







KAINOA CASCOClimate + Resiliency Executive

COUNTY OF MAUI

COUNCIL BUDGET, FINANCE & ECONOMIC DEVELOPMENT (BFED) COMMITTEE

JOHNSON CONTROLS ENERGY SERVICES PERFORMANCE CONTRACT

PROJECT OVERVIEW + UPDATES

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

June 18, 2024

Agenda

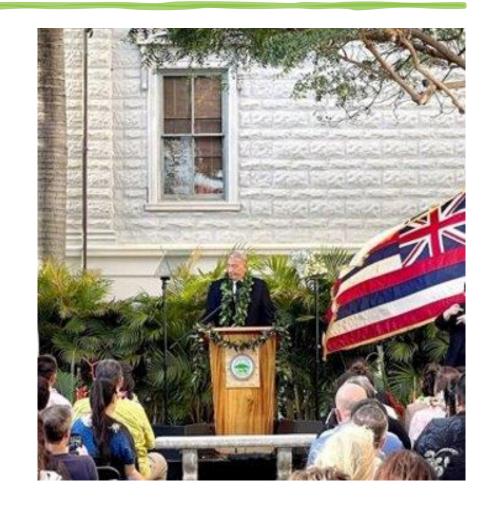
- 1.WHY ARE WE HERE?
- 2.PROJECT + ESPC OVERVIEW
- 3.PROGRESS Phase 1 (Efficiency) + Phase 2a (Solar+Storage)
- 4.LOOKING FORWARD



Why are we here (JCI Project)?

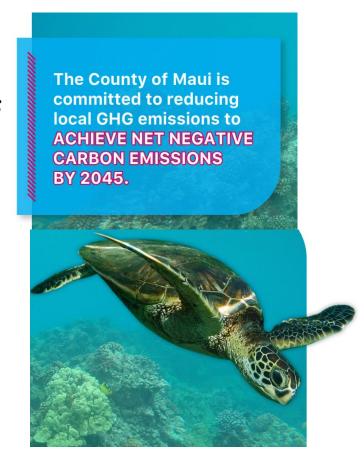
We hear the words: mālama 'aina, mālama i ka wai, mālama i ke kai. These are words that influence our everyday behavior and our policy making. We will strive to leave for our children and grandchildren a cleaner, safer, and healthier Maui Nui.

- 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



Why are we here?

This is a <u>fiscally responsible project</u> 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 <u>taking money out of an oil tanker and keeping it right here</u>, 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

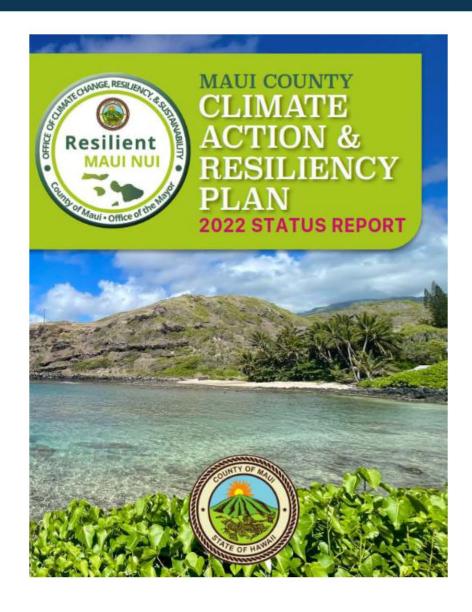
>>> STRATEGY 2

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, Hawaiii Energy



Pursue aggressive energy efficiency measures and maximize onsite renewable power generation and clean energy storage at County of Maut-owned sites, including County of Maut-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	MTCO2e
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

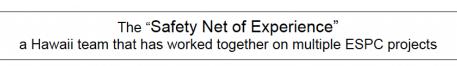
- \$580 Million in facility improvements statewide
- \$1.03 Billion in total energy and operational savings for Hawaii clients
- \$6.4 Million in secured rebates and incentives for Hawai'i clients
- Projects with Hawaii State DOT, City and County of Honolulu, UH Community Colleges, and various private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

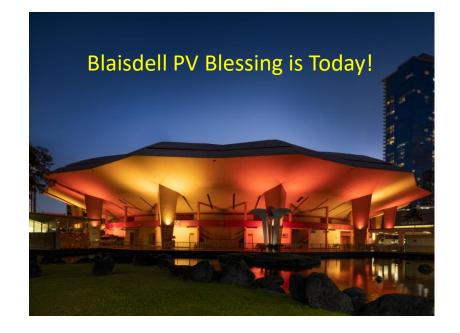
Hawaii Projects

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	\checkmark
Hawai'i DOT-Airports, Phase 2	\$48,646,463	✓
Hawaiʻi DOT-Highways	\$60,286,091	✓
Hawai'i DOT-Harbors	\$26,245,564	✓
UH Community Colleges- Oʻahu, Phase 1	\$39,096,301	✓
UH Community Colleges- Oʻahu, 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 Hawaiʻi Community Colleges-Oʻahu, Phase 1	\$14,544,611	\$14,904,184	2.4%	
University of Hawaiʻi Community Colleges-Oʻahu, Phase 2	\$4,955,131	\$5,298,419	6.9%	
University of Hawaiʻi 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%	





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 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 <u>fully accountable</u> For project performance, costs and savings

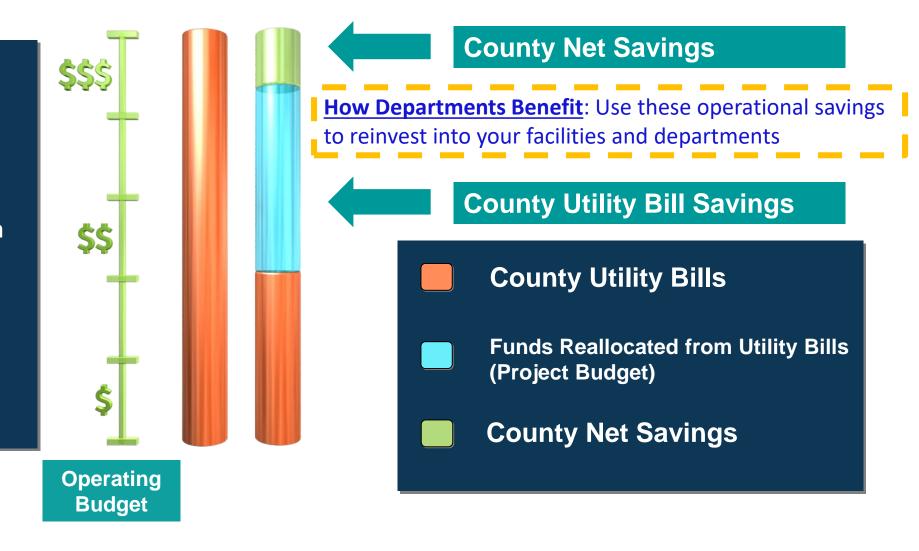
Aspects of Construction	Spec/Bid Engineers & builders are separate teams Multiple Contractors (traditional method)	Performance Contracting Design/Build = one team collaborating together
Financial	 Use Capital funds (CIP) Do a fee assessment unknown costs, multiple contracts risk of future unplanned reserve needs for equipment 	 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 todate
- 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
- JCl 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

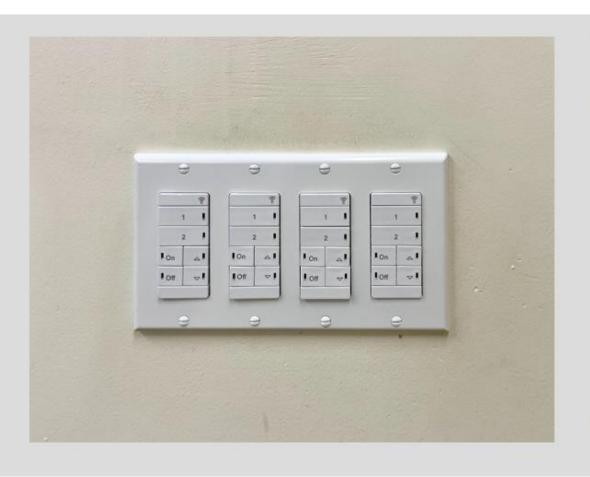
Financing = TELP (Tax-Exempt Lease Purchase)

Phase 1 (Efficiency) - Progress

	rin'	A. Interior light	ne Retrofts	Retrofts Pueload	ontrols tima-Transforme	onestic water fit	Sture Tomes	FIRM 7 Hriseation Me	Pool Equipment	M. S. Infination	Reduction Hin 12	th and stations	in the thic switch be at
Dept of Housing and Human Concerns	85%				57%				100%				
Dept of Parks and Recreation	77%			35%	91%	84%	32%	72%	100%	100%		35%	
Dept of Prosecuting Attorney					100%				100%				
Dept of Public Works	78%			35%	76%				100%		100%		
Dept of Water Supply	97%			100%					100%				
Environmental Management	95%			100%	98%				100%				
Maui Fire & Public Safety	88%				89%				100%	100%			
Maui Police Department	94%			98%	46%				100%				
Average by Department	86%	D	D	90%	86%	84%	32%	72%	100%	100%	100%	35%	
Weight Overall Average	88%												

Lanai Police Station

Interior Lighting







Kihei Community Center

Window Film







Kamole III Beach Park

New water efficient shower towers



Cooke Memorial Pool

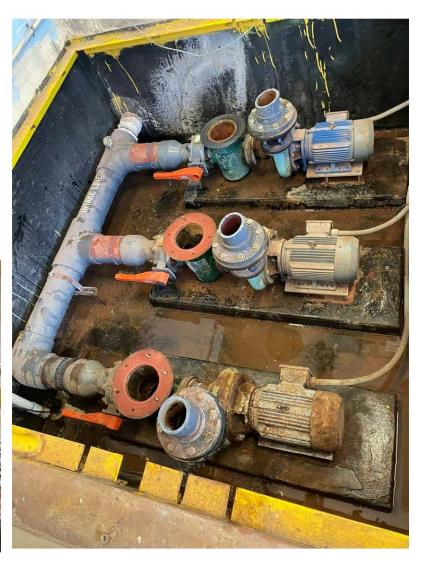
Smart Pool Pump Controls & On-Site Sodium Hypochlorite Generation











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

Interior Lighting

11,000+ lighting retrofits completed

220,195 kWh saved from completed fixtures

\$108,000 cost savings

Pools & Irrigation

4 pools completed; 1 in progress

\$57,000 Cost Savings

Kelawea Mauka Park new irrigation system and grass

ois & irrigation

25 of 40 shower towers retrofitted

Showers & Domestic

Plumbing

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

Mahalo department staff and directors!

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



Kelawea Mauka Park New Irrigation and Grass

570 mTons of CO2e reduction of Greenhouse Gases

\$80,450 Submitted in Energy Efficiency Grant Applications

Workforce + Economy

Added 10 Full-time Maui positions (22 total)

141 Subcontractor jobs (Phase 1)

Open first non-Oahu JCI office (in Wailuku)

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

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
lao Water Treatment Plant	MAUI	Wailuku	Roof
lao 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

Site Examples



Wailuku Police







Site Examples



Kualapuu CC



Lanai Senior Center

Resiliency Hubs



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)



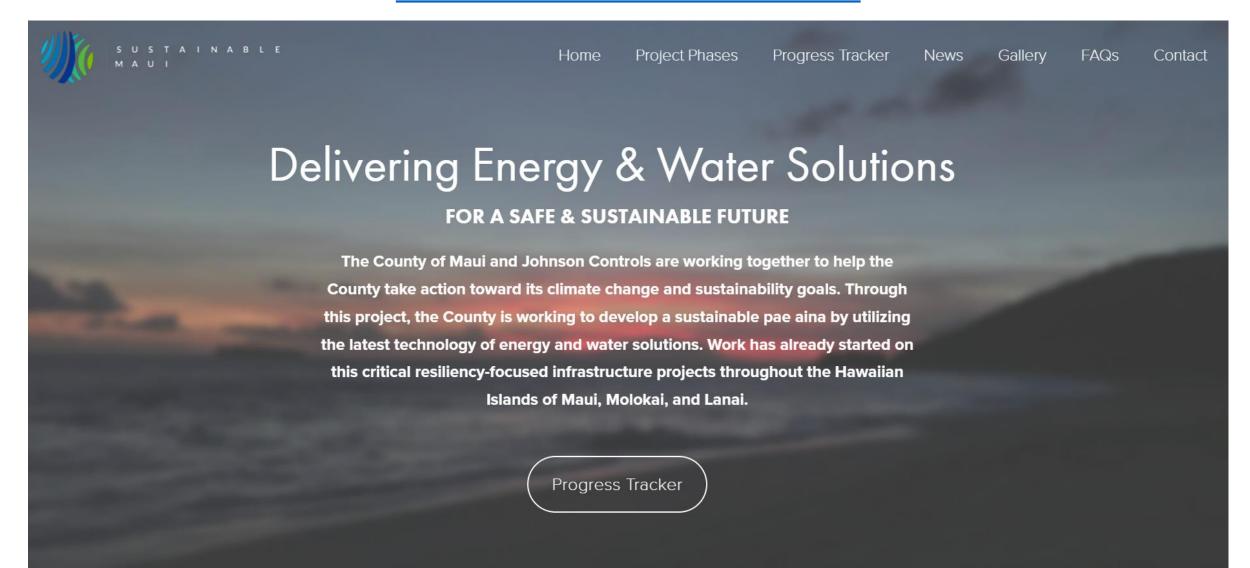
Evaluate Future Phases (Streetlights, Exterior Lighting, Water Storage for Resiliency, etc.)



Resiliency Hub Support

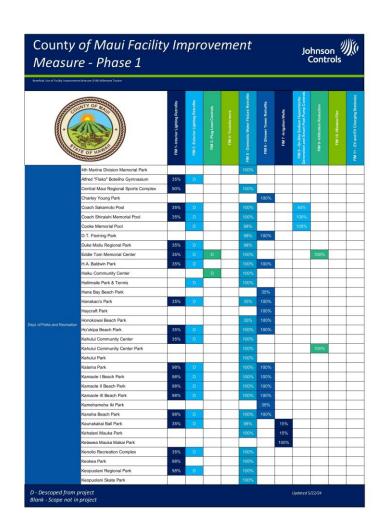
Project Website

www.sustainable-maui.com

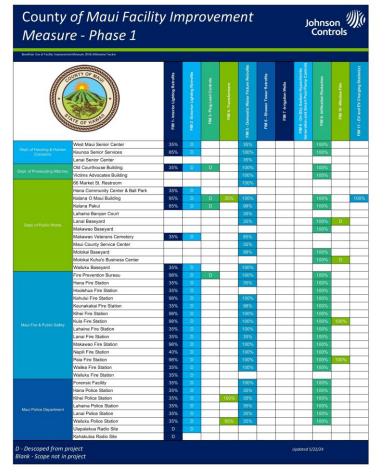


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MAHALO!