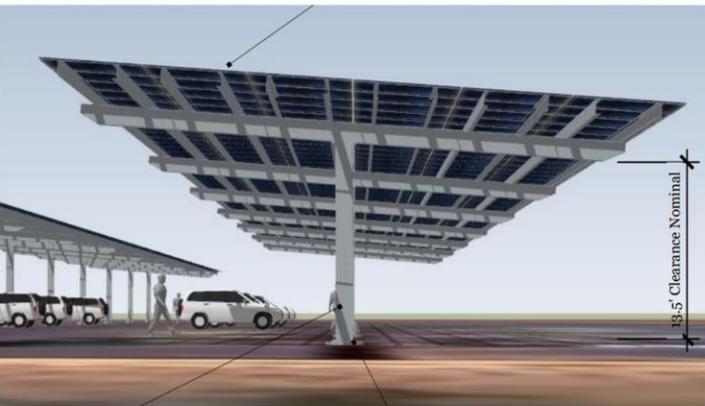




COUNTY OF MAUI

COUNCIL BUDGET, FINANCE &
ECONOMIC DEVELOPMENT
(BFED) COMMITTEE

JOHNSON CONTROLS ENERGY SERVICES PERFORMANCE CONTRACT



KAINOA CASCO
Climate + Resiliency Executive

PROJECT OVERVIEW + UPDATES

Received at BFED meeting on 6/18/2024
BFED-21(24)

June 18, 2024

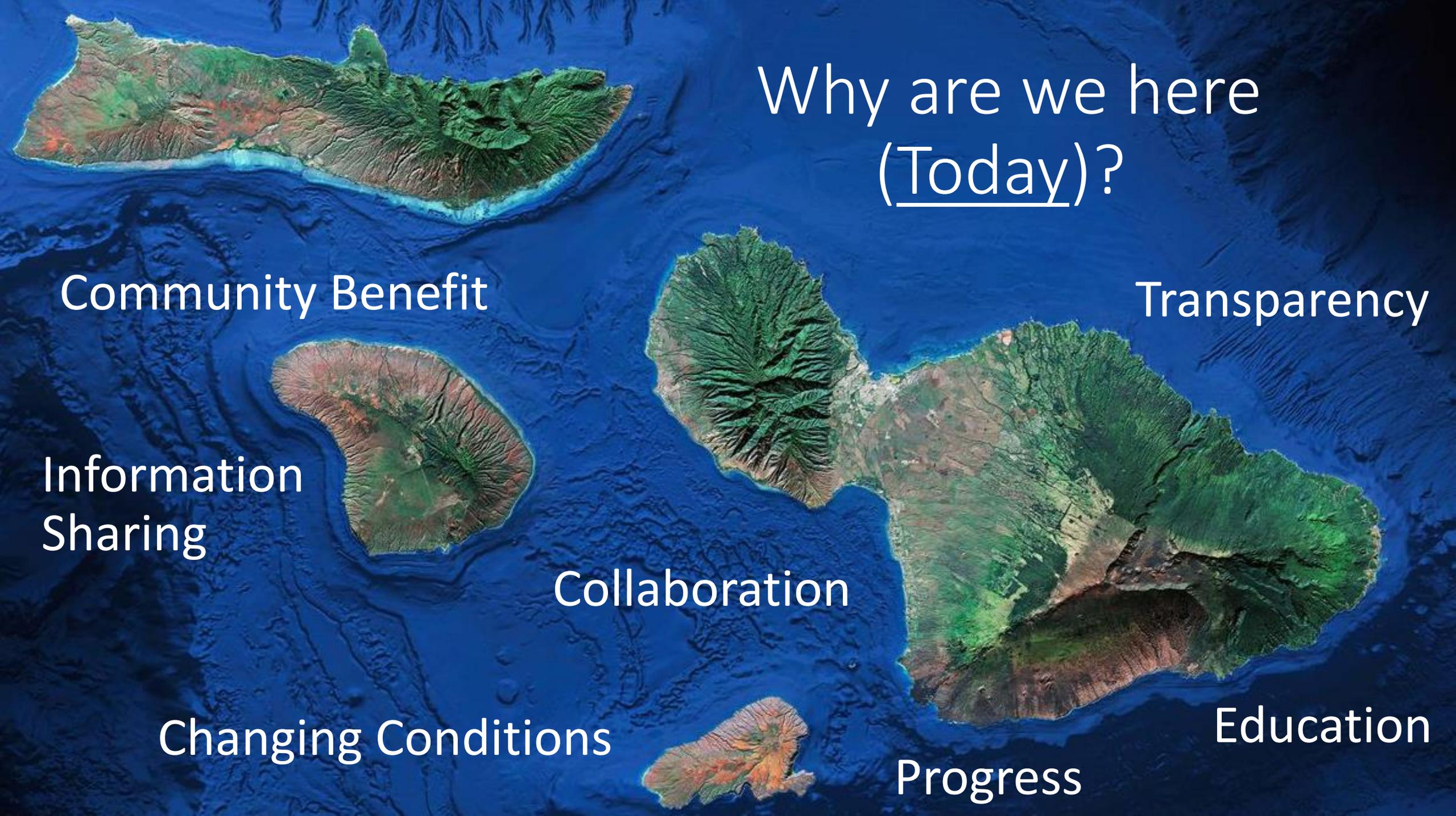
Agenda

1. WHY ARE WE HERE?

2. PROJECT + ESPC OVERVIEW

3. PROGRESS - Phase 1 (Efficiency) + Phase 2a (Solar+Storage)

4. LOOKING FORWARD

An aerial photograph of a volcanic island chain, likely the Hawaiian Islands, showing the rugged terrain of the islands and the deep blue ocean. The islands are arranged in a roughly north-south line, with the largest island on the right and smaller ones to the left. The text is overlaid on the image in white, sans-serif font.

Why are we here (Today)?

Community Benefit

Transparency

Information
Sharing

Collaboration

Changing Conditions

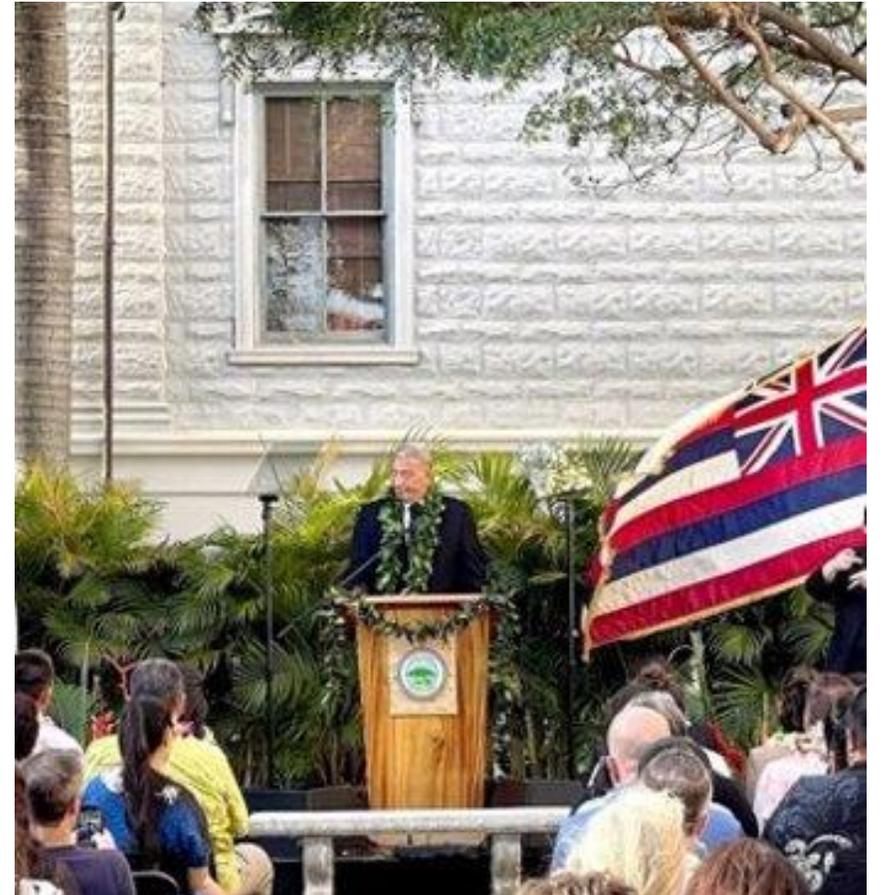
Progress

Education

Why are we here (JCI Project)?

We hear the words: mālama ‘aina, mālama i ka wai, mālama i ke kai. These are words that influence our everyday behavior and our policy making. We will strive to leave for our children and grandchildren a cleaner, safer, and healthier Maui Nui.

- Mayor Richard Bissen



Why are we here?

Within the first 8 weeks of taking office, my administration entered into a second phase contract with energy services contractor Johnson Controls for a project that is projected to save the County up to \$50 million in energy costs. This endeavor is the next stage that will involve installation of solar panels, the use of battery energy storage systems, and implementation of water conservation technologies. We can and must do better in seeking viable opportunities to reduce our carbon footprint.

- Mayor Richard Bissen

The County of Maui is committed to reducing local GHG emissions to **ACHIEVE NET NEGATIVE CARBON EMISSIONS BY 2045.**



Why are we here?

This is a fiscally responsible project that saves taxpayer dollars, creates local jobs, reduces our carbon footprint, and, importantly, frees up clean water that we can use for affordable housing. Reducing dependence on fossil fuels means we are taking money out of an oil tanker and keeping it right here, investing in jobs for our residents.

- Mayor Michael Victorino



Energy Savings + community benefits

Imported energy



Tanker arrives full of **foreign oil**

Tanker *departs* full of our **local cash**

*Most of Maui's electricity is generated from imported oil

Efficiency Project



- Creates jobs in our local economy
- Keeps dollars here
- Reduces foreign oil dependency
- Increases resiliency & self-sufficiency i
- Opportunity to provide grid-services through storage
- See Phase 1

County Commitment to Sustainability



*In 2014, Maui County committed to the Aloha+ Challenge alongside the State of Hawaii, City & County of Honolulu, Kauai County, Hawaii County, and the Office of Hawaiian Affairs (OHA). The initiative set forth Hawaii's statewide **sustainability goals** with targets for **clean energy** transformation, local food production, **natural resource management**, waste reduction, smart growth, **climate resilience**, green jobs and education by 2030. The County of Maui's project with Johnson Controls will **deliver tangible results across energy, water, and carbon emissions** throughout Maui County to make measured progress toward the County's commitment to the Aloha+ Challenge and UN Sustainable Development Goals.*

County Commitment to Sustainability



2008 HCEI : 70% Renewable Electricity by 2030

2015 Updated Goals: 100% Renewable Electricity by 2045

*The State of Hawai'i increased the ambition in 2015 by adopting the commitment to **100% renewable electricity by 2045 into state law**, with **the four Counties committing in 2017** to achieve 100% renewable energy in the transportation sector by 2045.*

Advancing Climate Action: County of Maui

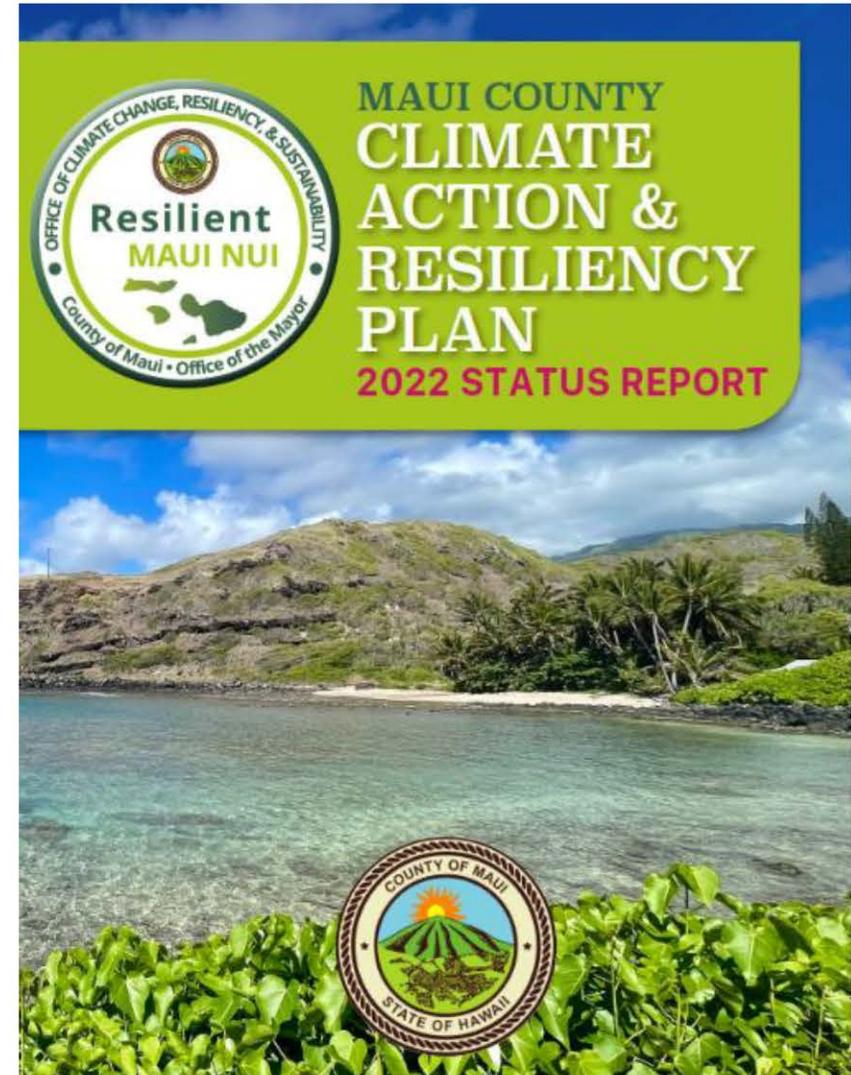
STRATEGY 2

Achieve net zero emissions for County of Maui operations by 2045 or sooner.

KEY PARTNERS: County of Maui, Energy Services Companies (ESCOs), Hawaiian Electric Company, Hawai'i Energy

ACTION ① HIGH PRIORITY

Pursue aggressive energy efficiency measures and maximize onsite renewable power generation and clean energy storage at County of Maui-owned sites, including County of Maui-owned rooftops, parking lots, and other previously developed lands.



County Commitment to Sustainability

JCI Project Impacts on Energy Goals

Based on original contract

JCI Phase	% Electricity Savings - JCI	2030 Goal % Clean Energy	2045 Goal % Clean Energy	MTCO ₂ e
Phase 1 - Energy + Water Efficiency	6%	30%	TBD	2,293
Phase 2A - Solar + Battery	16%	40%	TBD	8,170
Total	22%	70%	100%	10,463

More work is needed beyond JCI's current project scope

Who is Johnson Controls?

(Sustainable Infrastructure)

JCI Experience

North America

- Pioneer of Energy Savings Performance Contracting (ESPC)
- Over 3,500 ESPC projects since 1983
- Currently managing 411 projects in North America that guarantee for than \$7 billion in savings
- Largest market share in the industry and only ESCO that has worked consistently in this business since the industry's beginning.
- National Association of Energy Service Companies (NAESCO) accredited ESCO since 1997.
- NAESCO designated Energy Service Provider in 2003

In Hawaii

- \$580 Million in facility improvements statewide
- \$1.03 Billion in total energy and operational savings for Hawaii clients
- \$6.4 Million in secured rebates and incentives for Hawai'i clients
- Projects with Hawaii State DOT, City and County of Honolulu, UH Community Colleges, and various private customers

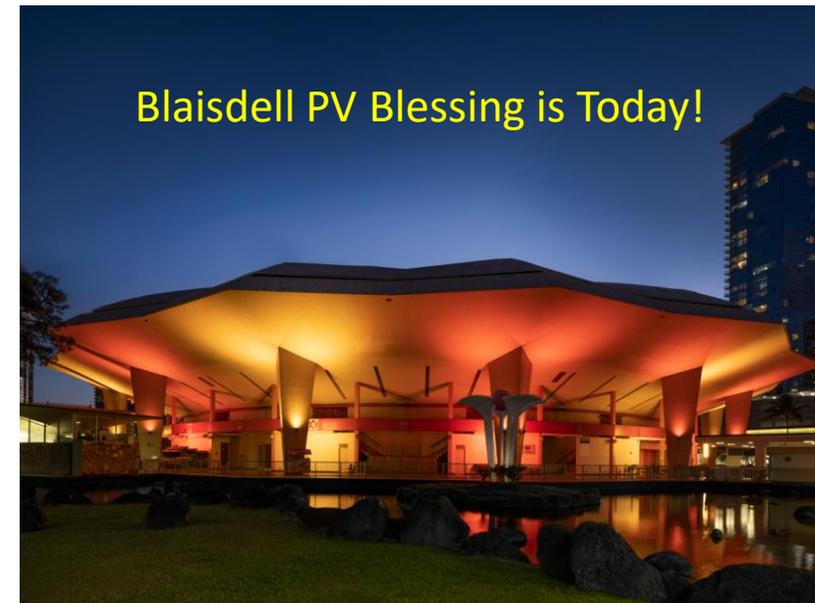
Hawaii Projects

Our Hawaii team has delivered 17 projects involving more than \$580 million in upgrades, with over \$100M of that work occurring in Maui County.

Project Name	Contract Value	On Time?
City and County of Honolulu Street Light Conversion Project	\$36,251,666	✓
Hawai'i DOT-Airports, Phase 1	\$158,174,082	✓
Hawai'i DOT-Airports, Phase 2	\$48,646,463	✓
Hawai'i DOT-Highways	\$60,286,091	✓
Hawai'i DOT-Harbors	\$26,245,564	✓
UH Community Colleges-O'ahu, Phase 1	\$39,096,301	✓
UH Community Colleges-O'ahu, Phase 2	\$65,312,862	✓
UH Maui College, Phase 1	\$13,674,149	✓
UH Maui College, Phase 2	\$15,659,241	✓

	Guaranteed Savings	Actual Savings	Variance
University of Hawai'i Community Colleges-O'ahu, Phase 1	\$14,544,611	\$14,904,184	2.4% ↑
University of Hawai'i Community Colleges-O'ahu, Phase 2	\$4,955,131	\$5,298,419	6.9% ↑
University of Hawai'i Maui College, Phases 1 & 2	\$7,032,131	\$7,506,223	6.7% ↑
City and County of Honolulu Streetlighting	\$4,733,802	\$4,733,802	0%
Hawai'i DOT Airports Division, Phases 1 & 2	\$105,538,563	\$117,179,577	11% ↑

The "Safety Net of Experience"
a Hawaii team that has worked together on multiple ESPC projects



Advancing toward 100 percent renewable energy



By 2019, the University of Hawai'i (UH) Maui College will be capable of producing as much energy as it consumes. A total of five UH Community College campuses will cut their fossil fuel energy consumption by the following:



MAUI
CAMPUS



LEEWARD
CAMPUS



HONOLULU
CAMPUS



KAPI'OLANI
CAMPUS



WINDWARD
CAMPUS

Maui Team

1. **Kainoa Casco** – Climate + Resiliency Executive
2. **Lowen Okamoto** –Project Executive
3. **Ron Young** – Operations Manager
4. **Joe Caldwell** – Senior Engineer
5. **Jose Pecchio** – Senior Engineer
6. **Gregory Robison** – Construction Manager
7. **Dave Randall** – Plumbing Superintendent
8. **Thad Shishido** – Electrical Superintendent
9. **Ty Takahashi** - Field Director of Construction
10. **Rachel Takasaki** – Project Coordinator
11. **Lori Taoka** – Project Coordinator
12. **Chazz Coppa** – Intern



JCI opened first non-Oahu office in Wailuku

Local Contractors & Consultants

Lau Hee Electrical

Kihei Gardens

HNU Energy

ELCCO

Alpha Inc.

Maui Pacific Solar

G&D Electric

Radiant Electric

Maui Lighthouse Electrical &

Maintenance

Kihei Gardens & Landscaping

Hawaii Electrical Solutions

Maui Plumbing

Colburn Plumbing

Alpha Electric Supply

InterIsland Solar Supply

Tri-Isle

Morikawa & Associates

Munekiyo Hiraga

Island Geotechnical Engineering

Hawaii Engineering Group

ECM Engineering

PROJECT + ESPC OVERVIEW

Policy Drives Action: County of Maui: HCEI

2008 HCEI: Gov. Lingle Signs Hawaii Clean Energy Initiative & accompanying legislative package

2008 Maui County Signs HCEI: County of Maui signs Hawaii Clean Energy Initiative: Renewable Portfolio Standard (RPS): combination of efficiency + renewables

Performance Contract Statute: Legislative package includes HRS 36-41 Hawaii “Performance Contract Statute”

“ The payment obligation for each year of the contract, including the year of installation, shall be guaranteed by the private sector person or company to be less than the annual energy cost savings attributable under the contract to the energy equipment and services.”

Performance Contracting
 Energy Service Company (ESCO) is fully accountable
 For project performance, costs and savings

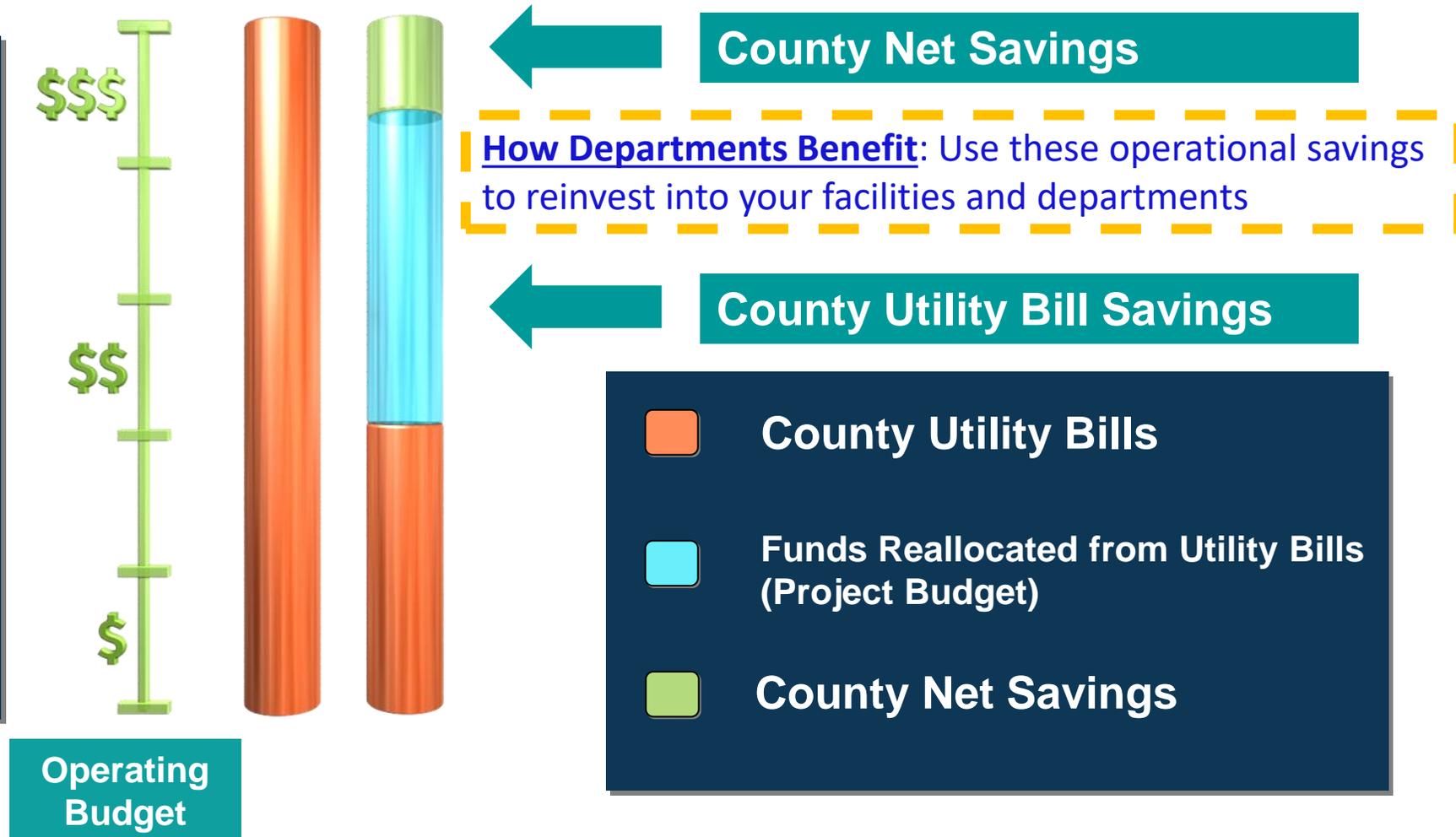
Aspects of Construction	Spec/Bid Engineers & builders are separate teams <u>Multiple Contractors</u> (traditional method)	Performance Contracting Design/Build = one team collaborating together
Financial	<ul style="list-style-type: none"> • Use Capital funds (CIP) • Do a fee assessment • unknown costs, multiple contracts • risk of future unplanned reserve needs for equipment 	<ul style="list-style-type: none"> • Use energy guaranteed energy savings to pay for improvements (AC, controls, lighting) via TELP financing • Use power purchase agreement to pay for solar • determined cost • reduced risk of future reserve needs for equipment (20 year guarantee)
Relationship	Only during installation	Continuous throughout the life of the contract
Upfront Fees	Yes	No
Performance Guarantee	No	Operational and financial performance is guaranteed
Design / Build	No	Yes
Change Orders	Yes	No

Energy Savings Performance Contract (ESPC) Model

Third-party financing is used to fund the project.

Repaid through the utility bill savings up to a maximum 20-year term.

Savings are guaranteed by contractor.



Project Benefits

- 38% Reduction in Domestic Water Use
- 22% Reduction in Electricity Use
- \$70 million saved over life of the project
- Already \$500,000+ in savings during construction period to-date
- New equipment
- Improved operations and facilities
- Better workspaces
- No upfront capital outlay by County
- No impact on debt limit
- Positive impact on bond ratings since not funded by debt
- JCI guarantees savings
- Utility savings are greater than County TELP payments
- Progress toward energy and sustainability goals and commitments
- Improved resiliency

Project Challenges

- Unforeseen conditions
- Balancing County goals with department needs/operations
- Lack of project awareness throughout County
- Access to sites
- Inconsistent level of engagement
- Decision-making and progress
- Permitting
- Administrative processing
- Changes in law
- Changes in administration and management
- 2023 Fires

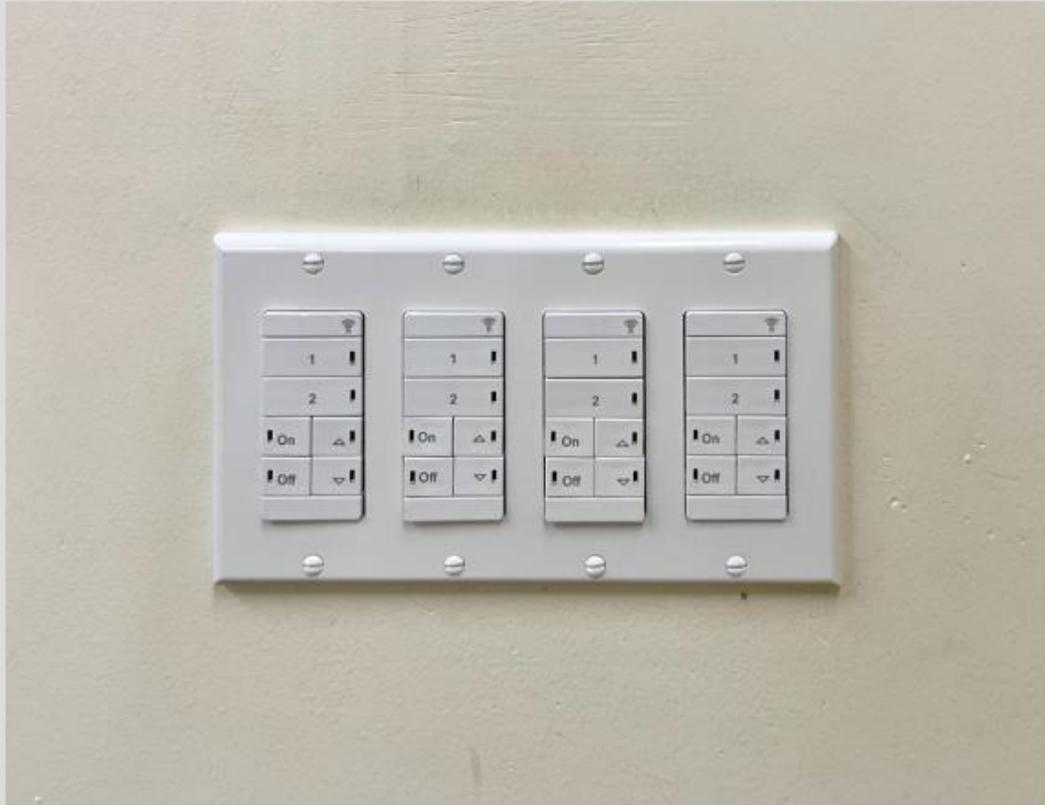
PROGRESS + STATUS

Phase 1 – Energy + Water Efficiency

Financing = TELP (Tax-Exempt Lease Purchase)

Lanai Police Station

Interior Lighting



Kihei Community Center

Window Film



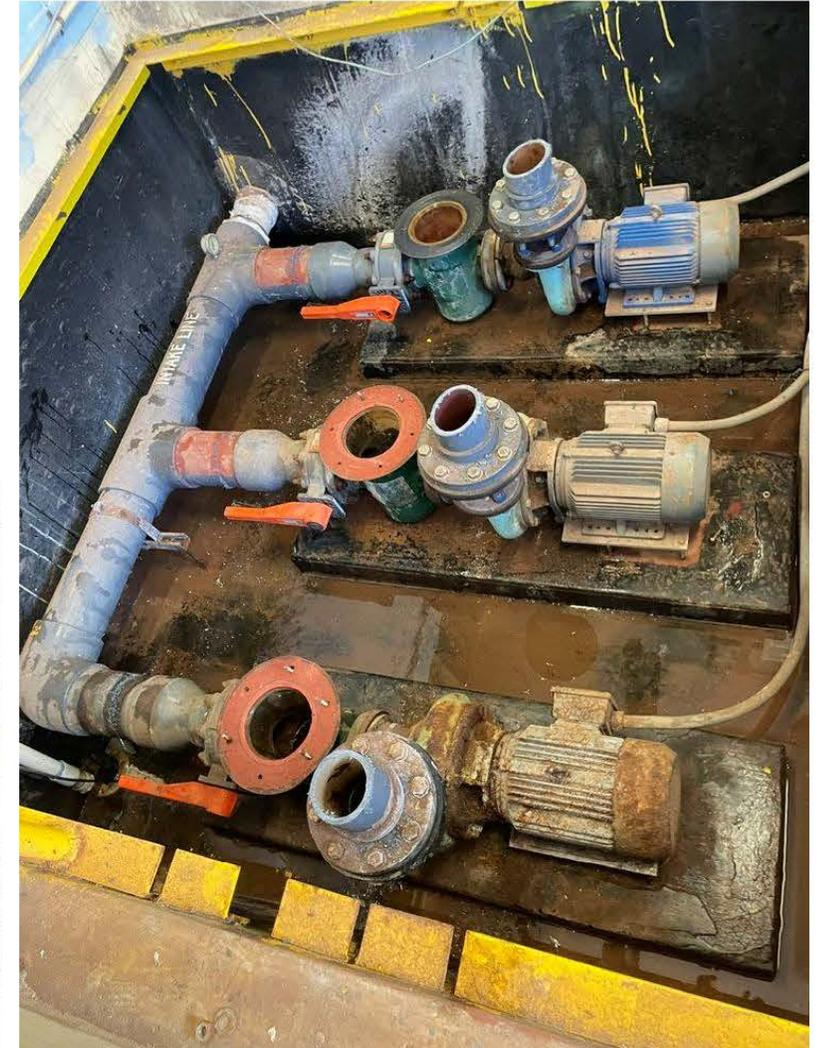
Kamole III Beach Park

New water efficient shower towers



Cooke Memorial Pool

Smart Pool Pump Controls & On-Site Sodium Hypochlorite Generation



Kahului Baseyard

High Efficiency Transformers



Building Infiltration & Window Films

Over 4,200 SF of window film installed

66 SF of total bldg infiltration gaps sealed

424,991 kWh of energy usage reduced

\$152,000 Cost Savings

Pools & Irrigation

4 pools completed; 1 in progress

\$57,000 Cost Savings

Kelaweia Mauka Park new irrigation system and grass

Showers & Domestic Plumbing

25 of 40 shower towers retrofitted

Over 1,400 domestic high efficiency fixtures retrofitted

24+ million gals water saved

\$214,000 Cost Savings

Transformer Replacement

39 high efficiency transformers installed

170,000 kWh saved

\$60,000 cost savings

\$28,000 in Hawaii Energy rebates

Interior Lighting

11,000+ lighting retrofits completed

220,195 kWh saved from completed fixtures

\$108,000 cost savings

Workforce + Economy

Added 10 Full-time Maui positions (22 total)

141 Subcontractor jobs (Phase 1)

Open first non-Oahu JCI office (in Wailuku)

**Mahalo
department staff
and directors!**

\$500,000+ in Cost Savings To-Date with Estimated ~\$1,000,000 Savings at Post-Construction



Kelaweia Mauka Park
New Irrigation and Grass

570 mTons of CO2e reduction of Greenhouse Gases

\$80,450 Submitted in Energy Efficiency Grant Applications

PROGRESS + STATUS

Phase 2 – Solar + Storage

Financing = PPA (Power Purchase Agreement)

Phase 2a (Solar + Storage) - Progress

- 49 Solar PV Systems
- 7 MW in Design
- Combination of Roof, Ground, and Carport Mounts
- Energy for Resiliency Hubs (Solar + Battery Only)
- 4 Battery Systems
- 7.6 MWH of Storage (Likely to change)
- Panels ordered
- 40 Approved HECO Interconnect Applications

Phase 2 (Solar + Storage)

List of Sites

Site	Island	Town	Solar PV Type
Lanai Senior Center	LANAI	Lanai	Roof
Haiku Community Center	MAUI	Haiku	Roof
Coach Shiraishi Memorial Pool	MAUI	Kahului	Roof
Huliau Housing	MAUI	Kahului	Roof
Kahului Baseyard	MAUI	Kahului	Roof
Kahului Wastewater Reclamation Facility	MAUI	Kahului	Ground/Carport/Roof
Kokua Pool	MAUI	Kahului	Ground-mount
Maui County Service Center	MAUI	Kahului	Roof
Kenolio Recreation Complex	MAUI	Kihei	Roof
Kihei Fire Station	MAUI	Kihei	Roof
Kihei Police Station	MAUI	Kihei	Roof/Carport
Kula Community Center	MAUI	Kula	Roof
Kula Fire Station	MAUI	Kula	Roof
Olinda Water Treatment Plant	MAUI	Kula	Tank
Lahaina Aquatic Center	MAUI	Lahaina	Roof
Lahaina Civic Center	MAUI	Lahaina	Roof
Lahaina Police Station	MAUI	Lahaina	Roof
Lower Kula Boosters	MAUI	Makawao	Tank/Ground
Makawao Fire Station	MAUI	Makawao	Roof
Mayor Hannibal Tavares Community Center	MAUI	Makawao	Roof
Upcountry Pool	MAUI	Makawao	Carport

Site	Island	Town	Solar PV Type
Napili Fire Station	MAUI	Napili	Roof
Paia Community Center	MAUI	Paia	Roof
Kamole Water Treatment Plant	MAUI	Upcountry	Ground-mount
Coach Sakamoto Pool	MAUI	Wailuku	Roof
Fire Prevention Bureau	MAUI	Wailuku	Roof
Forensic Facility	MAUI	Wailuku	Roof
Iao Water Treatment Plant	MAUI	Wailuku	Roof
Iao Well	MAUI	Wailuku	Tank/Ground
Kuikahi Rd Boosters	MAUI	Wailuku	Tank
Velma McWayne Santos Community Center	MAUI	Wailuku	Roof
Victims Advocate Building	MAUI	Wailuku	Roof
Waiehu Golf Course	MAUI	Wailuku	Roof
Wailuku Fire Station	MAUI	Wailuku	Roof
Wailuku Police Station	MAUI	Wailuku	Roof/Carport
Wailuku Pool	MAUI	Wailuku	Roof
War Memorial Complex	MAUI	Wailuku	Roof
Cooke Memorial Pool	MOLOKAI	Kaunakakai	Roof
Duke Maliu Regional Park	MOLOKAI	Kaunakakai	Roof
Kaunakakai Fire Station	MOLOKAI	Kaunakakai	Roof
Mitchell Pauole Community Center	MOLOKAI	Kaunakakai	Roof
Kualapuu Park & Community Center	MOLOKAI	Kualapuu	Roof

Phase 2 (Solar + Storage)

Site Examples



Wailuku Police



Phase 2 (Solar + Storage)

Site Examples



Kualapuu CC



Lanai Senior Center

Phase 2 (Solar + Storage)

Resiliency Hubs



Facility Name	Location
Eddie Tam Memorial Complex	Makawao, Maui
Haiku Community Center	Haiku, Maui
Hana Community Center	Hana, Maui
Kihei Community Center	Kihei, Maui
Kualapuu Recreational Center	Kualapuu, Molokai
Kula Community Center	Kula, Maui
Lahaina Civic Center	Lahaina, Maui
Lanai Senior Center	Lanai City, Lanai
Mayor Hannibal Tavares Community Center	Pukalani, Maui
Mitchell Pauole Community Center	Kaunakakai, Molokai
Paia Community Center	Paia, Maui
Velma McWayne Santos Community Center	Wailuku, Maui

LOOKING FORWARD



What's Next?



Open and Consistent Communication



Phase 1 Closeout by September



Phase 2A Design and Construction



Phase 1 Project Scope and Savings Reconciliation



Phase 1 Measurement & Verification (M&V)



Evaluate Future Phases (Streetlights, Exterior Lighting, Water Storage for Resiliency, etc.)



Resiliency Hub Support

Project Website

www.sustainable-maui.com



S U S T A I N A B L E
M A U I

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[Project Phases](#)

[Progress Tracker](#)

[News](#)

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Delivering Energy & Water Solutions

FOR A SAFE & SUSTAINABLE FUTURE

The County of Maui and Johnson Controls are working together to help the County take action toward its climate change and sustainability goals. Through this project, the County is working to develop a sustainable pae aina by utilizing the latest technology of energy and water solutions. Work has already started on this critical resiliency-focused infrastructure projects throughout the Hawaiian Islands of Maui, Molokai, and Lanai.

[Progress Tracker](#)

Project Website

www.sustainable-maui.com

County of Maui Facility Improvement Measure - Phase 1

Johnson Controls

Beneficial Use of Facility Improvement Measure (FIM) Milestone Tracker

	FIM 1 - Interior Lighting Retrofits	FIM 2 - Exterior Lighting Retrofits	FIM 3 - Plug Load Controls	FIM 4 - Transformers	FIM 5 - Domestic Water Fixture Retrofits	FIM 6 - Shower Tower Retrofits	FIM 7 - Irrigation Wells	FIM 8 - On-Site Solar Photovoltaic Generation and Smart Pool Pump Controls	FIM 9 - Infiltration Reduction	FIM 10 - Window Film	FIM 11 - EV and EV Charging Station(s)
4th Marine Division Memorial Park					100%						
Alfred "Flako" Botelho Gymnasium	35%	D									
Central Maui Regional Sports Complex	90%				100%						
Charley Young Park						100%					
Coach Sakamoto Pool	35%	D			100%			40%			
Coach Shiraishi Memorial Pool	35%	D			100%						
Cooke Memorial Pool		D			98%			100%			
D.T. Fleming Park					95%	100%					
Duke Malu Regional Park	35%	D			98%						
Eddie Tam Memorial Center	35%	D	D		100%				100%		
H.A. Baldwin Park	35%	D			100%	100%					
Haiku Community Center			D		100%						
Haliimaile Park & Tennis			D		100%						
Hana Bay Beach Park						35%					
Hanaka'o Park	35%	D			35%	100%					
Haycraft Park						100%					
Honokai Beach Park					35%	100%					
Ho'okipa Beach Park	35%	D			100%	100%					
Kahului Community Center	35%	D			100%						
Kahului Community Center Park					100%				100%		
Kahului Park					100%						
Kalama Park	98%	D			100%	100%					
Kamaole I Beach Park	98%	D			100%	100%					
Kamaole II Beach Park	98%	D			100%	100%					
Kamaole III Beach Park	98%	D			100%	100%					
Kamehameha Iii Park						35%					
Kaunaha Beach Park	98%	D			100%	100%					
Kaunakakai Ball Park	35%	D			98%				15%		
Kahalani Mauka Park					100%				15%		
Kelaewa Mauka Makai Park						100%					
Kinoloa Recreation Complex	35%	D			100%						
Koikea Park	98%				100%						
Keopuolani Regional Park	98%	D			100%						
Keopuolani Skate Park					100%						

D - Descoped from project
Blank - Scope not in project

Updated 5/22/24

County of Maui Facility Improvement Measure - Phase 1

Johnson Controls

Beneficial Use of Facility Improvement Measure (FIM) Milestone Tracker

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Diamond Resort Boosters	98%	D									
Hamakuaopoko Well 2	98%	D									
Honokawai Booster Pump	35%										
Iao Water Treatment Plant									100%		
Iao Well	98%	D									
Kahului Baseyard	40%	D		100%					100%		
Kamole Water Treatment Plant	98%	D									
Kanoa Well 1	98%	D									
Kanoa Well 2	98%	D									
Kaupakalua Well	98%	D									
Kahalani Boosters	98%	D									
Kula Water Treatment Plant	98%	D									
Kupaa Well	98%	D									
Lahainaluna Water Treatment Plant	98%	D		100%				100%			
Lower Kula Boosters	98%	D									
Mahinahina Baseyard	98%	D						100%			
Mahinahina Water Treatment Plant					100%						
Mau Meadows Pump	35%	D									
Mokuhau Well	98%	D									
Napili Road Pump	98%	D									
Napili Well B	98%	D									
North Waihee Boosters	98%	D									
North Waihee Well	98%	D									
Olinda Water Treatment Plant	98%	D		100%					100%		
Omaoipo Boosters	98%										
Piholo Water Treatment Plant				100%					100%		
Pookela Well	98%	D									
Waihee 514,515 Well		D									
Waihee 577,578,579 Well	98%	D									
Waikapu Well	98%	D									
Waikuku Well 1	98%										
Waikuku Well 2	98%										
Central Landfill									100%		
Kahului Wastewater Pumping Station				100%							
Kahului Wastewater Reclamation Facility	90%	D		100%	98%				100%		
Kihel Wastewater Reclamation Facility	35%	D		100%	98%						
Lahaina 1 Wastewater Pumping Station				100%							
Lahaina Wastewater Reclamation Facility	35%	D		100%	98%						
Lanai Wastewater Reclamation Facility									100%		
Sewer Maintenance Building	35%	D			98%						

D - Descoped from project
Blank - Scope not in project

Updated 5/22/24

County of Maui Facility Improvement Measure - Phase 1

Johnson Controls

Beneficial Use of Facility Improvement Measure (FIM) Milestone Tracker

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Dept of Housing & Human Concerns	35%	D				35%					100%
Dept. of Prosecuting Attorney	85%	D									100%
Dept. of Public Works	35%	D	D	35%	100%						100%
Maui Fire & Public Safety	98%	D									100%
Maui Police Department	35%	D									100%

D - Descoped from project
Blank - Scope not in project

Updated 5/22/24

MAHALO!