



# PBF TECHNICAL ADVISORY GROUP

October 27, 2023  
9:00 a.m. to 10:20 a.m.

Hawai'i Energy Offices with Teams Web conference option

# REMINDERS

- Remote participants, please mute your lines when you aren't speaking – we'd like to keep the lines open so you can easily join the conversation
  - You may also use the “raise hand” or chat functions
- Please identify yourself and your organization when speaking



COMMISSION WELCOME

# AGENDA

- 9:00 – Welcome
- 9:05 – Agenda & Meeting Objectives
- 9:10 – Program Year in Review & Ahead
- 9:35 – EM&V Update
- 10:00 – TRM Updates
- 10:15 – Wrap up & adjourn

# WELCOME & MEETING OBJECTIVES

TAMI RASMUSSEN  
ENERGY EFFICIENCY MANAGER TEAM



# INTRODUCTIONS BY ORGANIZATION

# OVERVIEW OF PY22 RESULTS & KEY CHANGES FOR PY23

CAROLINE CARL

EXECUTIVE DIRECTOR, HAWAI'I  
ENERGY



**Hawai'i Energy**

**PY2022 in Review**

**Technical Advisory Group (TAG) Meeting**

*October 27, 2023*



# AGENDA

**01** **Executive Summary**

**02** **Clean Energy Technologies Portfolio Review**  
Commercial Prescriptive & Custom

**03** **Energy Optimization Initiatives**  
Power Move | Demand Response Ready | EV Charging Station Rebate Program

**04** **Accessibility & Affordability**  
Community-Based Energy Efficiency | Energy Advantage | EmPOWER Grant

**05** **Market Transformation & Economic Development**  
Trainings & Workshops | Policy | Benchmarking

**06** **Key Takeaways – Into PY23 and Beyond**

# EXECUTIVE SUMMARY

## ORG

Onboarded 12 new team members across the organization including a Project Development Engineer position to drive commercial portfolio pipeline development and a Residential Program Manager. Closed out PY22 at 34 staff, continuing to recruit for Energy Advisor team.

## CET

Residential portfolio- maintained momentum with updated program offerings driving participation through the second half of the year.

## EOI

Commercial portfolio custom projects closed year well below 50% of target. Team focused on treasure hunts and tailored customer engagement as priority responsibilities for pipeline development.

## A&A

EVCS rebate program remained steady through second half of year. *Power Move* peak demand savings bonus continues with slower but steady participation shifting more heavily into HVAC optimization initiatives. Demand Response ready initiatives continued under both residential and commercial initiatives, but large guest room control project got pushed to PY23 because of customer delays causing us to miss the targeted equipment deployment for PY22.

## MTED

Both residential and commercial A&A programs surpassed targets for customers served. The revamped Energy Advantage qualifications helped to drive engagement. Community based energy efficiency initiatives focused on appliance trade ups in collaboration with key outreach partners, a total of 325 appliances were upgraded. The Empower grant received over 250 applications, awarded 150 and closed the year with 134 completed.


















## MarCom













Hybrid offerings continued to generate significant interest for Professional Development trainings. We remain focused on Clean Energy Ally engagement with an in-depth, small group sessions. Multi-day more intensive technical trainings are in high demand. Continue to build out training capacity with in-house resources through Train the Trainer model.

Marketing campaigns remain critical for increasing brand awareness and driving program participation. Throughout the year, continue to leverage national campaign efforts like Earth Month, Energy Awareness month and World Energy Efficiency Day to maximize exposure. Campaigns like *Be A Light*, *Give A Light* provide great opportunity to highlight Clean Energy Allies and target underserved customers. Continue to prioritize HECO collaboration work for communications and resource development.

# PY22 Progress Matrix – CET and A&A

<b>Legend</b>	 Meeting Goals	 Making Progress	 Facing Challenges
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<b>CLEAN ENERGY TECHNOLOGIES</b>	Key Focus Area	Residential		Commercial	
		Q3-4	End	Q3-4	End
	First-Year Energy Reduction				
Lifetime Energy Reduction (new)					
Peak Demand Reduction					
Total Resource Benefit					
Grid Services Ready					











<b>ACCESSIBILITY &amp; AFFORDABILITY</b>	Key Focus Area	Q3-4	End
	Business A&A		
Residential A&A			
Community-Based Energy Efficiency (new)			
Island Equity – County of Hawai'i			
Island Equity – County of Maui			
Island Equity – C&C Honolulu			








# PY22 Progress Matrix – Market Transformation

**Legend**

-  Meeting Goals
-  Making Progress
-  Facing Challenges

MTED BEHAVIOR CHANGE	Key Focus Area	Q3-4	End
	STEM-based Student Workshops		
	Adult Learning		
	Gamification Campaigns & Competitions		
	Sustained Outreach		
	Professional Development and Technical Assistance		









MTED CODES & STANDARDS	Key Focus Area	Q3-4	End
	Advocacy		
	Code-Related Training		
	Leading-edge Technologies & Strategies		

MTED – CLEAN ENERGY INNOVATION HUB	Key Focus Area	Q3-4	End
	Innovation and Emerging Technologies		

# PY22 Progress Matrix – Grid Services Ready, Demand Flexibility and Green House Gas Emission Reduction

**Legend**

-  Meeting Goals
-  Making Progress
-  Facing Challenges

	Key Focus Area	Q3-4	End
	Grid Service Ready - products installed		
	Demand Flexibility		
	Green House Gas Emissions Reduction		
	Avoided Barrels of Oil		

02

## Clean Energy Technologies

Commercial Prescriptive & Custom

Program Year 2022

Key Performance Metrics	Targets	Claimed Results	Claimed % of Target
<b>First Year Energy Reduction (kWh)</b>	<b>89,807,910</b>	<b>56,162,776</b>	<b>62.5%</b>
Business Prescriptive	25,546,423	11,790,622	46.2%
Business HTR	6,863,630	6,987,816	101.8%
Business Custom	26,901,196	6,472,844	24.1%
Business Grid	150,577	305,962	203.2%
Residential Incentives	26,527,695	27,133,910	102.3%
Residential HTR	3,818,390	3,471,622	90.9%
<b>Lifetime Energy Reduction (kWh) (new)</b>	<b>1,227,351,042</b>	<b>727,354,827</b>	<b>59.3%</b>
Business Prescriptive	395,785,912	188,940,300	47.7%
Business HTR	98,934,407	95,945,412	97.0%
Business Custom	376,115,928	85,321,527	22.7%
Business Grid	1,505,765	3,059,617	203.2%
Residential Incentives	308,971,831	311,201,726	100.7%
Residential HTR	46,037,199	42,886,245	93.2%
<b>Peak Demand Reduction (kW)</b>	<b>17,605</b>	<b>8,079</b>	<b>45.9%</b>
Business Prescriptive	5,099	1,809	35.5%
Business HTR	1,038	895	86.2%
Business Custom	2,911	980	33.7%
Business Grid	4,203	45	1.1%
Residential Incentives	3,840	3,924	102.2%
Residential HTR	515	427	82.9%
<b>Total Resource Benefit (\$)</b>	<b>155,921,667</b>	<b>89,569,518</b>	<b>57.4%</b>
Business Prescriptive	50,442,070	22,132,061	43.9%
Business HTR	12,265,940	12,033,868	98.1%
Business Custom	44,724,352	12,290,180	27.5%
Business Grid	4,274,981	369,410	8.6%
Residential Incentives	38,547,499	37,189,398	96.5%





## PY2022 SNAPSHOT

- Almost **500 fewer commercial projects** in PY22 compared to PY21, a 21% reduction (total rebates 1,792 in PY22 compared to 2,282 in PY21)
- **Shortfall of over 34 million kWh** in commercial prescriptive and custom programs
- **Power Move** continues to be an attractive offering for customers
- Portfolio direct incentives:
  - First Year \$/kWh - \$.26
  - Lifetime \$/kWh - \$.02
- **Steady spend and savings for both residential and commercial A&A programs**



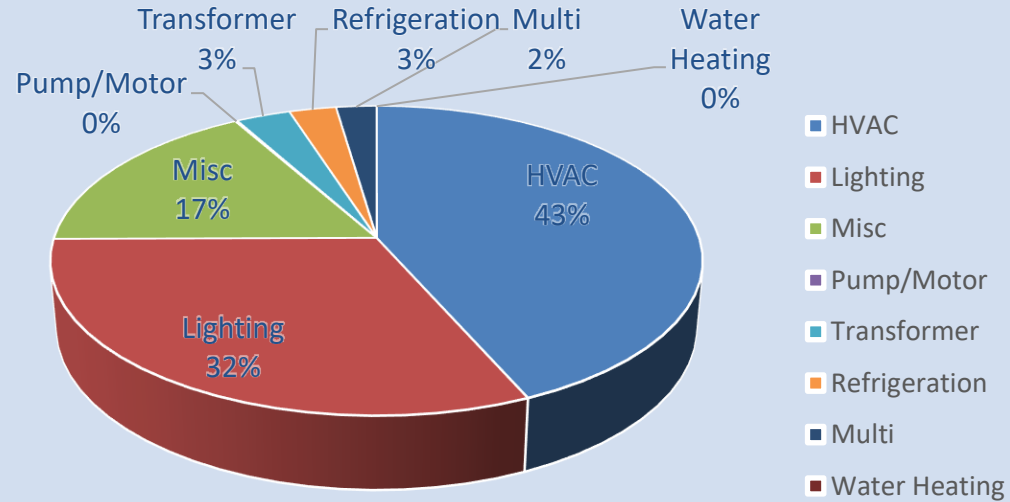
### Unprecedented Challenges:

- Customers in “revenue mode” only – no CAPEX investments, O&M only
  - Lots of deferred maintenance
- Labor shortages result in slower progress, longer engagement period (reintroductions, relationship building)
  - Grants and incentives under \$10k viewed as too much work
- Commercial real estate trajectory completely shifting
- DOD focus on cyber security over energy efficiency

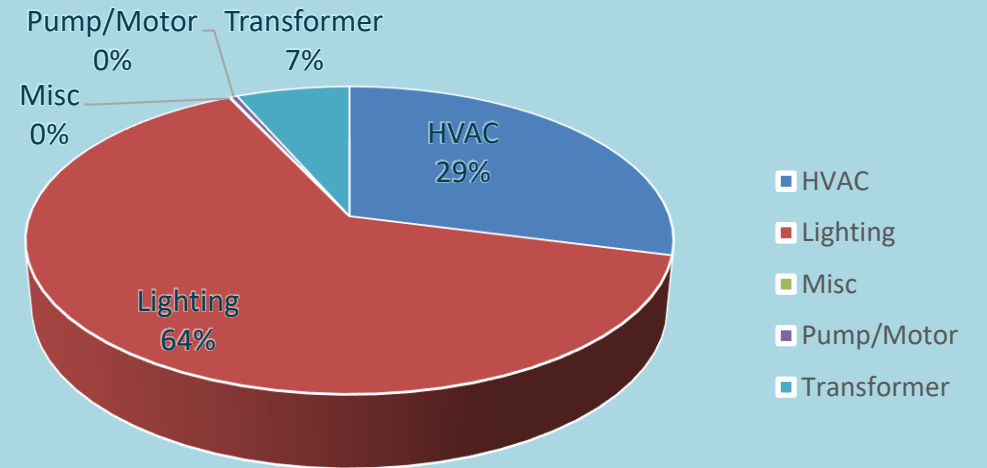


# Commercial Custom Portfolio PY21 vs. PY22 Comparison

Custom - Program Year 2021  
Total Savings: 24,703,301

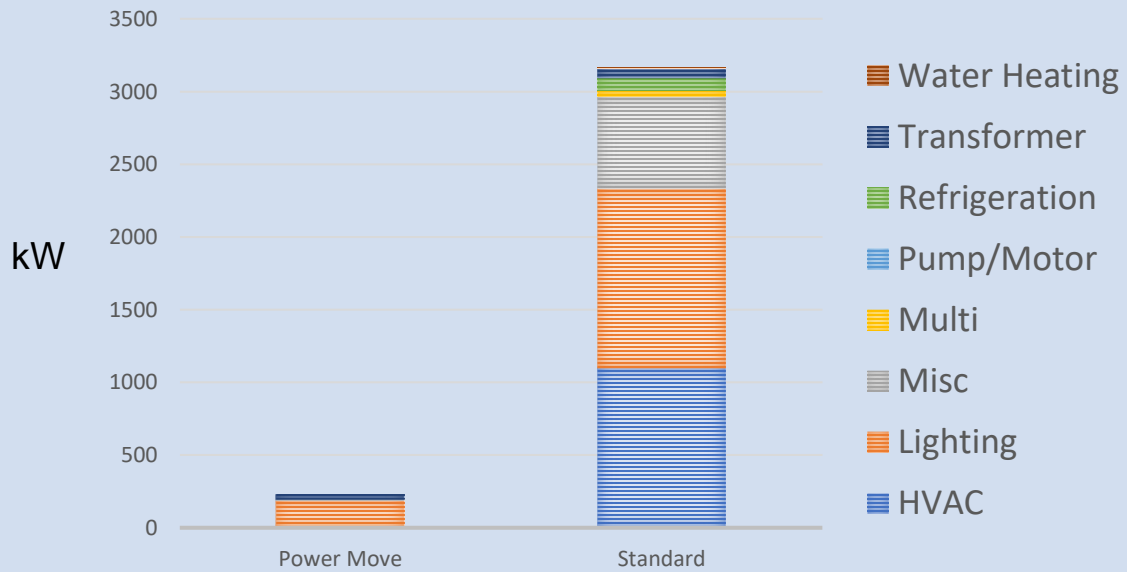


Custom - Program Year 2022  
Total Savings: 6,472,843

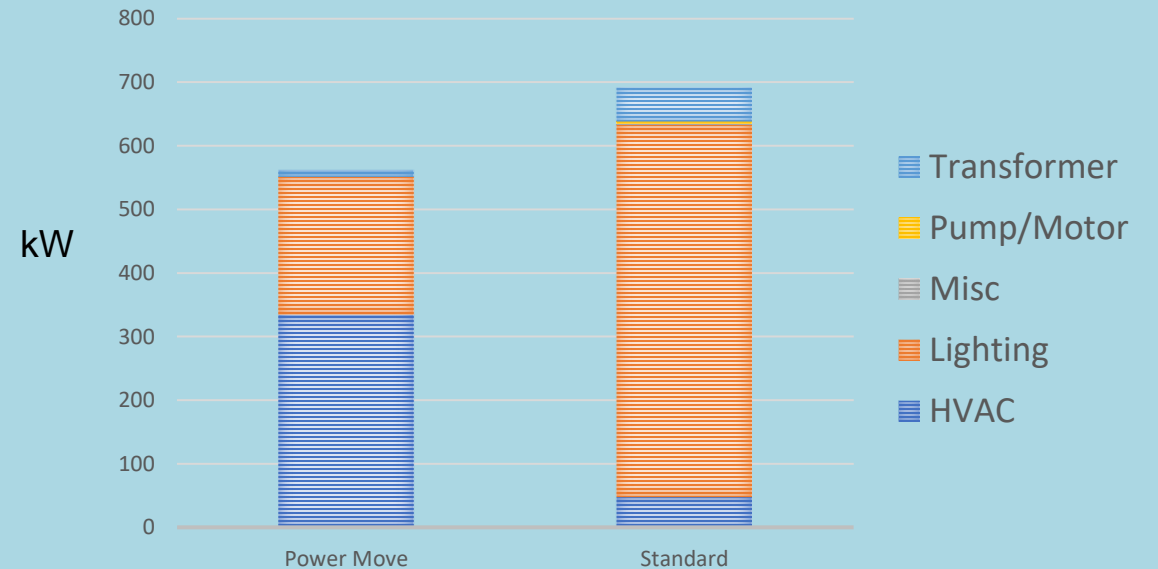


# Commercial Custom Portfolio PY21 vs. PY22 Comparison

Custom - Program Year 2021



Custom - Program Year 2022



# 03

## Energy Optimization Initiatives

Power Move | Demand Response Ready | EV Charging Station Rebate Program



## Power Move – Commercial Energy Storage

**Objective:** The Power Move family of rebates is designed to reward local businesses for taking steps to reduce energy load during utility peak hours of 5:00 to 9:00 p.m.



- 0 kW of 4,000 kW target completed in PY22
- 8 projects formally committed upon year-end
  - 6 O‘ahu, 2 Maui
  - 1.3 MW of committed capacity
  - \$669,000
  - Most with expected date of service in late 2023 or 2024



### Challenges:

- Permitting and permission to operate timeline
- Long project sale cycle



## Power Move – Demand Savings Bonus

**Objective:** The Power Move family of rebates is designed to reward local businesses for taking steps to reduce energy load during utility peak hours of 5:00 to 9:00 p.m.



**Progress:**

- 46% of PY22 custom portfolio dollars were Power Move projects

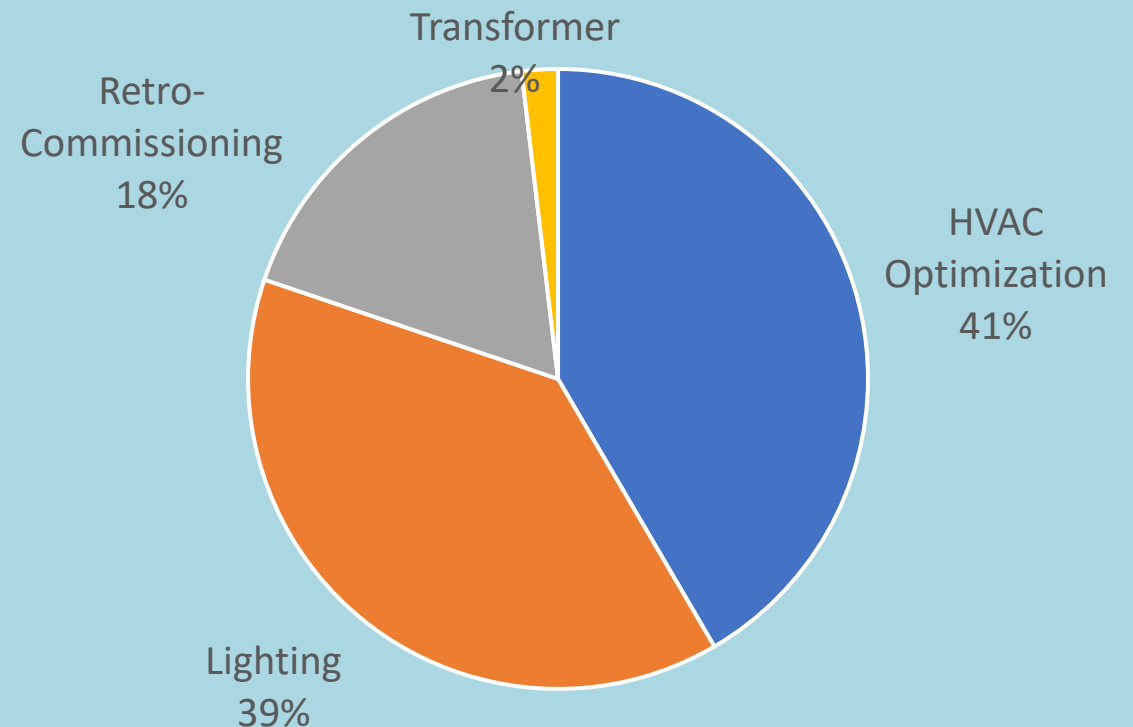
	Committed in PY22 or earlier	Completed in PY22
Incentives	\$1,368,281	\$568,129
Peak kW Reduction	873 kW	438 kW
First Year kWh	6,529,566	2,685,391
Number of Projects	57	30



**Challenges:**

- Contractors busy
- Scheduling challenges
- Nearly half the projects pushed into PY23

**Completed Project Equipment Types by Peak Demand Reduction Impact**



## Commercial Demand Response Ready

**Objective: Support smart hotel guest room controls and other smart technology installations to promote grid service capable demand side resources and future enrollment in HECO DR programs**



### **Demand Response Capable Guest Room Energy Management Systems**

- PY22 resulted in 985 units controlled
- A large install at Four Seasons Resort Ko Olina with 510 units fell into PY23
- Ongoing conversations with HECO for Fast DR applicability

### **Smart Devices – GridPoint Energy Management System**

- 27 devices installed in PY22
- A wide range of energy savings results—continuous monitoring is important
- Panda Express, with 19 installs, expanding to 14 more
- 7-11 piloting at 4 sites currently, potential to expand to 65 additional sites





## Residential Demand Response Ready

**Objective: Support GIWH and other smart technology installations to promote grid service capable demand side resources for all customers**



- 12 new participants for Heat Pump Demonstration pilot initiative with Shifted Energy
  - 100% of participants in HPWH Trials are Native Hawaiian LMI families, many of which have been significantly impacted by the pandemic and rising utility rates
  - Average of (77%) reduction in water heater energy usage from retrofitting electric resistance and solar-thermal water heater systems
  - Ongoing testing grid services functionality – frequency response, load build, load shed, load shift, emergency demand response
    - Troubleshooting included tank placement, piping, electrical hook-up
- Continued to support GSPA recruitment - total of 480 water heating controls deployed and enrolled in HECO demand response portfolio
  - Move-outs continue to be a challenge



## EV Charging Station Rebate Program

**Objective: Deploy the first tranche of funding appropriated with Act 202 SLH 2022**



- Execution underway
- Majority of backlog from April stoppage cleared
- Contractual Modification signed in November
- Awaiting Additional Funds



- Project delays continued due to permitting
- Program restarted in Q2

PY22 through Q3		FUNDING	NOTES				
PY22 Rebate Funding	\$807,500	Level II Single Port (NEW)	Level II Single Port (Retrofit)	Level II Multi Port (New)	Level II Multi Port (Retrofit)	DCFC (NEW)	DCFC (Retrofit)
Total Paid	\$657,047	23		47	16	2	1
Remaining Funding	\$150,453	\$45,906		\$330,141	\$78,000	\$175,000	\$28,000
Current Pipeline	\$151,400						



# 04

## **Accessibility & Affordability**

Community-Based Energy Efficiency | Energy Advantage |  
EmPOWER Grant

KEY FOCUS AREAS	PY22 TARGET	ACHIEVED	PERCENTAGE TO TARGET	
<i>ECONOMICALLY DISADVANTAGED</i>				
<ul style="list-style-type: none"> <li>• BUSINESS A&amp;A (ENERGY ADVANTAGE, ENERGY RELIEF GRANT)</li> </ul>	CUSTOMERS SERVED	550	631	114.7%
	CUSTOMER BILL SAVINGS	\$1,754,611.52	\$1,375,541	78.4%
<ul style="list-style-type: none"> <li>• RESIDENTIAL A&amp;A (SINGLE &amp; MULTIFAMILY DIRECT INSTALL, WATER HEATING DIRECT INSTALL, BULK APPLIANCE, MAINTENANCE)</li> </ul>				
	CUSTOMERS SERVED	1800	1990	110.6%
CUSTOMER BILL SAVINGS	\$2,631,891	\$2,927,739	111.2%	
<ul style="list-style-type: none"> <li>• COMMUNITY BASED ENERGY EFFICIENCY (NEW)</li> </ul>				
	CUSTOMERS SERVED	4	5	125%

KEY FOCUS AREAS		PY22 TARGET	ACHIEVED	PERCENTAGE TO TARGET
<i>ISLAND EQUITY</i>				
• COUNTY OF HAWAI'I	CUSTOMERS SERVED	13%	14.2%	109.2%
• COUNTY OF MAUI	CUSTOMERS SERVED	13%	12.6%	96.9%
• CITY & COUNTY OF HONOLULU	CUSTOMERS SERVED	74%	73.2%	98.9%

# Community-Based Energy Efficiency - 1,990 Customers Served\*



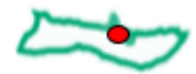
**Wai'anae – Delivered 88 appliances.**



**Waimanalo – Delivered 40 appliances.**



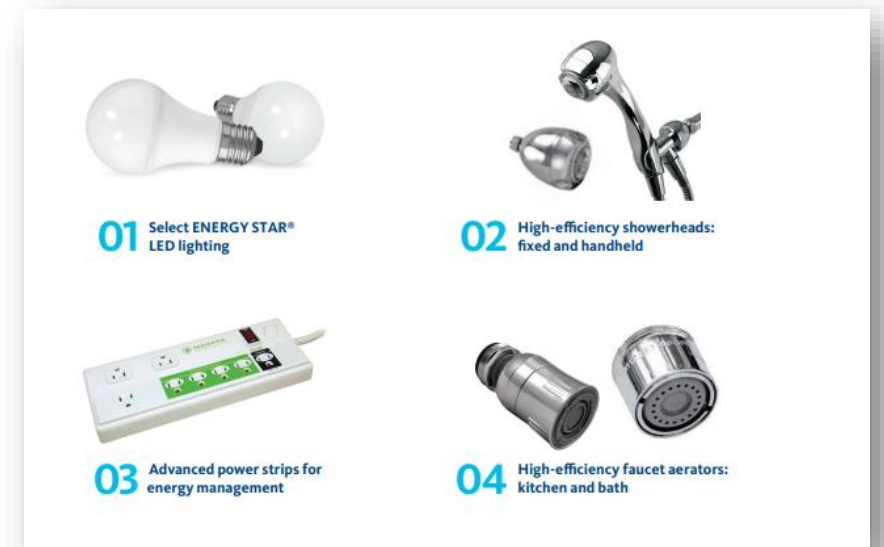
**Puna – Delivered 47 appliances..**



**Moloka'i – Delivered 130 appliances and ACs.**



**Hāna – Delivered 20 appliances.**



## Energy Smart 4 Homes – Total 1,540 dwelling units

- 1,225 Multifamily units
- 315 Single-family homes



## Direct Install Water Heating – Total 98 fully funded

- 19 Solar Water Heating System installs
- 79 Solar Water Heating Tune Ups homes



## Energy Advantage (E.A.)



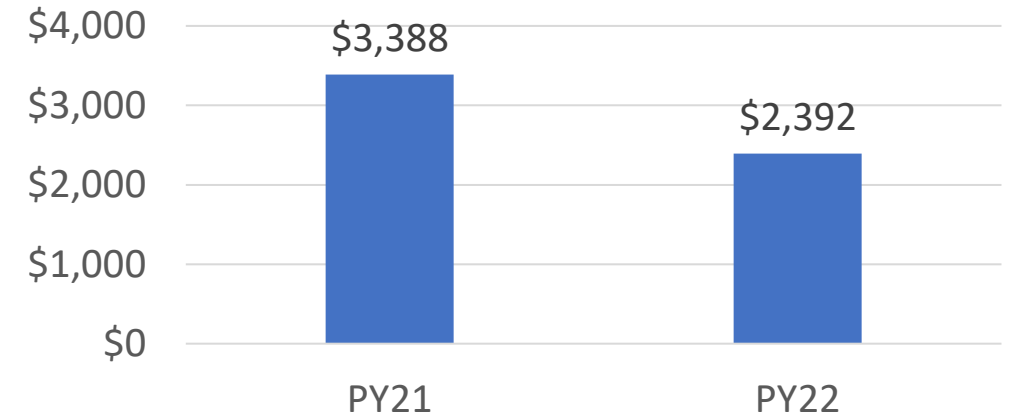
- PY22 resulted in 526 projects
- Revised eligibility to streamline and include more small businesses and nonprofits



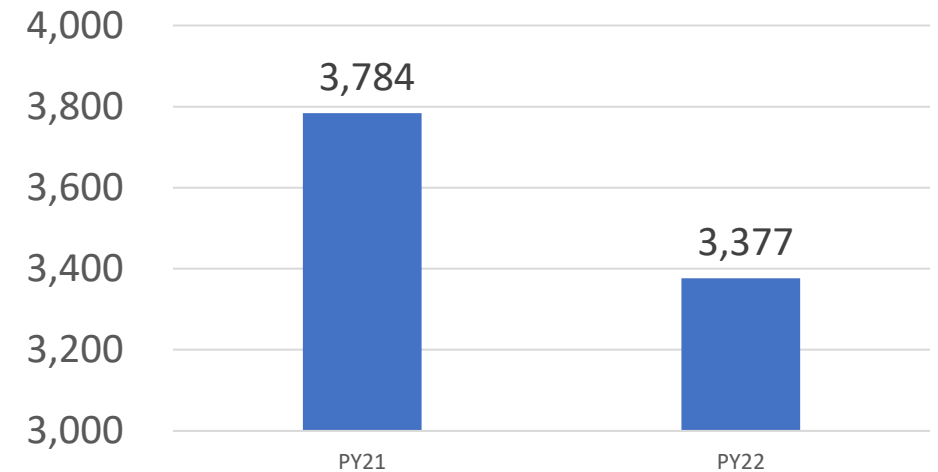
### Challenges:

- Active contractors are busy
- Few contractors willing to do small installs on neighbor islands
- Customer bill savings lagged—projects have lower operating hours compared to previous PY

Average Customer Annual Bill Savings by PY



Average Space Hours by PY

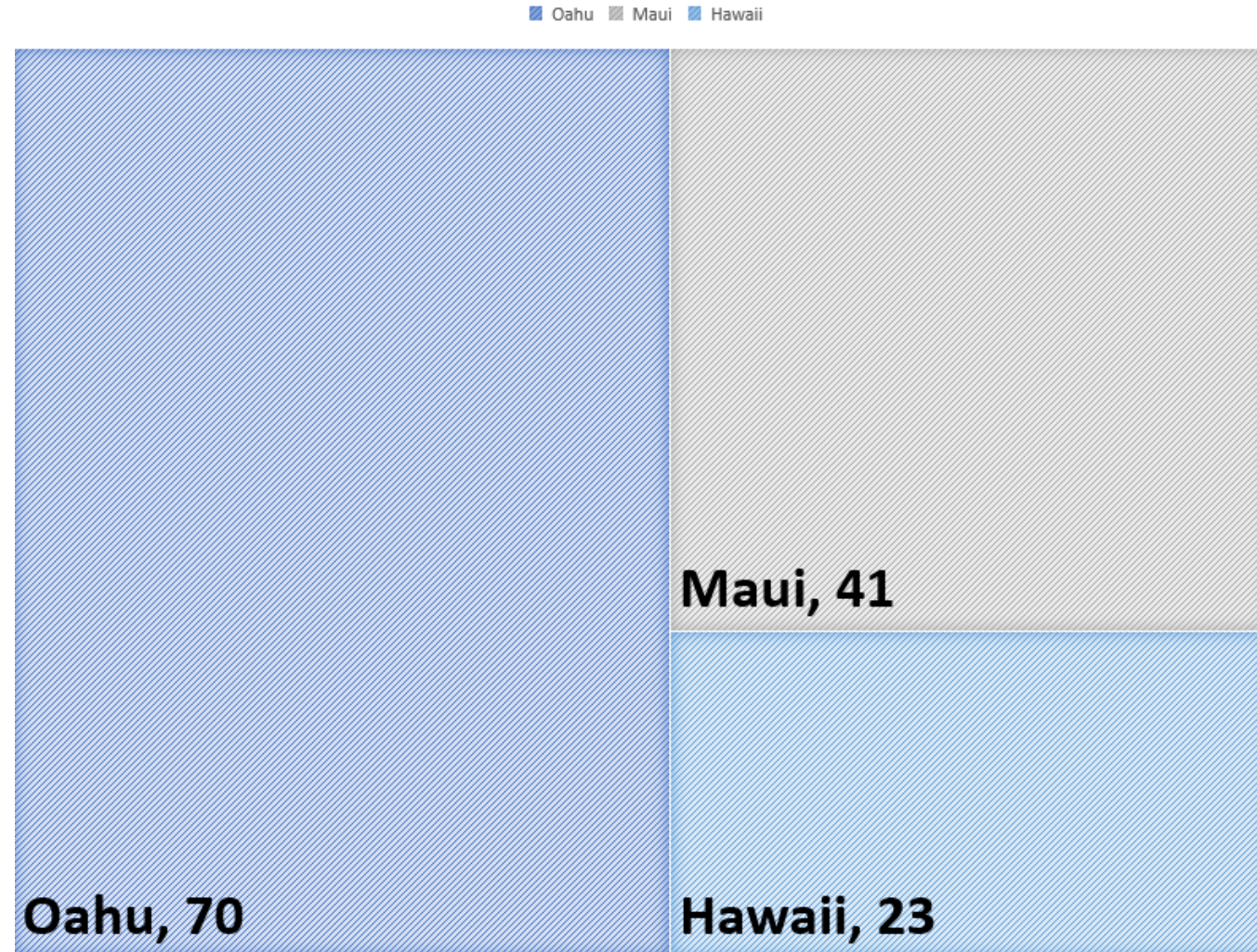


## EmPOWER Grant

**Objective: Fund energy efficiency improvements for nonprofits, small businesses and other qualifying organizations experiencing economic loss**

- In PY22: a total of **nearly 150 grant awards were offered** and accepted by applicants
  - 109 full grants (capped at \$5,000) were accepted after competitive review in the fall of 2022
  - 38 partial grants (capped at \$2,000) were accepted in the spring of 2023 after initially not being awarded in the fall of 2022
- Through June, 134 total grant projects finished and were reimbursed their grant awards – over \$600,000 in total

### GRANT PROJECTS COMPLETED BY COUNTY



**Projects Completed In PY22, By County:**  
 O’ahu – 52%, Maui – 31%, Hawai’i – 17%

## CHALLENGES AND LESSONS LEARNED

- **Vendor & customer plans change over time**
  - Partial grant offers to applications from several months prior resulted in several questions/asks from customers and vendors
  - Advisors handled each request/issue on case-by-case basis
  - Shortened timeline to June 1<sup>st</sup> project completion date also, not unexpectedly, resulted in some projects not finishing in time (fewer than we'd feared)
  - ***Overall, looking into the next PY: How do we thread the needle between maintaining the program's robust demand while ensuring meaningful energy savings across a range of technologies?***

## ANTICIPATED PY23 ACTIVITIES

- **Continue working with grantees and contractors to achieve project implementation for still-active grants**
- **Plan the rollout of the PY23 iteration of the EmPOWER Grant program, including the transition to a tiered equipment list to encourage more energy savings via grant awards**
- **Execute the revised EmPOWER Grant program design along the same timeline as previous years (August 1st applications open)**



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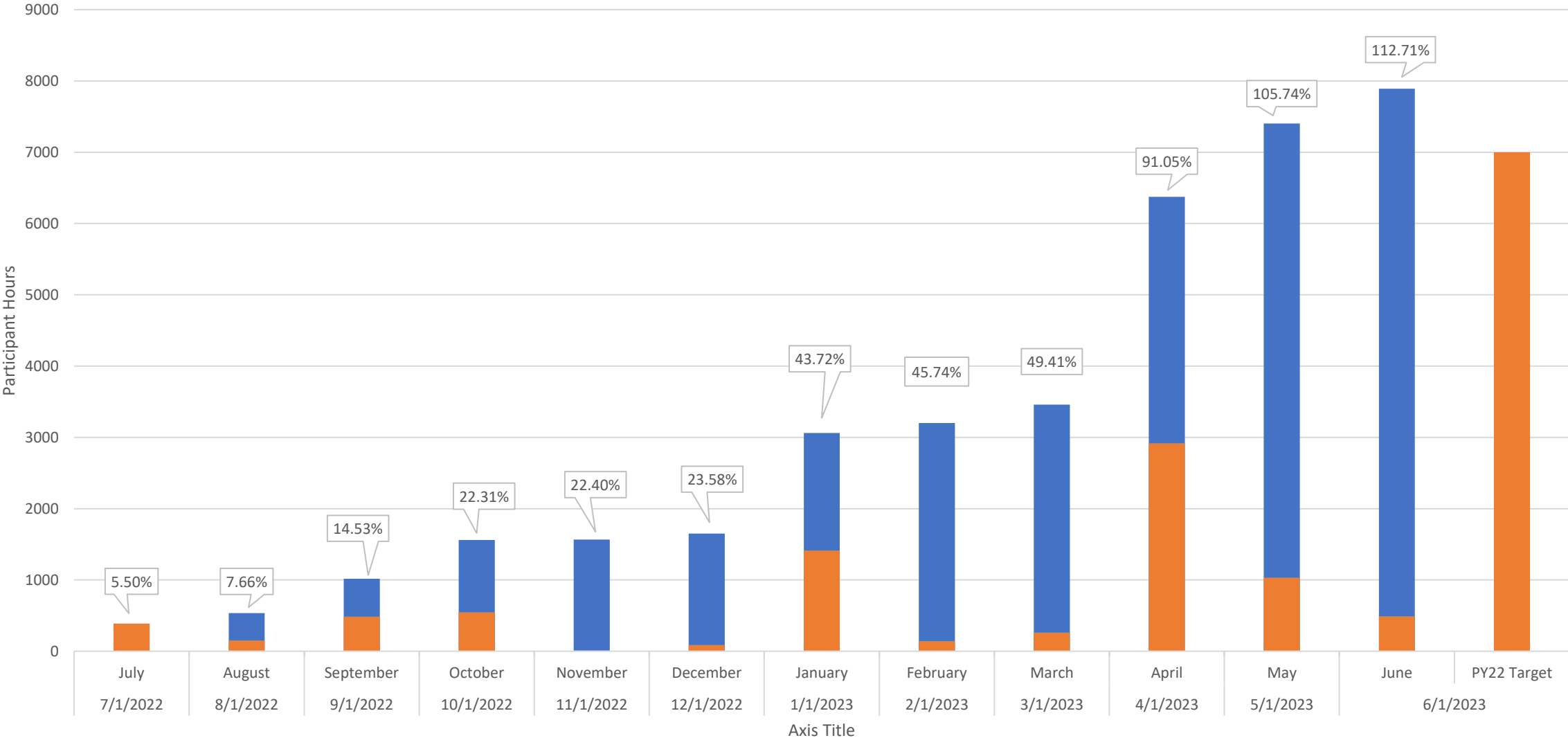
## Market Transformation & Economic Development

Trainings & Workshops | Policy | Benchmarking



# MARKET TRANSFORMATION & ECONOMIC DEVELOPMENT

PY22 MTED Professional Development (PD)  
Participant Hours



■ Cumulative P. Hours ■ PD P. Hours ■ Percentage to Target

## BEHAVIOR CHANGE: A&A WORKSHOPS and OUTREACH

Objective: Focus on clean energy and energy efficiency literacy workshops at the community level – including student engagement – with a focus on hard-to-reach populations across Hawai‘i



### YOUTH:

Target: 1200 contact hours

Actual: 2208 contact hours

Participants: 2208

Workshops: 72

Notable events: Train the trainer workshops for staff held in April 2023.



### COMMUNITY WORKSHOPS (ADULT):

Target: 2500 contact hours

Actual: 2774 contact hours

Participants: 2154

Workshops: 35



Koko Head El.

## PROFESSIONAL DEVELOPMENT & TECHNICAL TRAININGS

Objective: Provide technical training around emerging efficient technologies and best practices.



- 2 intensive weeklong technical trainings which saw more than 3,000 participant hours-
  - Certified Energy Manager®
  - Successful multi-island hybrid delivery for David Wylie series in Q4
- 7,889 participant hours total for PY
- 1,698 participants
- 42 trainings including 5 specifically for CEAs



Certified Energy Manager

## Codes and Standards

Objective: Advocate for and educate on enhanced building energy codes and appliance standards.

- **147 participant hours of code related training:** IECC 2018 Residential Webinar (HSEO and HE) *Homes of the Future*



- Supported consultant to the HSEO who provided research/analysis and presented findings to State Building Code Council
- Participated in Permitted Interaction Group meetings to advance amendments with stakeholder input
- Commissioned research brief on the energy-water nexus, impact of code compliance and savings attribution.

- **32 advocacy initiatives** related to advancing codes, standards, and related legislation
- Testimony submittal to support Bill 4 (City & County of Honolulu)
- Co-hosted Legislative Briefing and Pau Hana event on efficiency bills



# Public Policy

- The 2023 legislative session marked **2 energy efficiency victories** – with both measures expected to officially become law in early July:

✓ **Clean Lighting Standards:** Phases out the sale of fluorescent light bulbs in Hawaii (as of January 2025), which will save Hawaii taxpayers \$382 million on their electric bills by 2050, and reduce 750,000 metric tons of carbon emissions while keeping mercury out of our landfills

✓ **Appliance Efficiency Standards:** Expands Hawaii’s appliance efficiency standards to include toilets, urinals, water coolers, portable hot tubs, and residential ventilating fans, and will save Hawaii residents and businesses up to \$175 million on their energy bills by 2050

✓ C&C Honolulu is also on track to update and improve its **building energy conservation codes** in August, which will ensure the adopted 2018 International Energy Conservation Code makes sense for O’ahu

Looking ahead:

- During the 2024 legislative session, Hawaii Energy will look to support renewed efforts to advance:
  - EEPS, HIHEAP, and EV ready for affordable housing



## Benchmarking – City & County of Honolulu

**Objective:** Once buildings are benchmarked, Hawai'i Energy is available with resources to help buildings take the next step in considering efficiency improvements that will ultimately improve their score.

### STATUS

- First deadline for City & County of Honolulu (C&CH) buildings >100,000 sq. ft. in June 2023
  - 164 of 432 benchmarked
  - 89 have extension, remaining not submitted
- Awaiting City's release of benchmarking data in November 2023 to target customers
- Hawai'i Energy benchmarking webpage maintenance – <https://hawaiienergy.com/for-business/benchmarking-by-facility-type>
- Continued status update monthly meetings with C&CH
- Created benchmarking “roadmap” resource for customers







06

## Key Takeaways

# PY22 KEY TAKEAWAYS



Residential programs maintained steady performance with program adjustments and levers along the way. Maintain focus on tailored customer engagement for pipeline development for PY23. Power Move remains an attractive offering for customers.



Despite progress, PY22 was the most challenging year for the commercial portfolio in Hawai'i Energy history. Both prescriptive and custom participation were well below. External factors like economic pressures and staffing shortages slow project development for both customers and trade allies. Continuing to focus on customer engagement and treasure hunts to drive pipeline development.



Continued focus on partnership development in the A&A space to more robustly serve customers. Program enhancements for EmPOWER and Energy Advantage launched, initial review indicates uptick in participation.

Allies showing increasing interest in more extensive certification offerings for professional development and technical trainings.



Continue with comprehensive marketing campaigns continue to drive program engagement.

Prioritizing communications and resource accessibility across all ratepayers.



# PY23 UPDATES



Custom project development - 80 significant engagements (meetings, site visits, conference calls) in the last 6 months.

Revisiting retro-commissioning and chiller optimization program requirements.



Streamlining paperwork, limiting time to reimbursement.

Finding solutions for challenges to reimbursement rebate model.



Maui recovery and rebuild – focus on energy efficiency and distributed energy resources for reconstruction.

Coordination with PUC, HSEO and other stakeholders to plan and deploy federal IRA funding.



Marketing and outreach targeted at specific business sectors.

Additional technical training and certification opportunities for Clean Energy Allies.



**Mahalo**

# PY21 VERIFICATION (FINAL RESULTS)

MAGGIE BUFFUM

APPLIED ENERGY GROUP

# 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 & Onsite Visits

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

## Grid Services & GHG Emissions

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

Non-CET

## Affordability & Accessibility

- Economic Disadvantaged
  - BHTR and RHTR
  - 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

- In effect for PY21
- Awards go to HECO
- Associated with RHTR and A&A programs



# CLEAN ENERGY TECHNOLOGIES (CET) KEY TAKEAWAYS



## Hawai'i Energy continues to make improvements to its tools.

Hawai'i Energy accurately calculated dual-baseline lifetime savings for Energy Advantage (unlike PY20).  
The new custom lighting worksheet directly calculates lifetime savings.



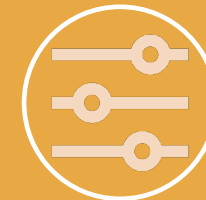
## Hawai'i Energy exceeded the target for Grid Service Ready measures.

Measures included grid-interactive water heaters, smart devices, and general equipment to support demand response (DR).  
AEG verified 200% of the performance target.



## 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.

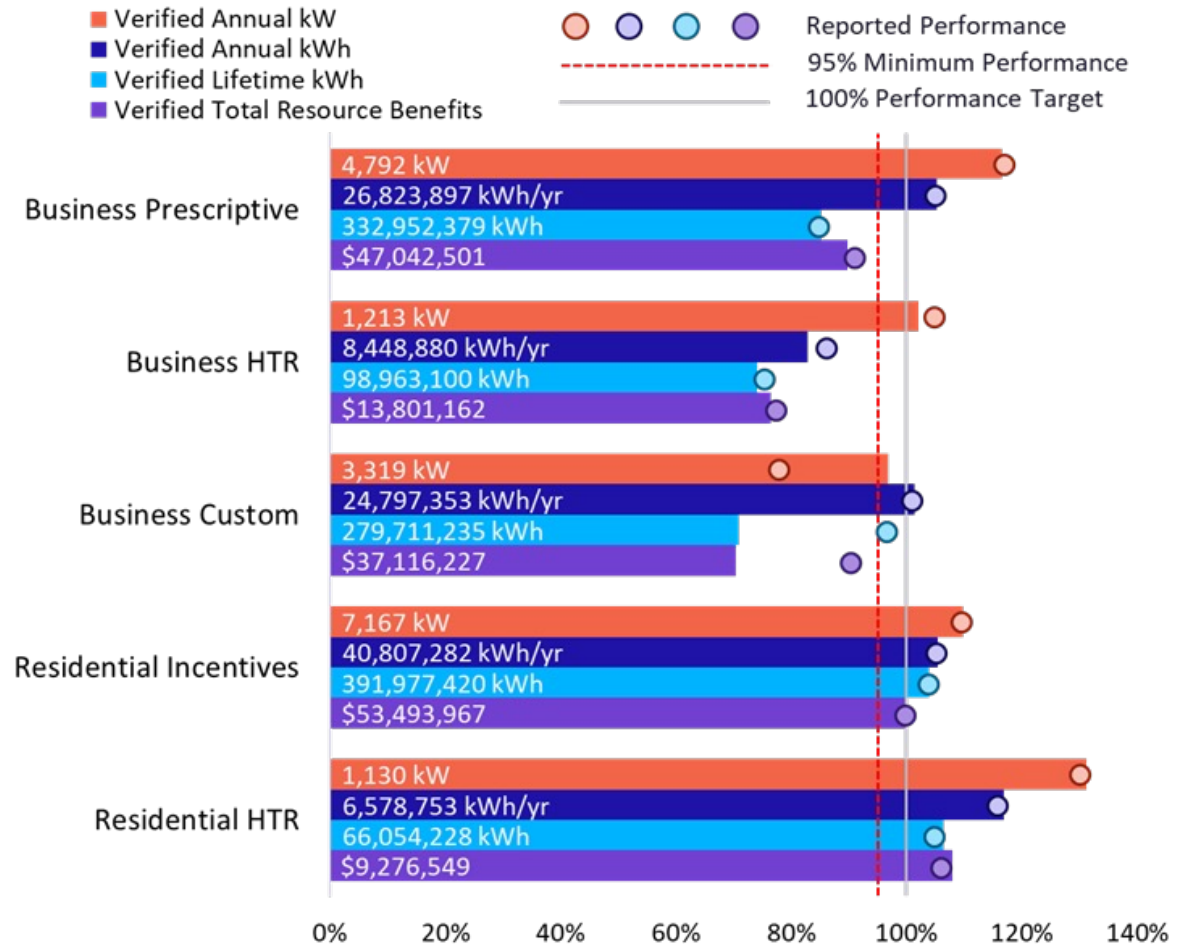


## AEG made substantial reductions to CBEEM claimed lifetime savings and TRBs.

Most adjustments came from updates to project Effective Useful Lives (EULs) and lifetime savings to incorporate dual baselines.  
In addition, onsite visits found that two large projects had been uninstalled by customers, resulting in one-year measure lives for both projects.

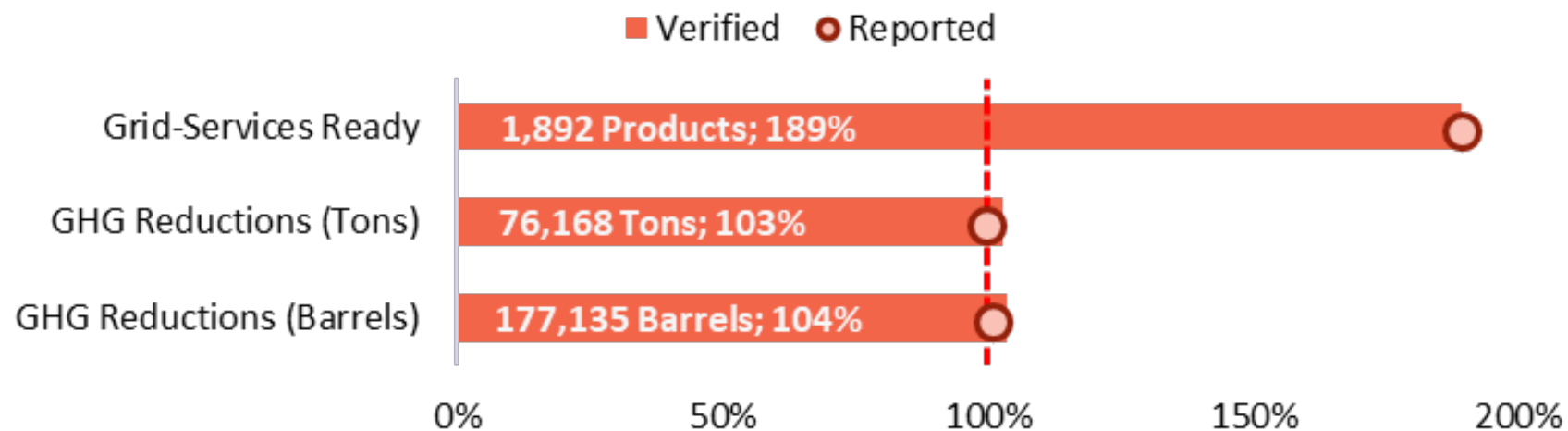
# CET KEY TAKEAWAYS

- Hawai'i Energy met or exceeded all CET targets for **Residential Hard-to-Reach** and **Residential Incentives** program categories.
- **Business Custom** achieved both peak demand and first-year energy savings targets. The verification partly led to missed lifetime savings and TRBs targets by lowering EULs.
- The **Business Hard-to-Reach** program met peak demand targets but fell short of others, though not driven by the verification. Increasing energy rates from the coal plant closure, supply chain challenges, and lingering financial hardships from the pandemic continued to make recruitment difficult.
- **Business Prescriptive** exceeded targets for first-year energy and peak demand savings but fell short of lifetime energy savings and TRB targets. The verification did not impact these shortfalls.



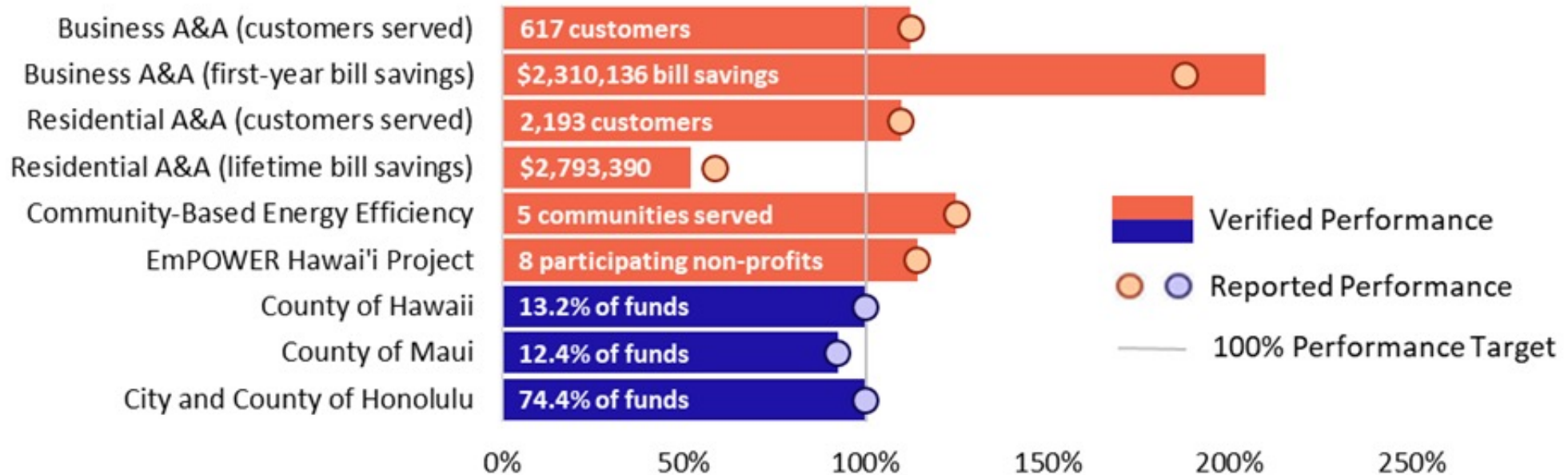
# CET KEY TAKEAWAYS

- Hawai'i Energy exceeded the Grid Services Ready target by almost 200% (similar to PY20).
- GHG Reduction targets were achieved.



# AFFORDABILITY & ACCESSIBILITY KEY TAKEAWAYS

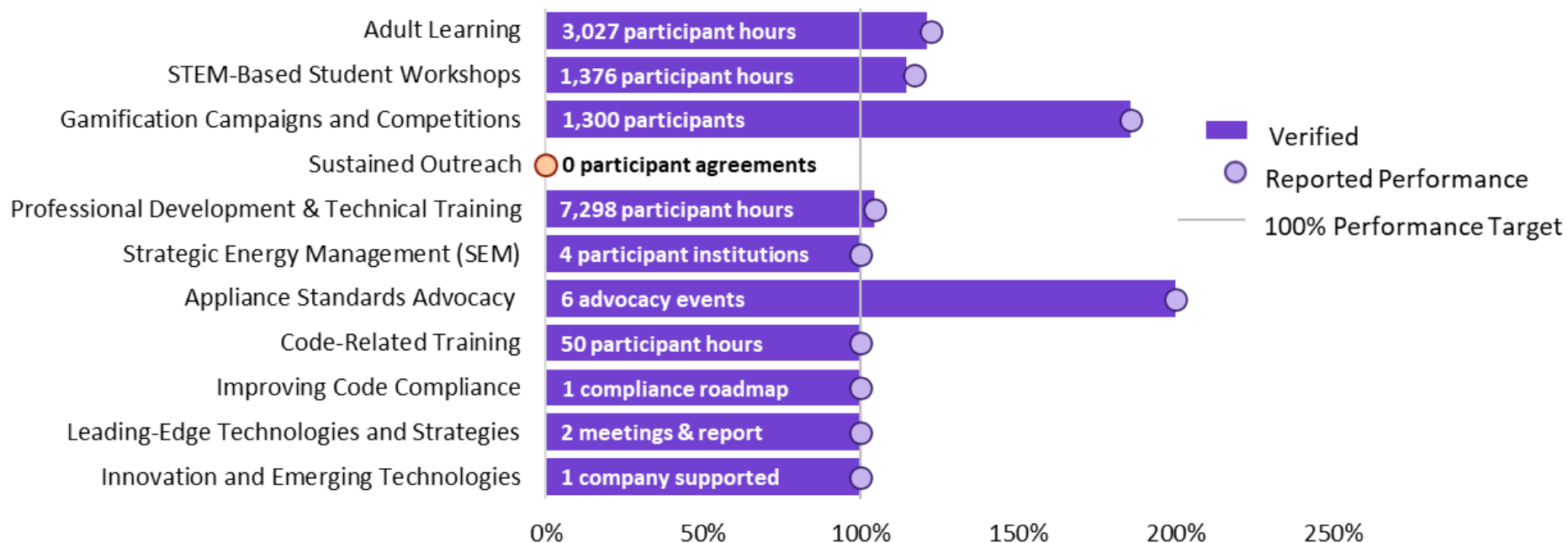
- **Hawai'i Energy met nearly all A&A performance targets, even those associated with direct installation.**
  - Incentive spending in Maui fell just short of the 13% target.
  - Missed the residential A&A target for customer bill savings despite exceeding all RHTR CET targets. (The CET targets set for RHTR could be too low to meet the bill savings target.)





# MTED KEY TAKEAWAYS

- **Hawai'i Energy PBFA programs met or exceeded targets for all Market Transformation & Economic Development (MTED) performance metrics (except for Sustained Outreach).**



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

- The LMI PIM came into effect in PY21 and 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.
- 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.
- As found in PY20, some clarification is still 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

Adhere to Custom Project Guidance Document for data collection requirements.

Most documentation captured general customer and project information, but few documented lifetime savings assumptions. In several cases, equipment specifications, project equipment and labor costs, or some proof of installation were not documented or aligned with how savings were claimed.

Avoid double-counting CBEEM projects across program years.

Some PY21 savings inadvertently included savings from previously-rebated projects. When estimating savings using whole-facility regression, prior-year projects should be identified and removed to avoid double counting savings year-over-year.

Consistently document the pre-approval process for CBEEM projects.

Pre-approval is an importance step in the custom project process, especially considering the size of incentives associated with many of these projects. Consistent documentation of pre-approval gives stakeholders, including customers, confidence in the PBFA program process.

Update residential solar water replacement calculations in the TRM.

Many of the residential solar water heater replacements did not qualify for the deemed savings values because of the required storage capacity. Guidance for calculating the equivalent electric resistance water heater baseline should be clarified in the TRM, and the deemed savings should be expanded to include larger-capacity water heaters.

# PY22 VERIFICATION (IN PROGRESS)

MAGGIE BUFFUM

APPLIED ENERGY GROUP



# 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 & Onsite Visits

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

## Grid Services & GHG Emissions

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

Non-CET

## Affordability & Accessibility

- Economic Disadvantaged
  - BHTR and RHTR
  - 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

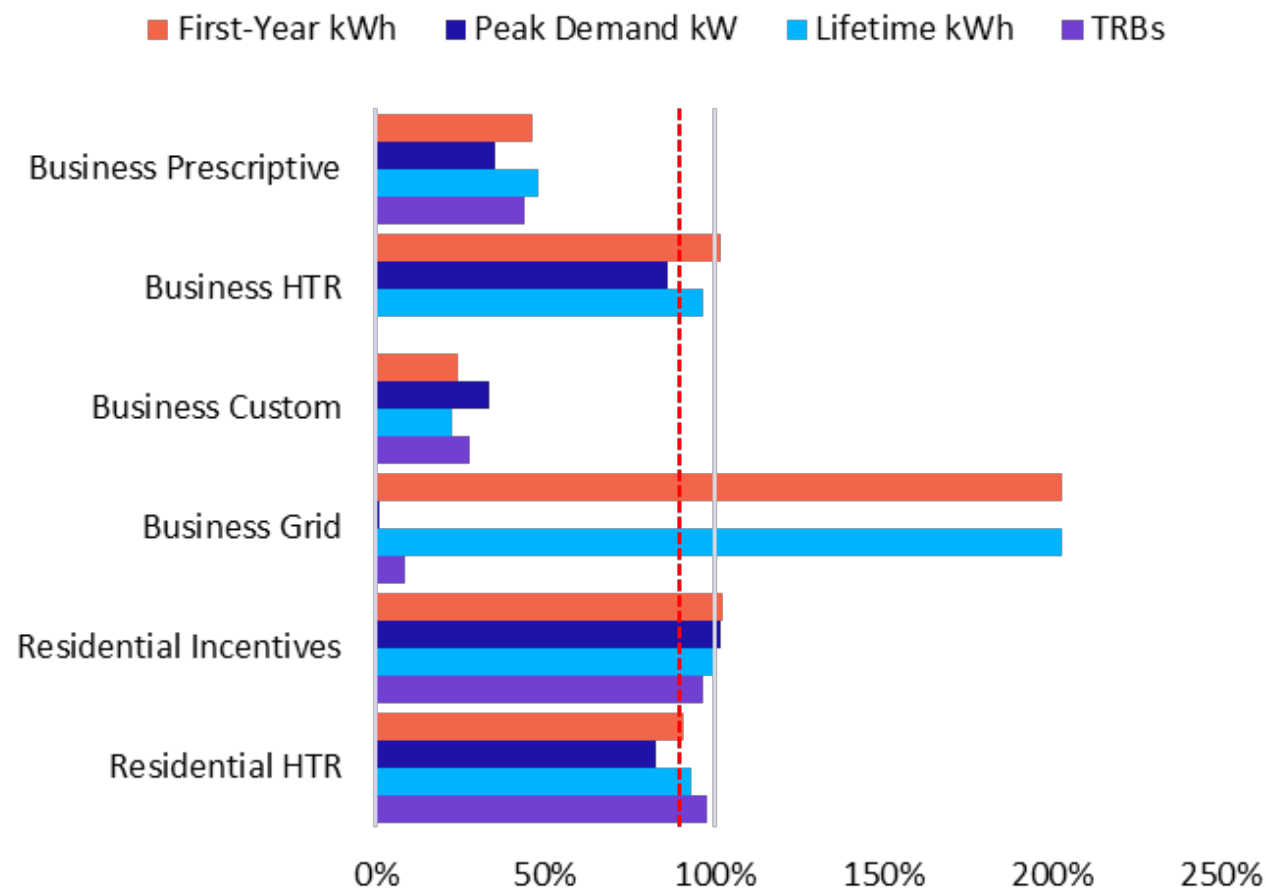
## LMI PIM Awards

- In effect starting in PY21
- Awards go to HECO
- Associated with RHTR and A&A programs

# CLAIMED CET PERFORMANCE

Based on Hawai'i Energy's reported performance,

- **Hard-to-Reach** programs met minimum thresholds in most categories.
- The **Residential Incentives** program met minimum thresholds or exceeded targets in all performance categories.
- **Business Prescriptive** and **Business Custom** programs missed all performance targets in PY22.
- The new PY22 program category **Business Grid Services (BGRID)** far exceed first-year and lifetime kWh targets but fell short on peak demand savings and TRBs.



# TRM UPDATE

KELLY PARMENTER

APPLIED ENERGY GROUP

# TECHNICAL REFERENCE MANUAL (TRM) OVERVIEW

Collaborative effort created a TRM framework to guide the development, maintenance, and application of the TRM

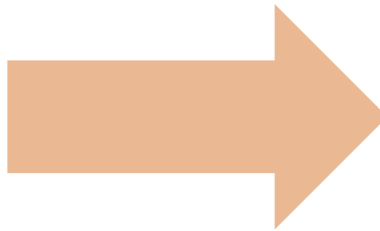
## Customer-Level Savings Estimates

Methods, formulas, and default assumptions specific to Hawai'i Energy's measures

## Program-Level Savings Estimates

Key metrics for calculating net savings and lifetime monetary value of impacts

Stakeholder engagement



- Ensures relevance of new & existing measures to Hawai'i Energy's portfolio
- Mitigates risk of TRM inaccuracies

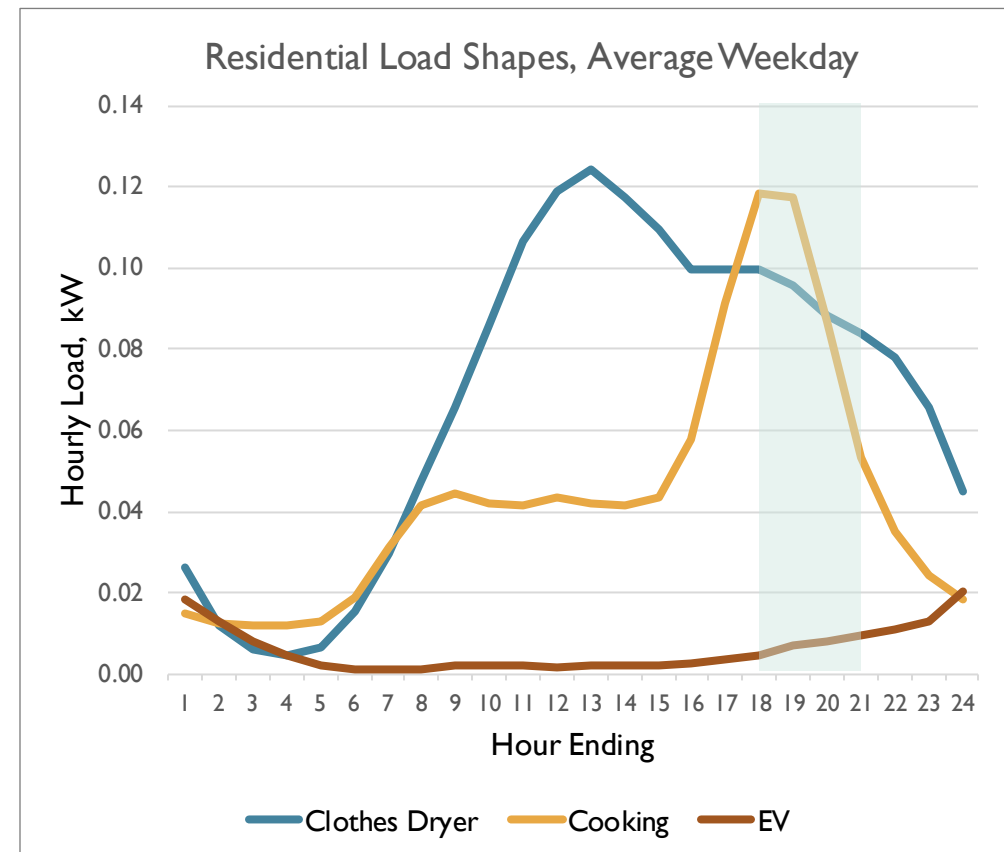
# PY23 TRM MID-YEAR UPDATE...IN PROGRESS

## New ENERGY STAR residential measures

- Induction cooktop
- Heat pump clothes dryer
- Level 2 electric vehicle (EV) charger

## Savings estimation approaches informed by

- ENERGY STAR certified product data
- Federal standards
- Benchmarking
- Load shape analysis for Hawaii-specific peak demand reduction





# COMING UP NEXT: PY24 TRM UPDATE

## 1 Gather Input

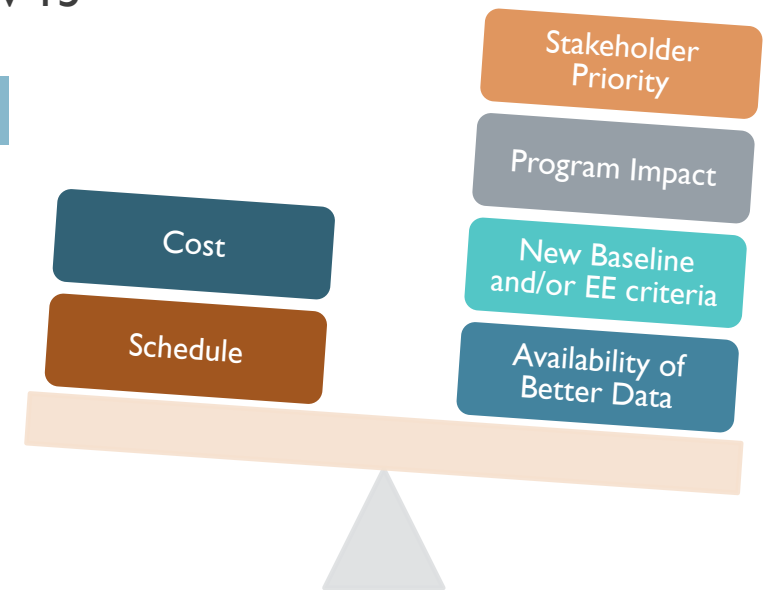
- We encourage input from TAG members on TRM content to update or add
- Please email ideas to [kparmenter@appliedenergygroup.com](mailto:kparmenter@appliedenergygroup.com) by Nov 15

## 2 Prioritize Update Ideas

- We maintain an ongoing list with all update ideas received
- Prioritization is a balance of opportunities to improve content with schedule and budget considerations

## 3 Carryout Review and Update Process

- During winter, with spring 2024 finalization



# RECENT UPDATE IDEAS...JUST A FEW EXAMPLES

## New Measures

- Residential HPWH tune-up
- Nonresidential solar light tube
- High efficiency condensing unit

## Custom → Semi-Prescriptive

- Distribution transformer
- High-speed door
- Air curtain

## Existing Measures

- New ENERGY STAR criteria
  - Commercial kitchen fryer
  - Residential dishwasher
  - Room AC
  - Dehumidifier
- New Baseline Conditions
  - VFD pool pump
  - Residential HPWH

## Cross-Cutting Content

- Master EUL list
- GHG calculator (eGRID rates)
- Codes & standards tracker

## Special Studies

- Hawaii AC efficiency metrics
- Measure-specific NTG research



**Thank  
You**

# NEXT STEPS & WRAP UP

TAMI RASMUSSEN

ENERGY EFFICIENCY MANAGER TEAM

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# QUESTIONS?

- 
- Please contact Jennifer Barnes at 510-756-1501 or [jenniferbarnes@2050partners.com](mailto:jenniferbarnes@2050partners.com).
  - Meeting materials will be posted on [www.HawaiiEEPS.org](http://www.HawaiiEEPS.org)