



# Hawaii Energy

**How We're Working with You to...**

**Save Energy**  
**Strengthen the Economy**  
**Protect our Environment**

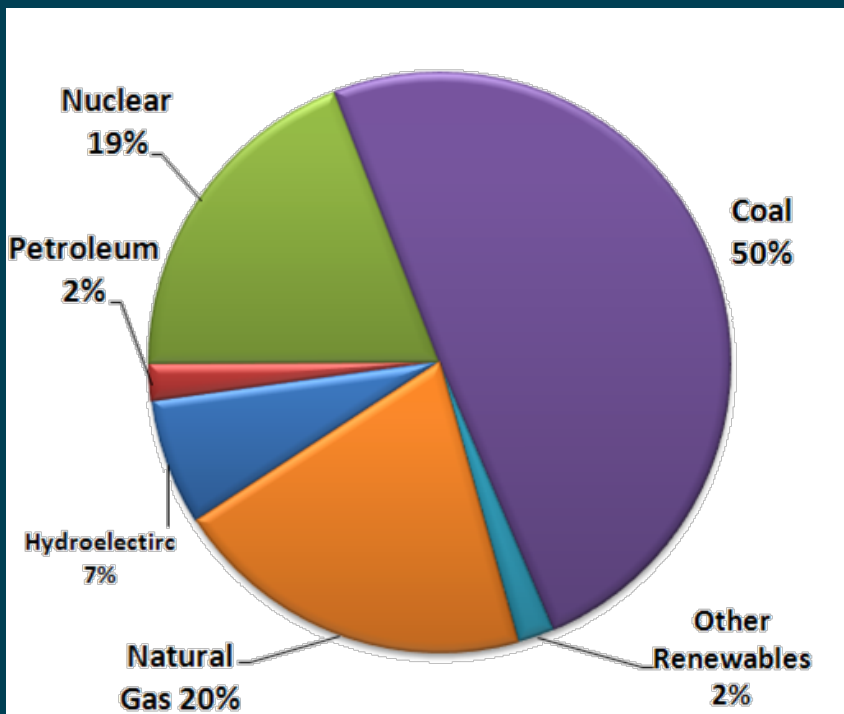
# ROADMAP FOR TODAY

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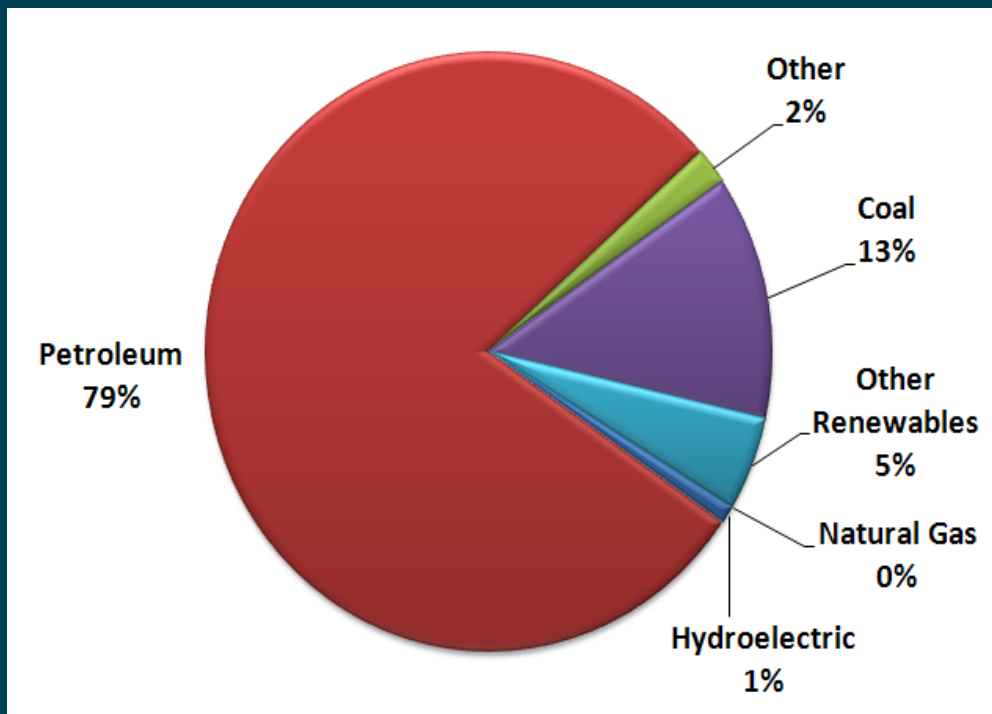
- **Introduction and Overview of Program**
  - Accomplishments to date
  - Program Targets
- **Current Program**
  - Residential
  - Business
  - Transformational
  - Advertising, Marketing, Public Relations and Outreach

# DEPENDENCY MESSAGE

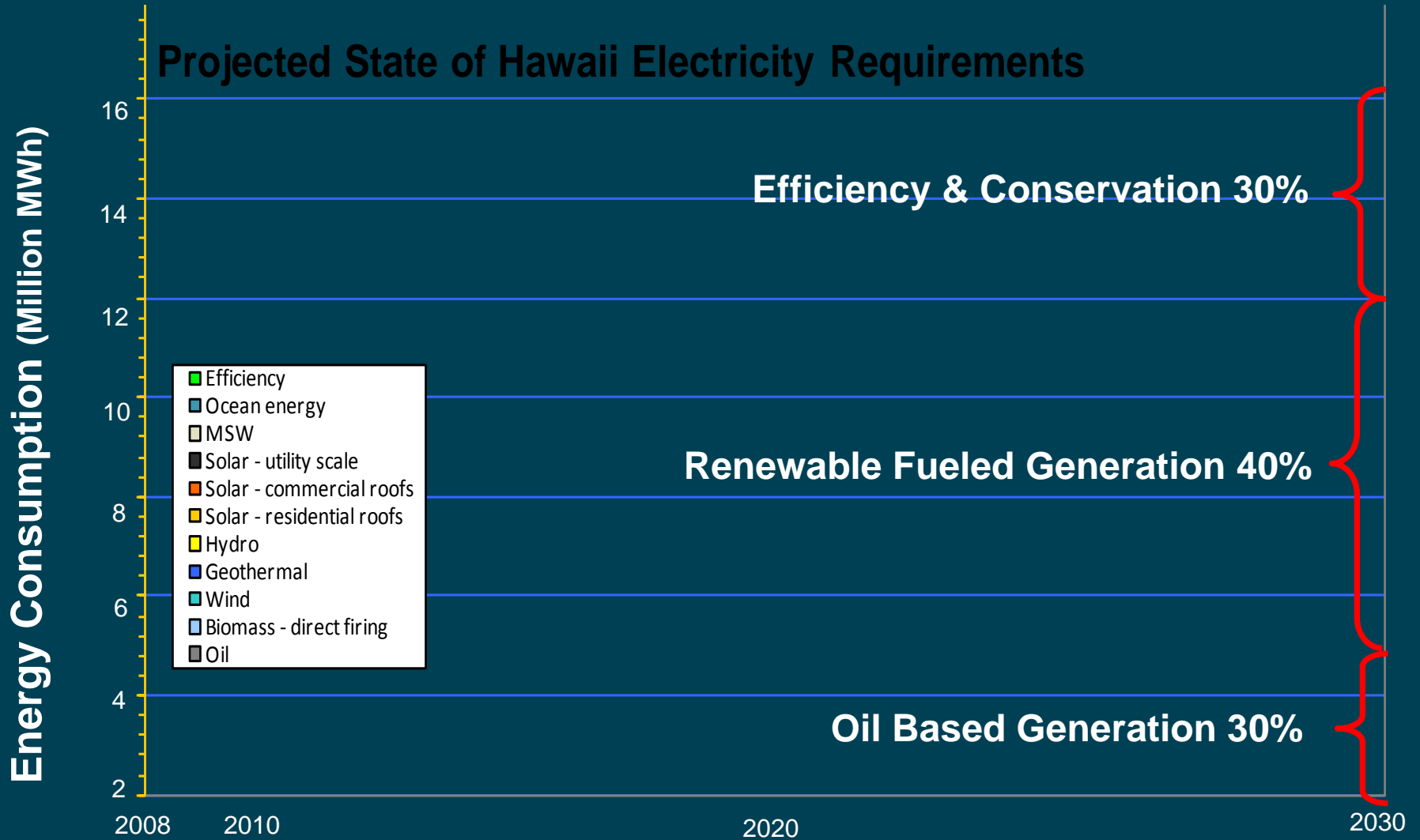
## U.S. Electricity Generation



## Hawaii Electricity Generation



# HAWAII CLEAN ENERGY INITIATIVE



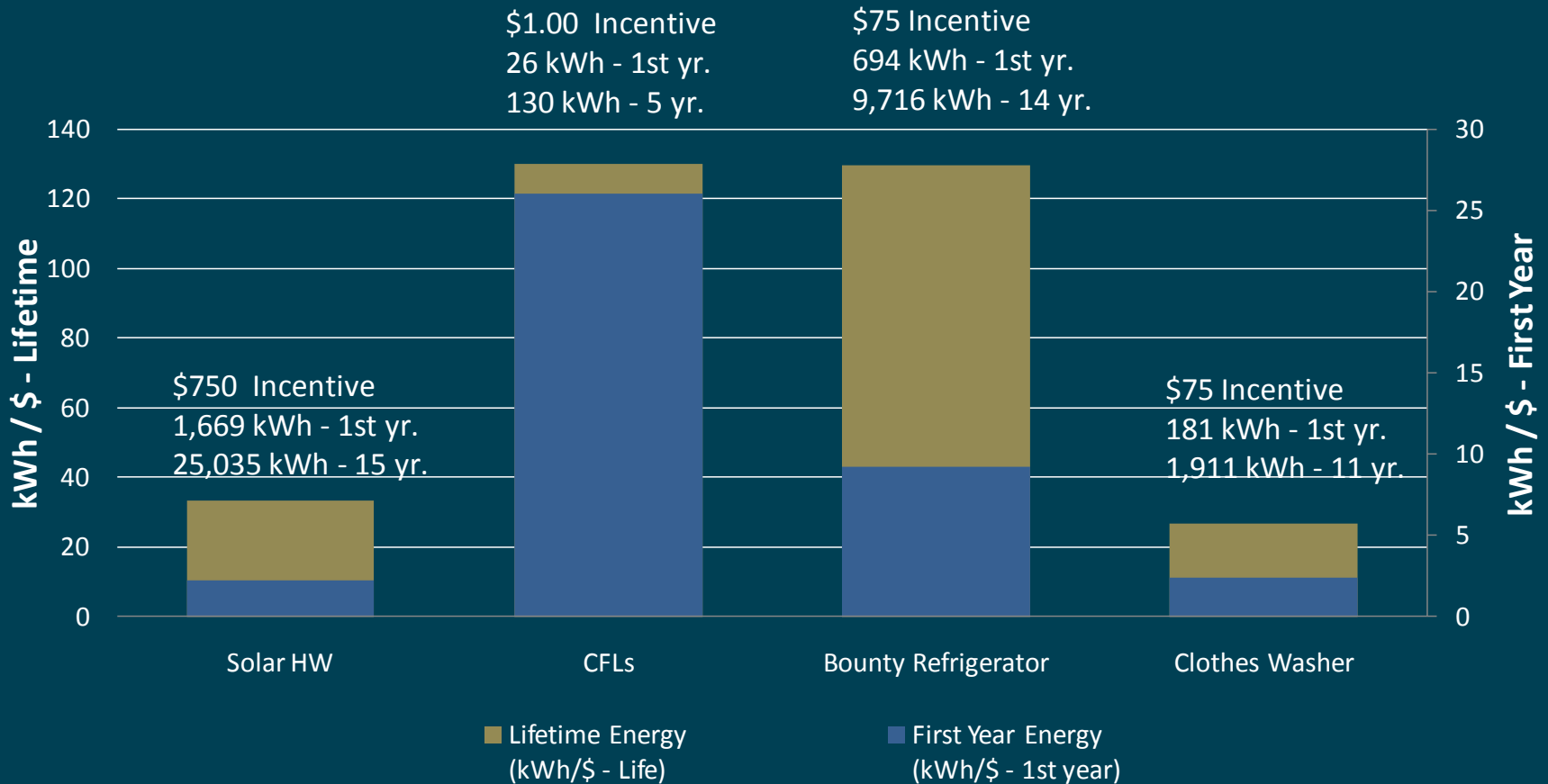
# PROGRAM SAVINGS IMPACTS

PY2010 Contribution by Category in Order of Lifetime Energy Impact

	Measure	Program Demand		Program Energy		Program Energy	
		(kW)	%	(kWh 1st yr.)	%	(kWh Life)	%
1.	CFL - Residential	6,970	41.0%	45,779,857	39.8%	228,899,287	20.0%
2.	T8	1,671	9.8%	14,445,561	12.6%	202,237,854	17.6%
3.	Building Envelope Improvements	568	3.3%	4,424,902	3.8%	86,971,989	7.6%
4.	T5 / T5HO	692	4.1%	6,212,285	5.4%	86,971,989	7.6%
5.	HVAC - Chiller	530	3.1%	3,442,410	3.0%	68,438,924	6.0%
6.	HVAC - Package & Split Units	791	4.6%	3,439,369	3.0%	51,590,534	4.5%
7.	High Efficiency Water Heating - Heat Pumps	232	1.4%	1,864,449	1.6%	37,288,981	3.3%
8.	Solar Water Heating - Contractor - PBFA \$750	533	3.1%	2,402,913	2.1%	36,043,698	3.1%
9.	ENERGY STAR - Refrigerator - ARRP/SEP	282	1.7%	2,141,950	1.9%	29,987,304	2.6%
10.	Delamping - T8/T12	272	1.6%	1,790,631	1.6%	25,068,834	2.2%
11.	Delamping with Reflectors - T8/T12	152	0.9%	1,701,894	1.5%	23,826,523	2.1%
12.	Building Controls	211	1.2%	1,664,489	1.4%	22,475,446	2.0%
13.	LED	641	3.8%	3,924,237	3.4%	20,381,786	1.8%
14.	ENERGY STAR - Clothes Washer	213	1.2%	1,618,697	1.4%	19,424,362	1.7%
15.	New Home - Energy Modeling	-	0.0%	950,106	0.8%	19,002,119	1.7%
16.	CFL - Business	621	3.7%	4,985,218	4.3%	16,982,427	1.5%
17.	HVAC - Cooling Tower VFD	78	0.5%	934,847	0.8%	14,022,709	1.2%
18.	ENERGY STAR - Refrigerator with Recycling	39	0.2%	965,743	0.8%	13,520,407	1.2%
19.	ENERGY STAR - Refrigerator	155	0.9%	958,035	0.8%	13,412,492	1.2%
20.	ENERGY STAR - Window AC	552	3.2%	1,092,618	1.0%	13,111,415	1.1%
21.	CO Demand Control Ventilation - Parking Garage	88	0.5%	767,847	0.7%	11,517,702	1.0%

# PROGRAM COST EFFECTIVENESS

## Energy Saved per Dollar Invested



# PROGRAM TARGETS

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1. **Maximizing Impact of Capital Investments**
2. **Commissioning / Optimization Work**
3. **Small Business Participation**
4. **Landlord / Tenant Issues**

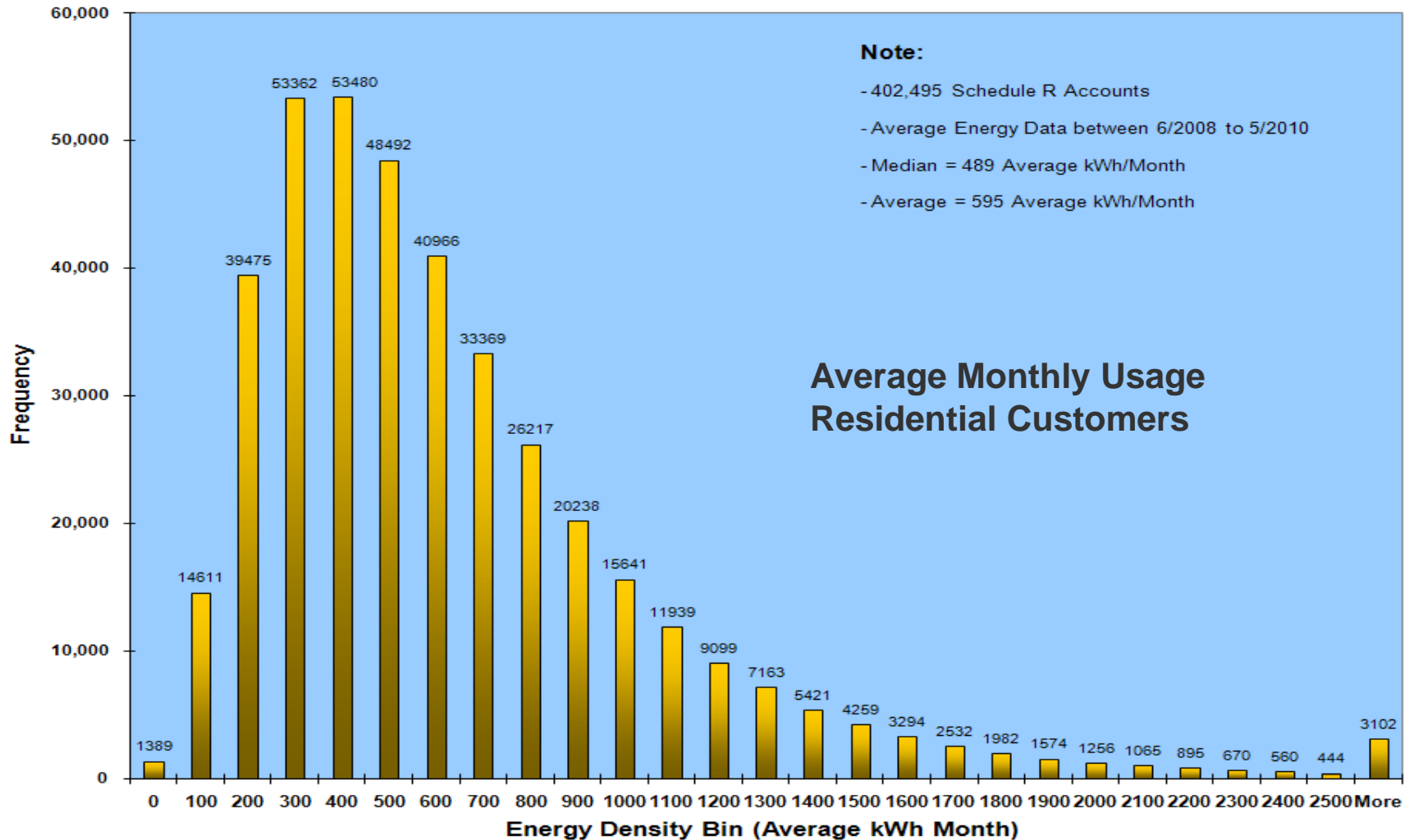
# PROGRAM TARGETS

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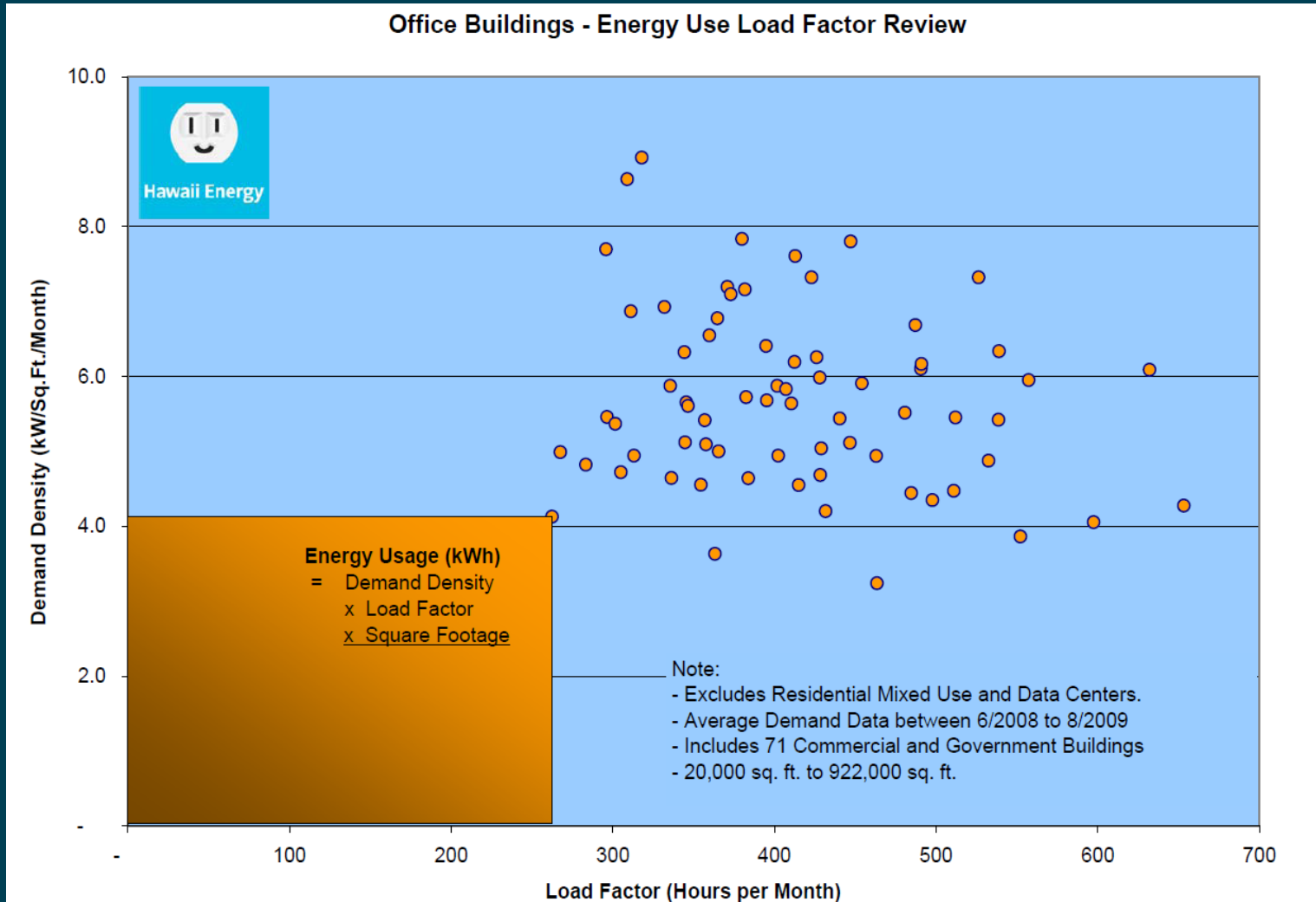
5. **Master Metered Account**
6. **Building & Equipment Code Changes**
7. **Renewable Curtailment on Neighbor Islands**
8. **Individual Behavior Based Changes**



# RESIDENTIAL TARGETING



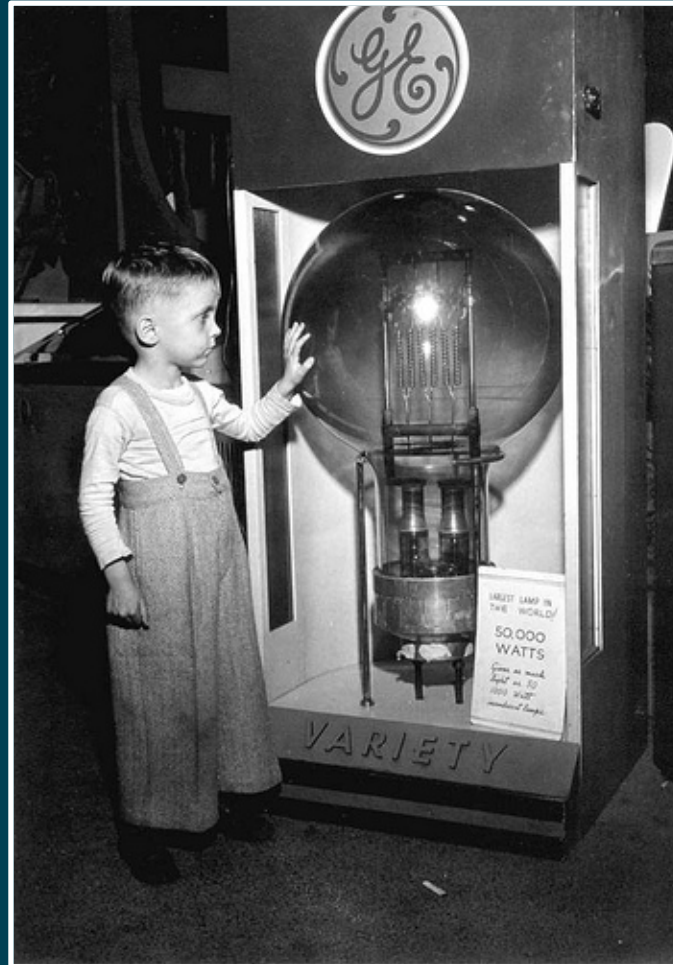
# BUSINESS TARGETING



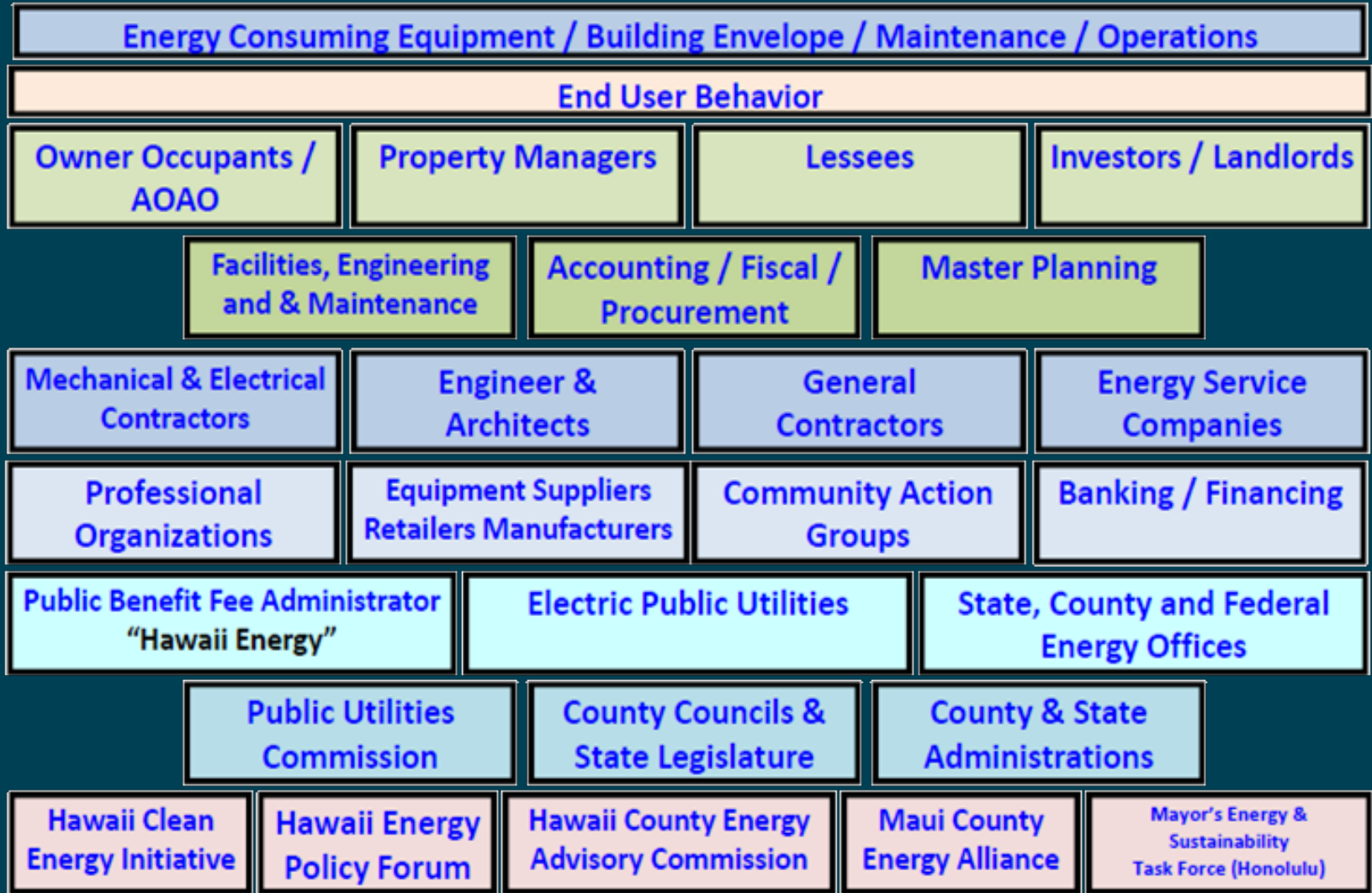
**How many  
energy efficiency experts  
does it take to change a  
light bulb?**

# DECISION MAKERS

One?



# DECISION MAKERS



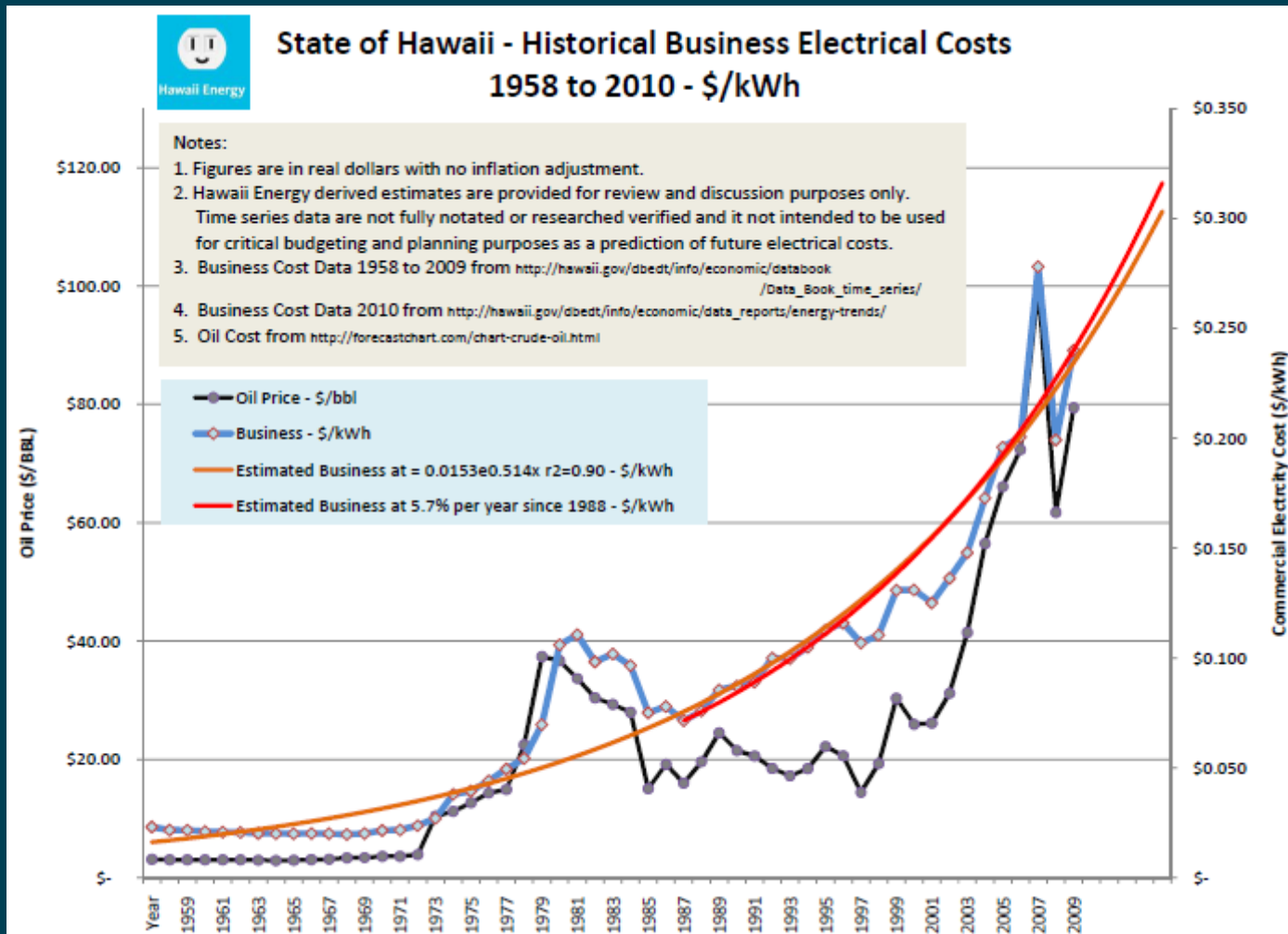
# AWARENESS AND TRUST

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**“Your future depends on  
many things, but mostly  
you”**

**— *Frank Tyger***

# BUSINESS RISK & SENSE OF URGENCY



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# 1. Lighting Upgrades

- **70% of projects are lamp change outs**
  - Incentives average around ~ 15% of installed cost
  - T8 to Super T8 – Avg. 3-4 yr.
  - T12 to Super T8 – Avg. 1-2 yr.
- **30% of projects include delamping**
  - Incentives average around ~ 44%
  - Delamping 3 to 2 no reflector
  - Delamping 4 to 2 with reflector - \$36.80 Incentive
- **Get rid of all 8' Lamps! ~ 34% to 45% Incentive**
- **LED Case Lighting**



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## 2. Operational Waste Reviews

- **Computers on 24/7**
- **Unoccupied Offices and Conference Rooms**
- **After-hours lighting and A/C**
- **Cleaning Schedule coordination**
- **Daylighting Opportunities**

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### 3. Benchmark your Operations

- Location to location
- Submetering high energy users / equipment
- Energy per production output
- kW/Sq. Ft. & kWh/Sq. Ft. – Local Data Coming Soon

# RESIDENTIAL INCENTIVES

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1. Solar Water Heating
  - Standard
  - Interest Loan Buy-down
  - Heat Pumps
2. Consumer ENERGY STAR CFLs
3. Consumer ENERGY STAR LEDs
4. Ductless Split Systems
5. VRF Split Systems
6. ENERGY STAR Ceiling Fans
7. Whole House Fans
8. Solar Attic Fans



# RESIDENTIAL INCENTIVES

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- 9. ENERGY STAR Refrigerators
- 10. ENERGY STAR Refrigerator with trade-in
- 11. Refrigerator/Freezer Bounty
- 12. ENERGY STAR Washers
- 13. VFD Pool Pump Controllers
- 14. Room Occupancy Sensors
- 15. Whole House Energy Monitoring
- 16. Split Incentives for Landlord / Renter

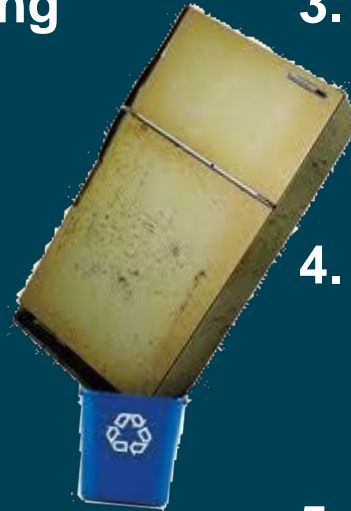


# BUSINESS INCENTIVES

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## 1. High Efficiency Lighting

- CFL
- T8
- LED
- Delamping
- Induction
- Pulse Start HID



## 2. High Efficiency HVAC

- Chillers
- VFD – Fan and Pump Applications
- Garage Ventilation Control
- Air-Cooled Packaged and Split Systems
- VRF Split Systems

## 3. High Efficiency Water Heating

- Commercial Solar Water Heating
- Heat Pumps

## 4. High Efficiency Water Pumping

- VFD Domestic Water Packages
- VFD Pool Pumps

## 5. High Efficiency Motors

- CEE Listed Premium Motors

## 6. Commercial Industrial Processes

- Waste Water Process
- Air Compressors
- Commercial Kitchen Equipment

# BUSINESS INCENTIVES

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- 7. Energy Star Business Equipment**
  - Refrigerators with Recycling
- 8. Energy Awareness, Measurement and Control Systems**
  - Condominium Submetering
  - Small Business Submetering
- 9. Customized Project Measures**
  - Cost per kWh and kW Savings Program
- 10. Building Envelope Improvements**
  - Window Tinting
  - Cool Roof Technologies
- 11. Business Direct Lighting Installation**
  - Small Business Direct Lighting Install
- 12. Business Design, Audits, and Commissioning**
  - Central Plant Optimization
  - Energy Study & Design Assistance
  - Energy Project Catalyst
  - Technology and Project Demonstration
- 13. Energy Efficiency Equipment Grants**
  - Community and Grassroots Support
  - Small Business Direct Installation

# SUBMETERING

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- **Fairness**
- **Awareness**
- **Motivation**
- **Manage Budgets**

# ENERGY INDUSTRY TRADE ALLIES

	Trade Allies	Applications	Customer Level Energy Savings (kWh)	Incentives	Cumulative Savings %
1	Customer Driven	586	29,969,823	\$ 2,641,586	42%
2	Actus Lend Lease	51	8,110,660	\$ 984,915	53%
3	Noresco	56	4,948,797	\$ 448,201	60%
4	Energy Industries	295	4,658,458	\$ 362,203	66%
5	Norman Wright	4	1,886,386	\$ 164,907	69%
6	Light Bulb Source	11	1,629,739	\$ 167,021	71%
7	Huskell	8	1,220,688	\$ 21,397	73%
8	Inncom	1	1,027,500	\$ 68,500	75%
9	Real Win Win	38	963,673	\$ 66,399	76%
10	Architects Hawaii LTD	1	946,159	\$ 60,808	77%
11	Forest City	2	925,472	\$ 70,386	78%
12	Johnson Controls	20	895,536	\$ 111,535	80%
13	Lighting Services Inc.	29	787,532	\$ 44,766	81%
14	Critchfield Pacific Inc.	16	747,657	\$ 86,883	82%
15	GonLED	3	728,182	\$ 75,936	83%
16	21st Century Lighting	15	610,346	\$ 45,169	84%
17	Trane	10	605,708	\$ 66,287	85%
18	Electricians Inc	8	491,402	\$ 42,005	85%
19	Maryl Pacific Construction	17	491,212	\$ 41,863	86%
20	Smart Watt Energy	9	430,051	\$ 33,081	87%





# COMMISSIONING PROGRAMS

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- **Systems Reviews**
- **Critical Equipment Metering**
- **Tuning and Sequence Documentation**
- **Performance Period for Savings Persistence**

# SMALL BUSINESS PROGRAMS

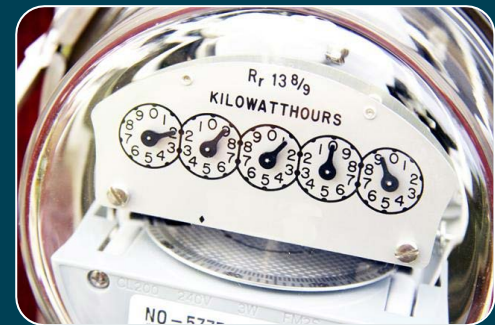
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- **Small Business Lighting Direct Installation**
- **Restaurants**
- **LED Introduction Program**

# MASTER METERED PROGRAMS

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- Incentives and education for the installation of billing submeters
- AOA Residents and Business Tenants within a master metered facility.
- Motivation and ability to directly benefit from energy efficiency improvements and behaviors.





# Mahalo

Oahu 1-808-537-5577 Neighbor Island 1-877-999-7242

HELPING HAWAII CONSERVE TODAY, TO POWER A BETTER TOMORROW

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