

County of Kaua'i

On the bus to our clean energy future



Holo Holo 2020

Growing Kaua'i responsibly.

<http://www.kauai.gov/Portals/o/Mayor/HoloHolo2020/HH2020malamakauai2.pdf>



Today's Presentation

- Kaua'i County Energy Plans & Projects
 - Kaua'i Energy Sustainability Plan
 - ESPC's
 - Other initiatives
- Kaua'i Island Energy Challenges & Opportunities
 - Kaua'i Island Utility Cooperative
 - Mileage & Mongoose



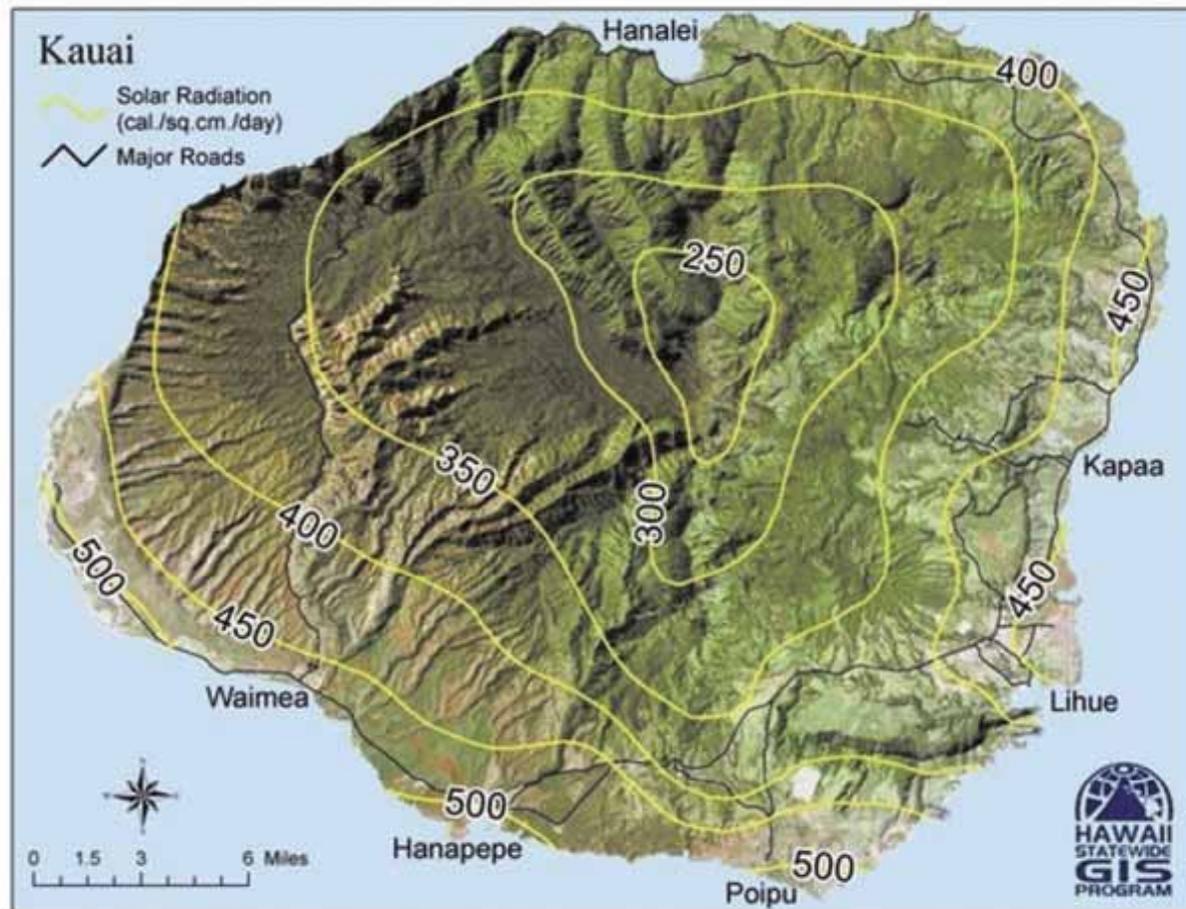
Kaua'i Energy Sustainability Plan

Developed in 2009 & Adopted in 2010

Kaua'i, in both the Ground Transportation and Electricity Sectors will...

- 1. Reduce demand through energy conservation and efficiency*
- 2. Increase clean energy supply*
- 3. Make energy delivery more efficient ...*

...to meet the Goal of 100% Local Energy Sustainability by 2030.





KESP: Major Components

- Ground Transportation

 - Kaua'i Bus

 - Fuel Efficiency & Vehicle Electrification

 - Biofuels

- Electricity

 - make more, use less

 - how to pay for it?

- More information

 - <http://www.kauainetwork.org/energy-sustainability/>

 - Search '*KESP Kaua'i*'

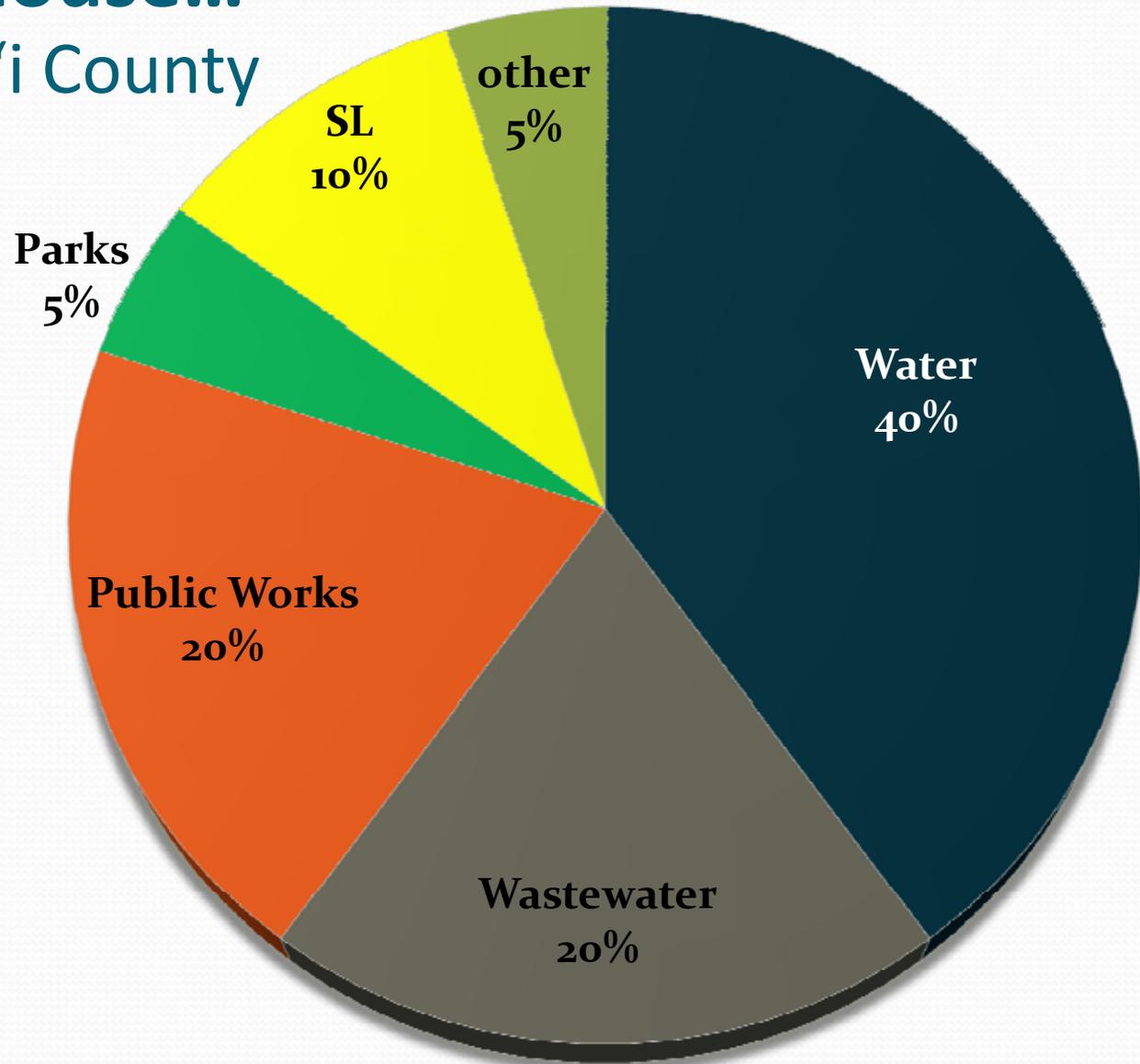


CoK Internal Strategy

- In-house programs:
 - Efficiency & Renewables
 - Transportation Improvements
 - Transformation – Green Team*
- Be prepared for opportunities
 - Electric Vehicles – ARRA
 - Other?
- Strengthen Partnerships
 - KIUC - KCC - KEDB - DEBDT - HNEI - NRECA
 - Partnerships with other Counties?

Starting in-house...

a look at Kaua'i County
Energy Use



In-house energy use management;

Today....



and tomorrow



In-house energy use management;

No, really - today....

Account Sub	Name	Fac. Code	Month	Wh	Dollars	KWH	Rate	Power Factor %
444422412 321	COURTY OF DANIEL MATHIS PLANT	*A* 001 Q	2010-07	168,700	92,274.77	47,700	204.90	94.0
			2010-08	149,200	46,987.40	48,600	260.90	90.0
			2010-09	185,400	47,494.00	49,400	260.00	95.0
			2010-10	136,800	43,365.45	48,800	289.00	94.0
			2010-11	131,600	49,399.39	47,000	295.00	94.0
			2010-12	116,000	38,551.17	44,800	281.00	94.0
			2011-01	132,800	44,403.60	49,200	296.00	94.0
			2011-02	128,400	45,808.18	46,500	276.40	94.0
			2011-03	120,800	45,232.32	47,600	282.00	93.0
			2011-04	127,600	49,227.10	48,500	268.40	94.0
			2011-05	123,600	50,227.00	43,600	241.20	94.0
			2011-06	149,800	37,467.00	49,200	274.40	94.0
						1,626,600	568,473.62	546,300
444422412 322	COURTY OF DANIEL MATHIS PLANT	*A* 001 Q	2010-07	79,000	24,438.66	10,700	229.10	90.0
			2010-08	96,500	25,570.24	14,600	326.16	90.0
			2010-09	85,400	45,851.10	13,500	339.60	90.0
			2010-10	77,500	34,390.73	38,100	137.49	95.0
			2010-11	70,200	22,020.40	22,400	220.10	90.0
			2010-12	90,200	33,171.84	14,100	236.80	94.0
			2011-01	83,800	38,688.80	11,100	346.66	94.0
			2011-02	70,200	25,486.23	10,900	242.96	90.0
			2011-03	74,100	37,179.24	10,600	350.90	90.0
			2011-04	78,200	28,480.67	11,700	243.84	90.0
			2011-05	69,400	24,077.79	9,100	222.88	90.0
			2011-06	71,600	30,605.27	7,900	226.72	90.0
						911,640	310,926.27	194,100
Group Totals	W - WASTEWATER		2010-07	412,700	116,713.15	110,000	779.20	
			2010-08	319,600	110,748.33	114,100	760.34	
			2010-09	392,500	117,011.77	117,100	787.40	
			2010-10	304,700	110,200.44	111,700	727.00	
			2010-11	361,800	119,620.27	109,200	718.20	
			2010-12	388,500	112,748.62	104,300	692.50	
			2011-01	309,200	112,120.74	104,700	694.90	
			2011-02	345,400	125,000.24	107,000	799.40	
			2011-03	319,600	112,130.30	109,900	780.20	
			2011-04	364,100	141,217.60	111,000	709.00	
			2011-05	341,600	114,218.69	104,000	764.40	
			2011-06	379,100	114,930.60	112,400	744.60	
						3,684,000	1,574,700.75	1,110,400

In House Efficiency

Energy Savings Performance Contracts



1st ESPC - Wastewater Treatment Facilities

On deck – ESPC at Public Works & Parks Department

How to drive innovation with IFP?

County PV Systems



Civic Center - 85 kW

- 18% of power needs
- @ \$44,000/yr saved

Fire Station – 28 kW

Others planned

http://live.deckmonitoring.com/?id=lihue_civic_center

Transportation Measures Under Way

- Multi-Modal Transportation Plan
- Electric Vehicle Pilot
- Transit System Improvements



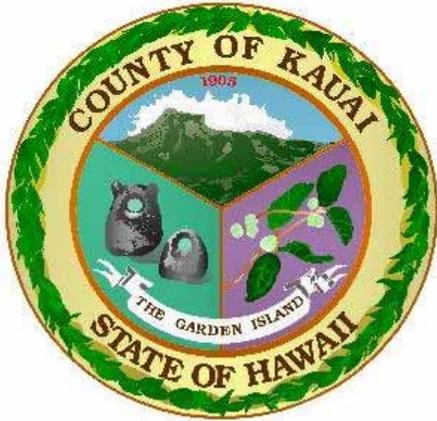
Kaua'i Multi-Modal Land Trans Plan

- Consultant-Jim Charlier & - Associates
- First comprehensive MMLTP in State
- Integrates all modes of ground transportation

<http://movekauai.net/>



- Expanded service & ridership growth
- Free rides for County employees & KCC Students
- Park & Ride facilities & Bus Stop Improvements



Upcoming CoK Renewable Energy Projects

(projects in development)

- Kekaha landfill methane project: County/Navy/KIUC (3 MW)
- Police/OPA/CD: Design/Build PV System (200 kW)
- Līhu'e STP: PV PPA (570 kW)
- Ele'ele STP: PV PPA (200 kW)

County Electric Vehicle Pilot Program



- \$279,000 ARRA grant via DBEDT +add'l CoK funds
- 5 public chargers; 5 County chargers
- Level 2, 208-240v charging stations
- 5 Nissan Leafs for County Fleet

Electric Vehicle operating costs:



- **Mileage (Nissan Leaf)** = 4.5 miles per kilowatt hour
- **Fuel cost (KIUC)** = 40 cents per kilowatt hour
- **Gasoline** = \$4.50/gallon = 11.25 kWh equivalent
- $11.25\text{kWh} \times 4.5 = 50$ miles with \$4.50 in electricity

4.5 miles/kWh vs 50 miles/gallon



- Dollars per mile is the same
- Sticker price (before taxes) @11k difference
- Maintenance costs to be determined
- Hybrid has much better range & fueling time
- But that's not the end of the story...

Approx. 50% of EV fuel costs stay on Kaua'i!



Other benefits:

Increase utility revenue recovery (offset efficiency losses)

Possible time of use benefits

Possible reduced maintenance costs

Major KIUC Projects Ongoing



- Smart Meters across Island
Opens a lot of very interesting opportunities
- Hydro explorations ongoing
15 MW or more possible
- Photovoltaics Integration
Leading the State & beyond

Questions?

Mahalo & Aloha

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