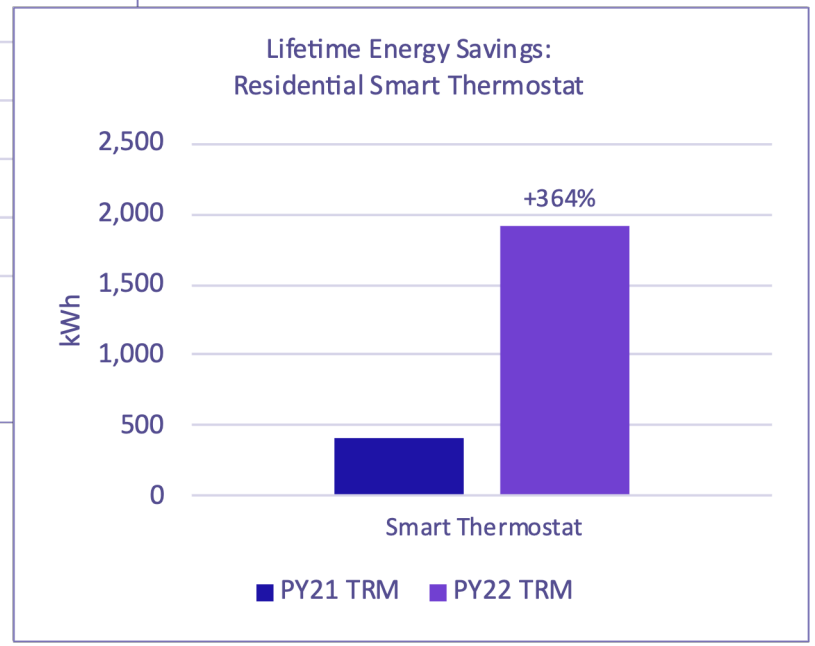
- Peer Group Comparison
  - *Removed from TRM*
- Residential Ceiling Fan
  - *Labeled Inactive*

UPDATED RESIDENTIAL MEASURES: *SMART THERMOSTAT*

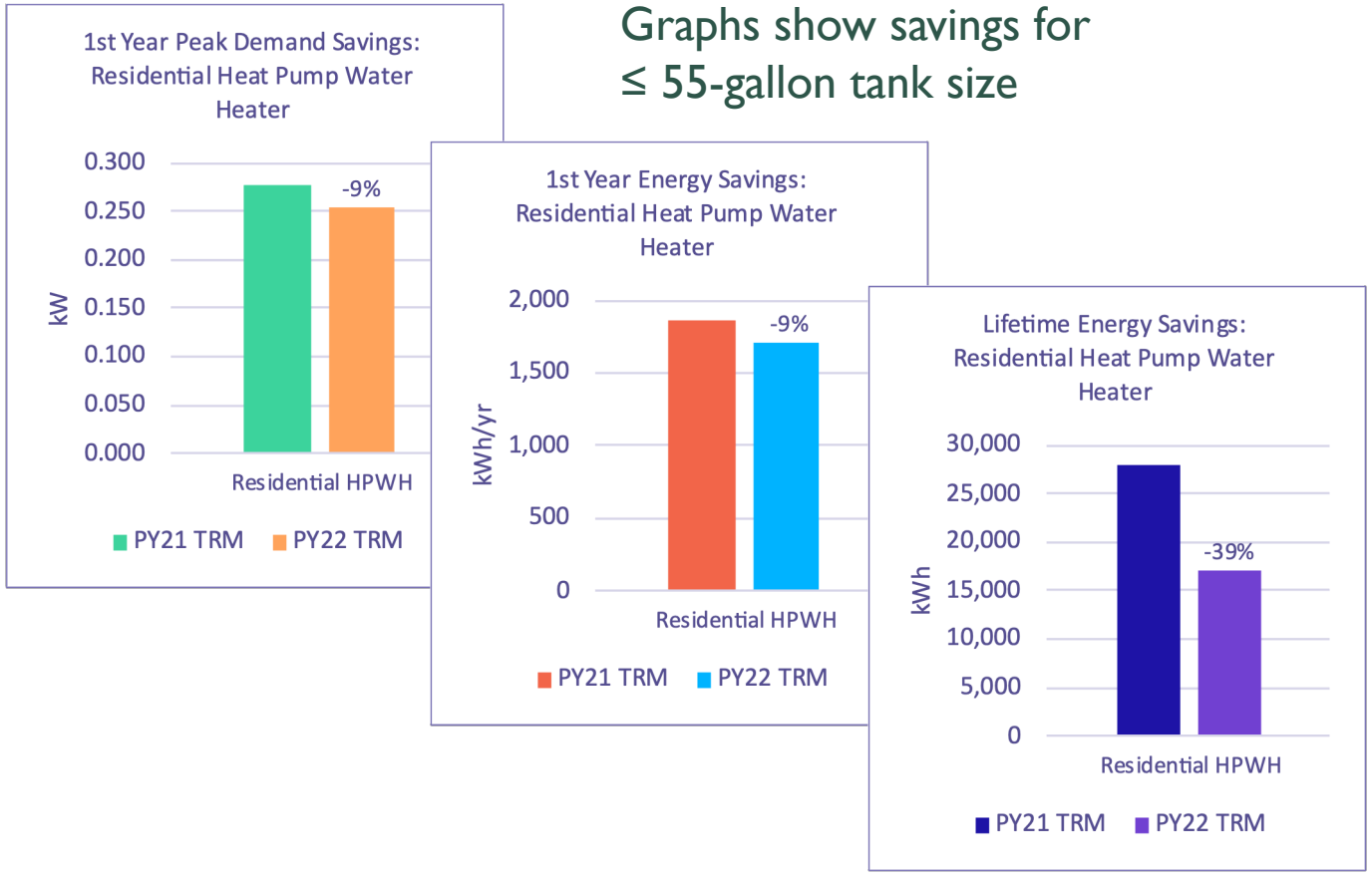
- Conducted full measure review and update
- Used data from the 2019 Hawaii Statewide Baseline Study, Hawaii-specific simulation models, and benchmarking to update algorithms and variables
- Developed savings for self-install and direct-install scenarios
- *Note: In the absence of targeted education, time-of-use rates, and/or a DR program, meaningful peak demand savings are not expected from this measure in Hawaii*



Graphs show savings for self-install scenario



UPDATED RESIDENTIAL MEASURES: *HEAT PUMP WATER HEATER*



Graphs show savings for ≤ 55-gallon tank size

- Conducted full measure review and update
- Expanded measure to include savings for systems with > 55 gal tank size (previously was limited to ≤ 55 gal)
- Updated ENERGY STAR criteria to Version 4.0
- Updated the water outlet temperature
- Corrected the EUL from 15 yr. to 10 yr.

UPDATED COMMERCIAL MEASURES: *REFRIGERATORS & FREEZERS*

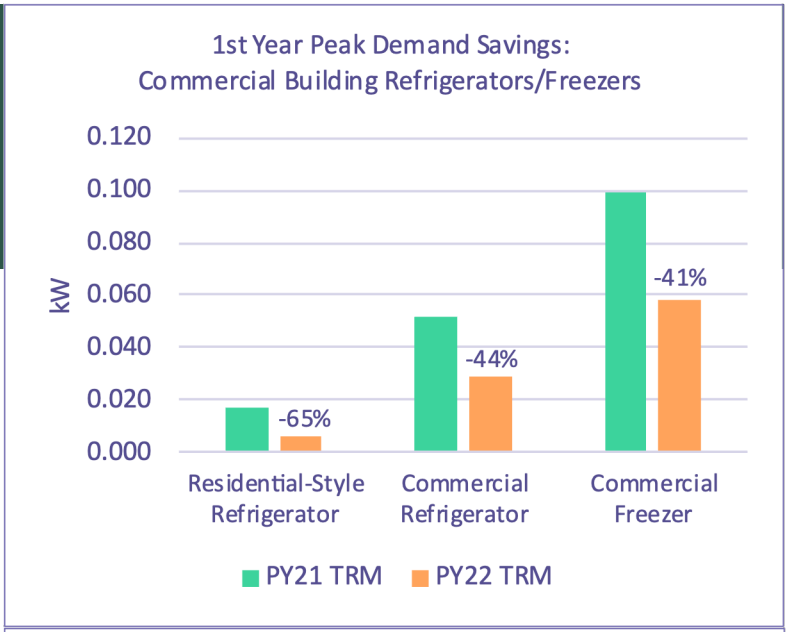
Commercial-Style Refrigerator and Freezer – Two Measures

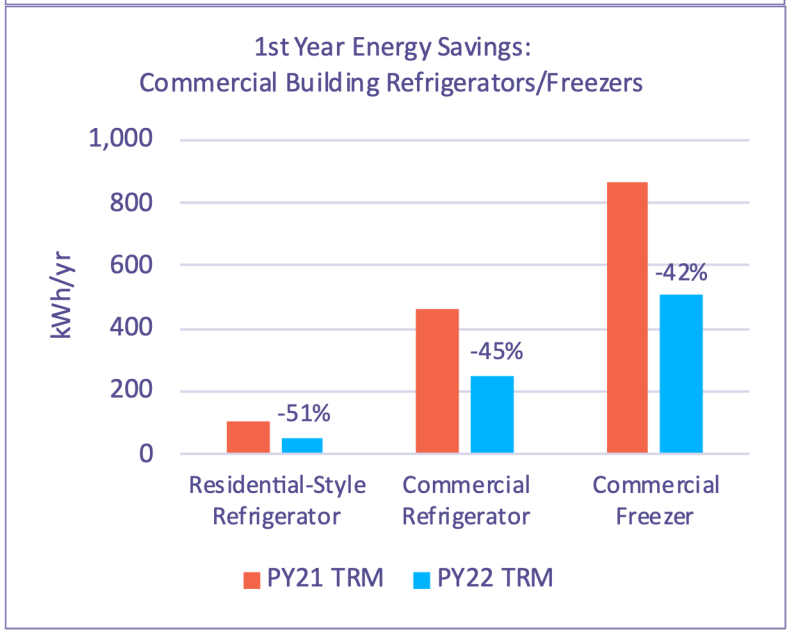
- Conducted full measure review and update
- Updated the baseline and efficient case energy use values to reflect current federal standards and current ENERGY STAR criteria
- Expanded the measures to include both vertical and horizontal door types

Residential-Style Refrigerator/Freezer in Commercial Buildings

- Modified measure details to clarify that the measure applies to residential-style refrigerators/freezers in commercial buildings
- Expanded the previous measure entry to include a) deemed savings for a variety of refrigerator and freezer products, and b) a semi-prescriptive calculator

Graphs show savings for representative examples

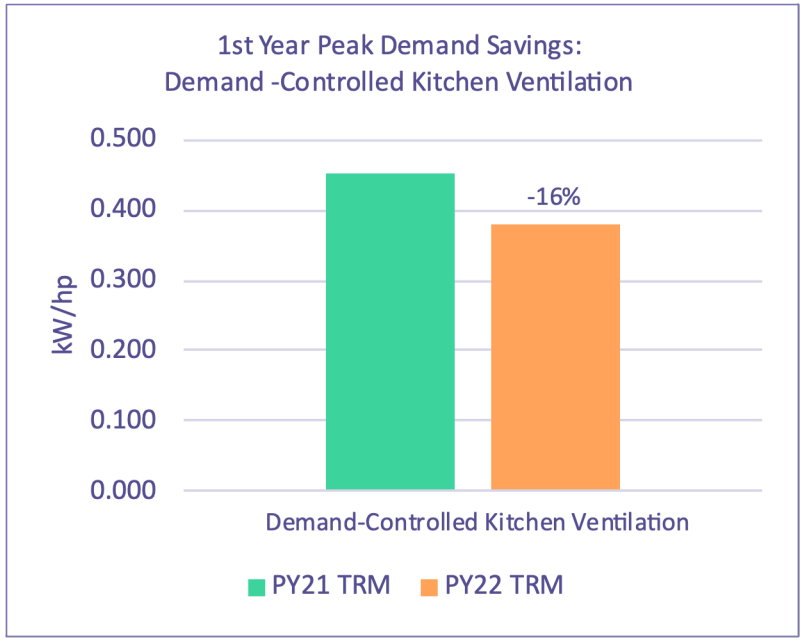


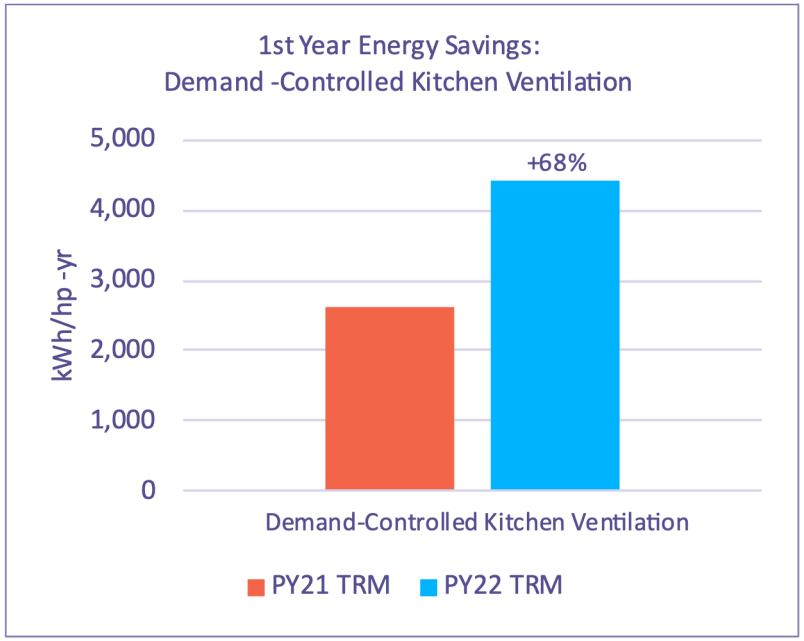


UPDATED COMMERCIAL MEASURES: *COMMERCIAL KITCHEN DEMAND-CONTROLLED VENTILATION*

- Conducted full measure review and update
- Used benchmarking to update the peak demand reduction and energy savings values with recent field data from SCE, PG&E, and ASHRAE
- The peak demand reduction corresponds to a peak demand period of 4-9 pm, which is similar to Hawaii's 5-9 pm period

Graphs show savings per unit of fan horsepower





NEW COMMERCIAL MEASURES – EXAMPLES OF SAVINGS

Measure	Per-unit Peak kW Savings	Per-unit Annual kWh Savings	Effective Useful Life (years)
Heat Pump Water Heater[1]	0.281	2,064.07	10
LED Downlight Retrofit[2]	0.009	48.66	25
ENERGY STAR Dishwasher[3]	0.425	2,513.00	10

Notes:

1. Savings are per water heater for a grocery store.
2. Savings are per downlight retrofit for an average commercial building and are for the early replacement scenario.
3. Savings are per dishwasher for a low-temperature, under-counter dishwasher with electric water heating.

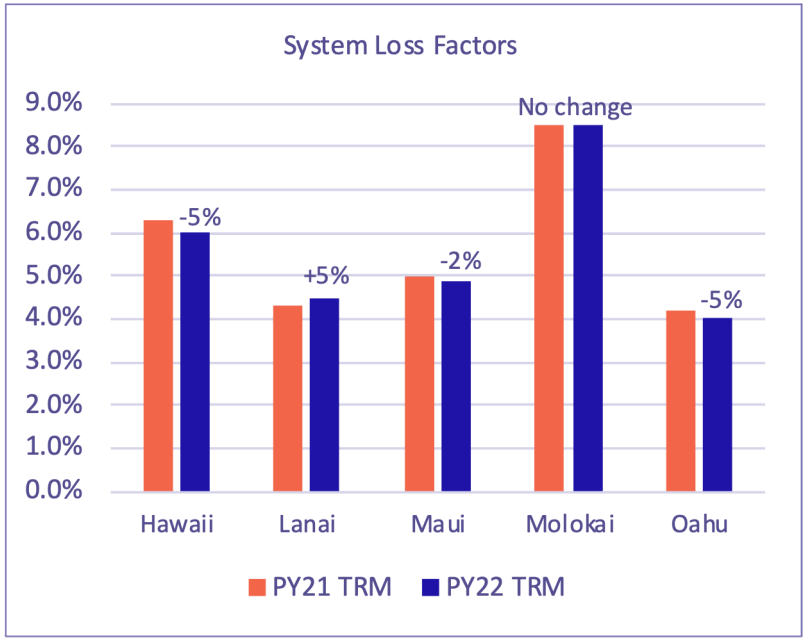
UPDATED CROSS-CUTTING CONTENT

Avoided Costs Tables for PY22-PY24

- Used same general approach as used for PY19-PY21 to develop avoided cost tables for PY22-PY24
- Avoided Capacity Costs: Updated for PY22-PY24 by using an annual escalation factor of 2.3%
  - PY22 costs for Oahu and Maui **increased** relative to PY21
  - Hawaii County's costs **remained at zero**
- Avoided Energy Costs: Updated for PY22 by using the average of Jan 2021 to Mar 2022 Schedule Q values. Escalated the avoided energy costs by 3.0% per year for subsequent years.
  - PY22 costs **decreased** for Oahu and Maui relative to PY21
  - Hawaii County's PY22 costs **increased** relative to PY21

System Loss Factors

Updated loss factors using average of 2017-2021 data on "Losses and Unaccounted for Energy" from Hawaiian Electric Company

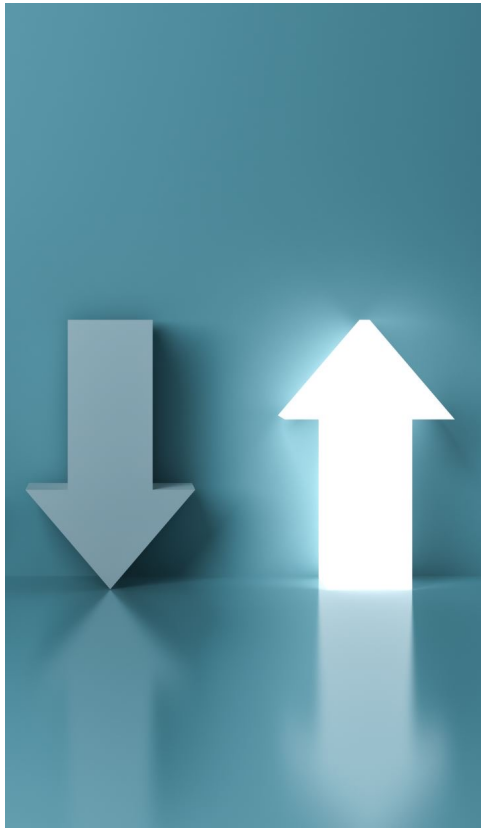


Codes & Standards Tracking

Added new and upcoming Hawaii codes and standards from lists provided by the Hawaii State Energy Office

EXPECTED EFFECTS ON PORTFOLIO LEVEL SAVINGS

- Changes in eligibility for the HVAC measures will likely increase the number of projects implemented, but average savings per project may be lower since less efficient equipment will qualify
- Major savings revisions to the other existing measures will lead to reductions in per-unit savings for most of the measures, except for the residential smart thermostat and commercial demand-controlled ventilation measures, which will see some increases in per-unit savings
- Updates to avoided costs will increase the value of demand savings for Oahu and Maui, lower the value of energy savings for Oahu and Maui, and increase the value of energy savings for Hawaii.
- Effects from updates to the system loss factors will vary by island, but the changes will lead to an overall decrease in system-level savings.
- New measures will bring greater opportunities for savings to the portfolio.



TAG PARTICIPATION

- We appreciate your input!
- The next update cycle will begin in Fall 2022
- If you have suggestions, please email
  - Kelly Parmenter (kparmenter@appliedenergygroup.com)
  - Mary Sutter (mary@grounded-research.com)

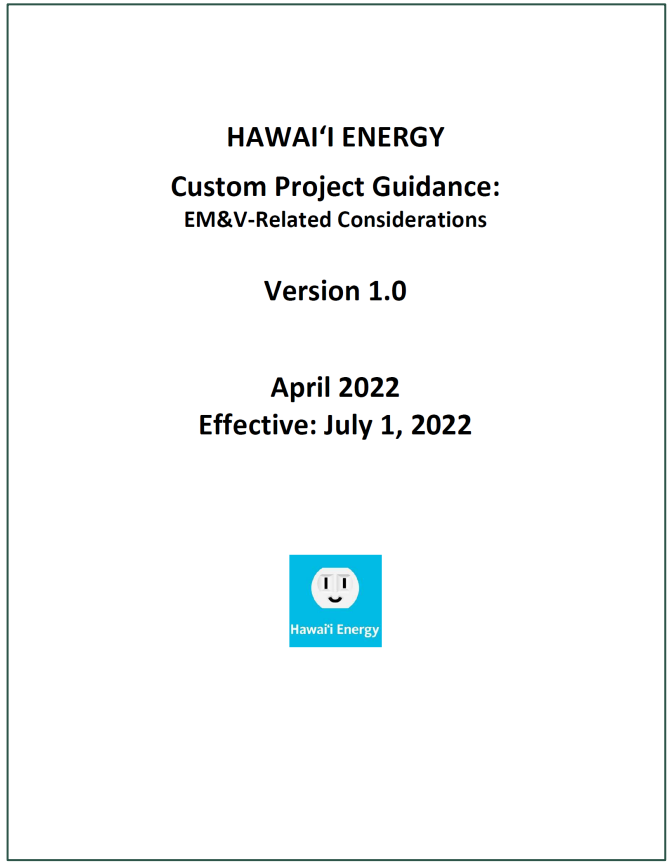
Thank You

KELLY PARMENTER

AEG

CUSTOM PROJECT GUIDANCE DOCUMENT

SUMMARY

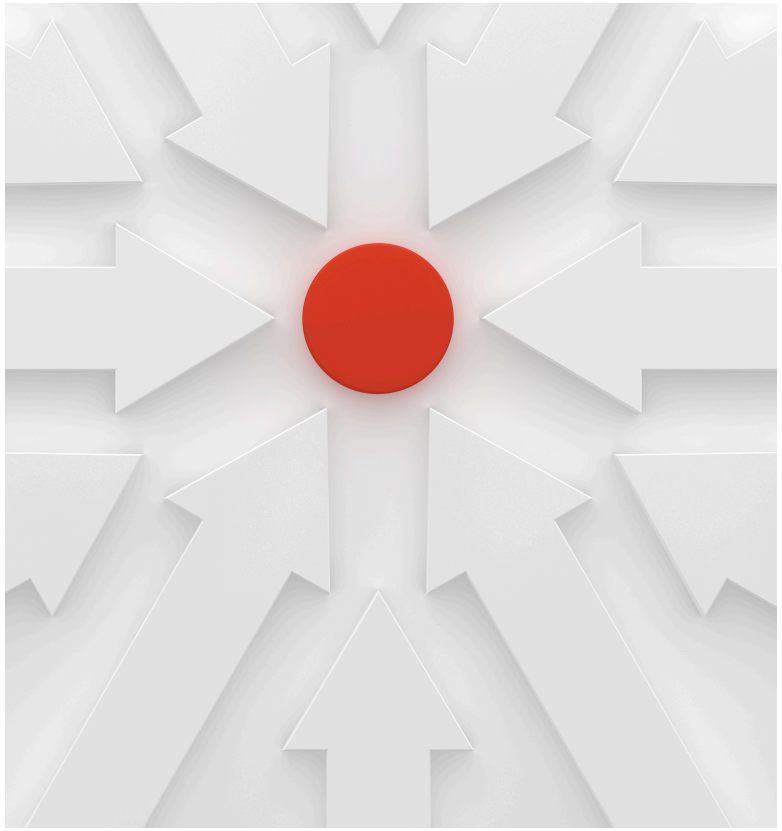


Supplements the TRM by providing information on custom projects applicable to Hawai'i Energy's custom programs

- Defines custom projects
- Describes program rules
- Provides guidance on the following:
  - Project documentation and data collection
  - Energy savings estimation approaches
  - Impact evaluation of custom programs
- The focus is EM&V-related considerations
- Includes both minimum requirements and optional best practices, along with specific examples for common custom projects

KEY TAKE-AWAY

- The overall minimum requirement is that the documentation and savings calculations performed during both custom project implementation and custom program verification must be sufficiently transparent to allow another analyst to
  - Assess program eligibility
  - Confirm that the project was purchased and implemented as intended
  - Understand the savings analysis
  - Be able to replicate calculations if needed
- The document provides examples and details to enable meeting this minimum requirement



CUSTOM PROJECT DEFINITION

- A custom project consists of a single measure or a combination of measures that is larger in scope, more complex, and/or less well-characterized than a deemed or semi-prescriptive measure
- Custom projects require collection and analysis of site-specific data to estimate energy and demand savings reliably and to determine the customer's incentive
- Custom projects require sufficient documentation and analysis transparency to allow for quality control review and independent verification
- Custom calculations should be derived by industry best practices

Examples of Custom Projects

Building RCx

New Construction

Large Capacity Water Heating

Large Capacity HVAC

Lighting replacement that is not "Like-for-Like"

Specialized Processing Equipment

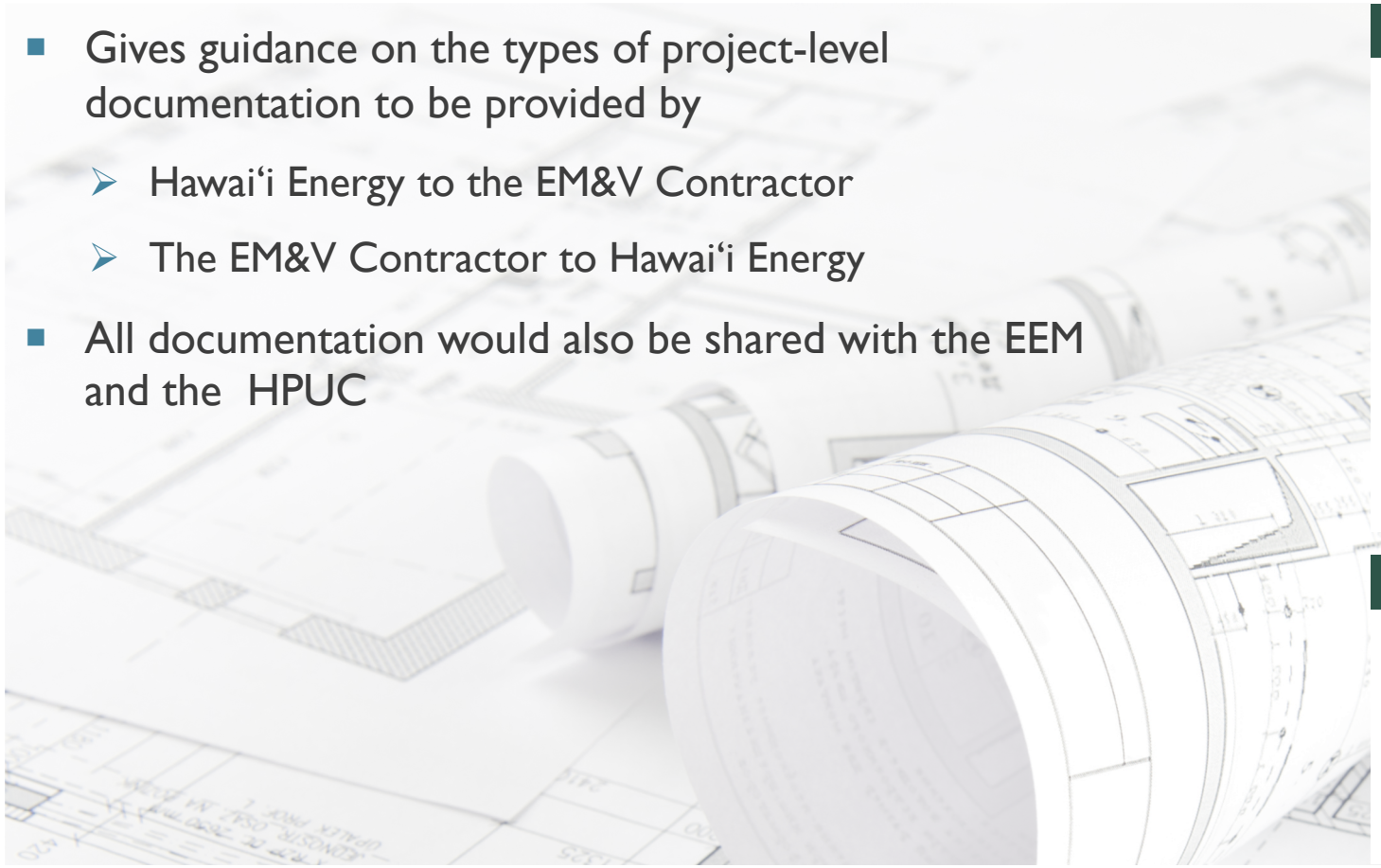
VFDs on Large HP Motors

CUSTOM PROGRAM RULES

- The document describes Hawai'i Energy's general program rules for custom projects
- These are provided to customers in the Commercial Incentive Application and Custom Project Worksheets
- The rules cover requirements related to
  - Pre-approval prior to start of work
  - Incentive calculations and thresholds (max incentive ≤ 50% costs)
  - Simple payback period and other benefit / cost tests
  - General documentation and analysis requirements
- The document also notes that specific requirements may vary on a case-by-case basis, such as the need for pre- and post-implementation site inspections

GUIDANCE ON PROJECT DOCUMENTATION

- Gives guidance on the types of project-level documentation to be provided by
  - Hawai‘i Energy to the EM&V Contractor
  - The EM&V Contractor to Hawai‘i Energy
- All documentation would also be shared with the EEM and the HPUC



Hawai‘i Energy to EM&V Contractor

- General customer information
- Description of project and measures, including baseline conditions
- Key implementation dates
- Site-specific data collected
- Energy and demand savings calculations, including lifetime estimates
- Project costs and invoices
- Equipment specifications and relevant drawings
- Documentation to justify early retirement projects
- QA/QC and site inspection documentation

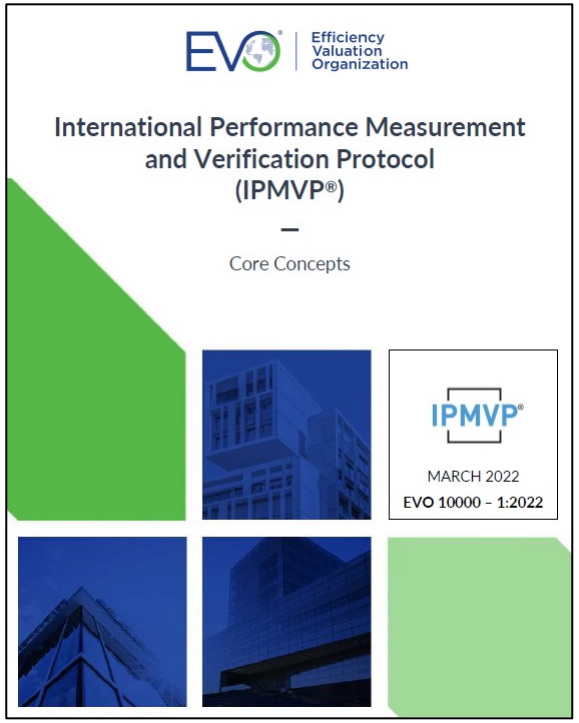
EM&V Contractor to Hawai‘i Energy

- Sampling plan
- Sample selection
- On-site verification plan
- On-site verification report
- Desk review report
- Documentation on sample expansion to the population

GUIDANCE ON SAVINGS ESTIMATION APPROACHES

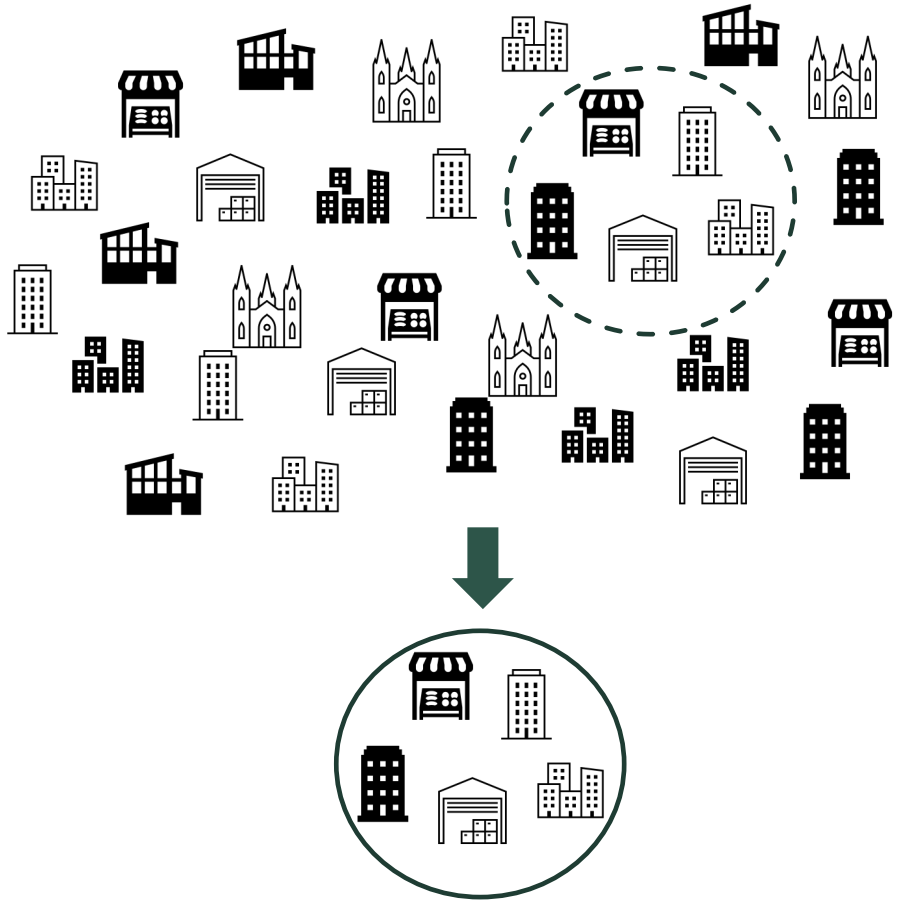
- Savings estimation approaches for custom projects are, by definition, unprescribed
- However, there are still basic requirements for rigor that must be applied to yield reasonably accurate estimates of energy and peak demand impacts
- One basic requirement is that customer-specific data is collected and used in the savings calculations
- The document covers guidelines related to
  - Applying IPMVP options to common types of custom projects
  - Conducting pre/post-implementation site inspections
  - Taking measurements and collecting data
  - Analyzing energy impacts with statistical models

IPMVP lays out guidelines for estimating savings of individual custom projects



GUIDANCE ON IMPACT EVALUATION

- In Hawaii, the current focus related to impact evaluation is *verification* of claimed savings and not *independent evaluation*
- Therefore, the EM&V Contractor's data collection, measurement, and analysis requirements with respect to custom projects tend to be limited to efforts that support verification
- The document provides general guidance for essential elements of the annual verification process
  - Statistical sampling
  - Verification approaches (engineering desk reviews, onsite verification)
  - Expansion of sample results to the population



QUESTIONS OR COMMENTS ON EM&V ITEMS?

QUESTIONS?

Please contact Jennifer Barnes at 510-756-1501 or jenniferbarnes@2050partners.com. Meeting materials will be posted on www.HawaiiEEPS.org

Appendix: Marketing & Communications

Marketing & Communications:

Operational Support Priorities

Research and develop new lead funnels

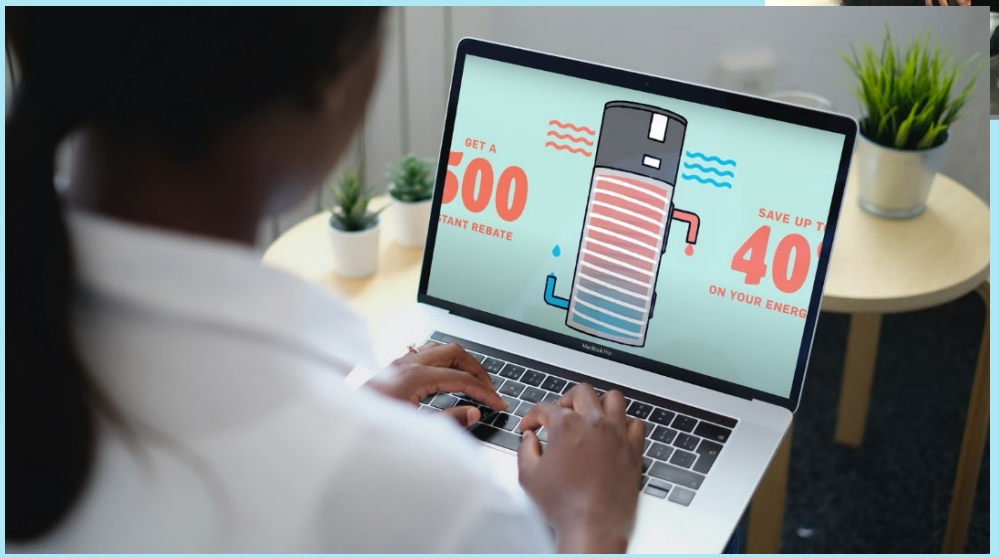
- Application & Intake Process Refinement
- Business Customer Referral Program
- Increase Residential Retailer Engagement

Improve online user experience & customer journey (PY22-23)

- Integration of New Marketing Capabilities
- Leaning in to “self-service” content demands

Marketing & Communications:

Operational Support Priorities

Brand Awareness & Positioning

- More frequent strategic advertising and public relations