

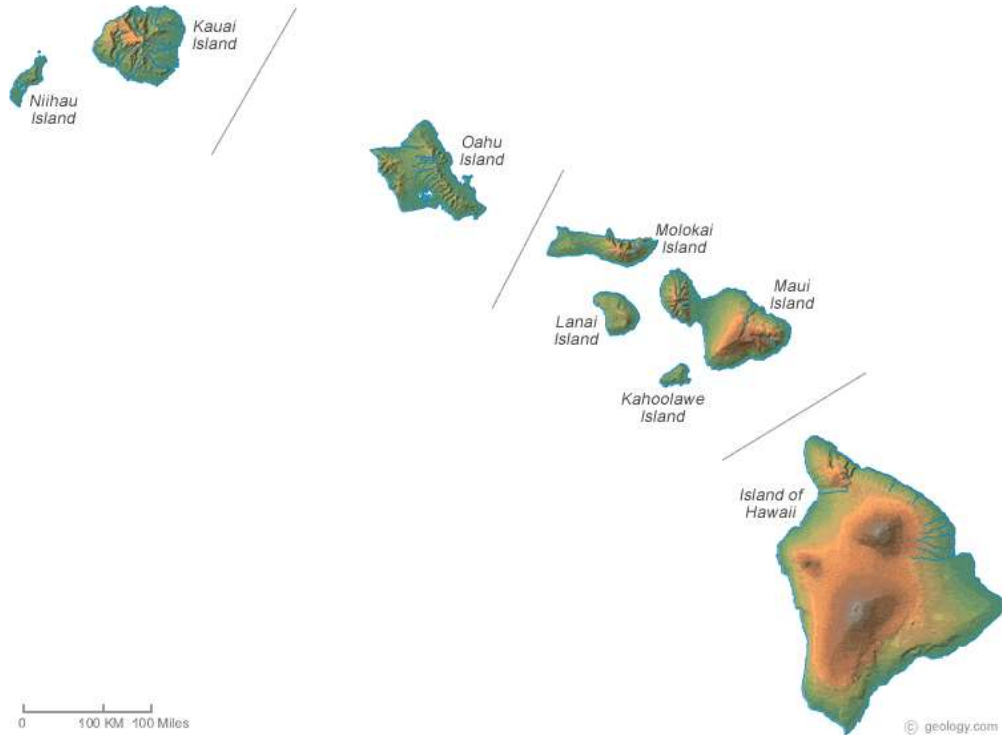
National Conference of State Legislators

Energy Supply Task Force Meeting
October 11, 2019





Main Hawaiian Islands



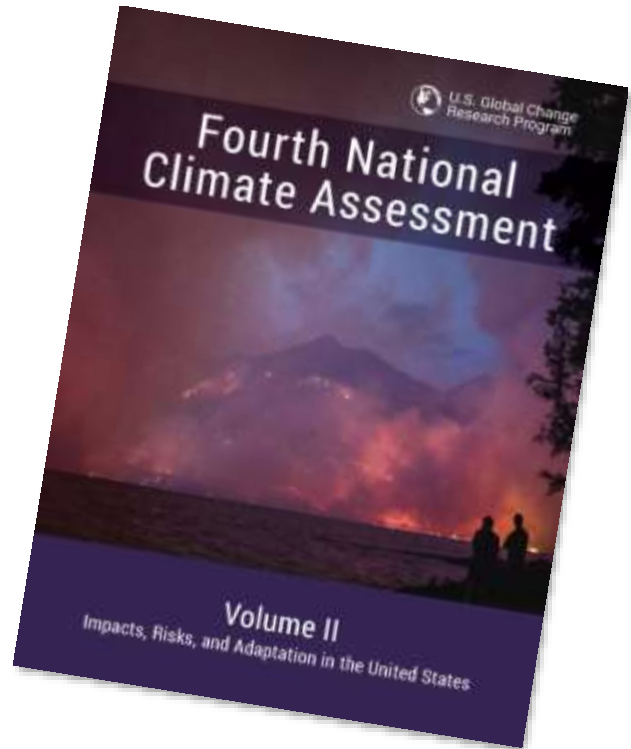
KIUC Overview

- Small integrated utility
 - 70,000 residents and about 30,000 visitors daily
- Kauai previously served by investor owned utility
- Began operating as a cooperative in 2002
 - RUS Funded acquisition with 100% debt
- Today KIUC has over 30% equity
- Since formation KIUC has returned over \$37 million to our members



National Climate Assessment (2018)

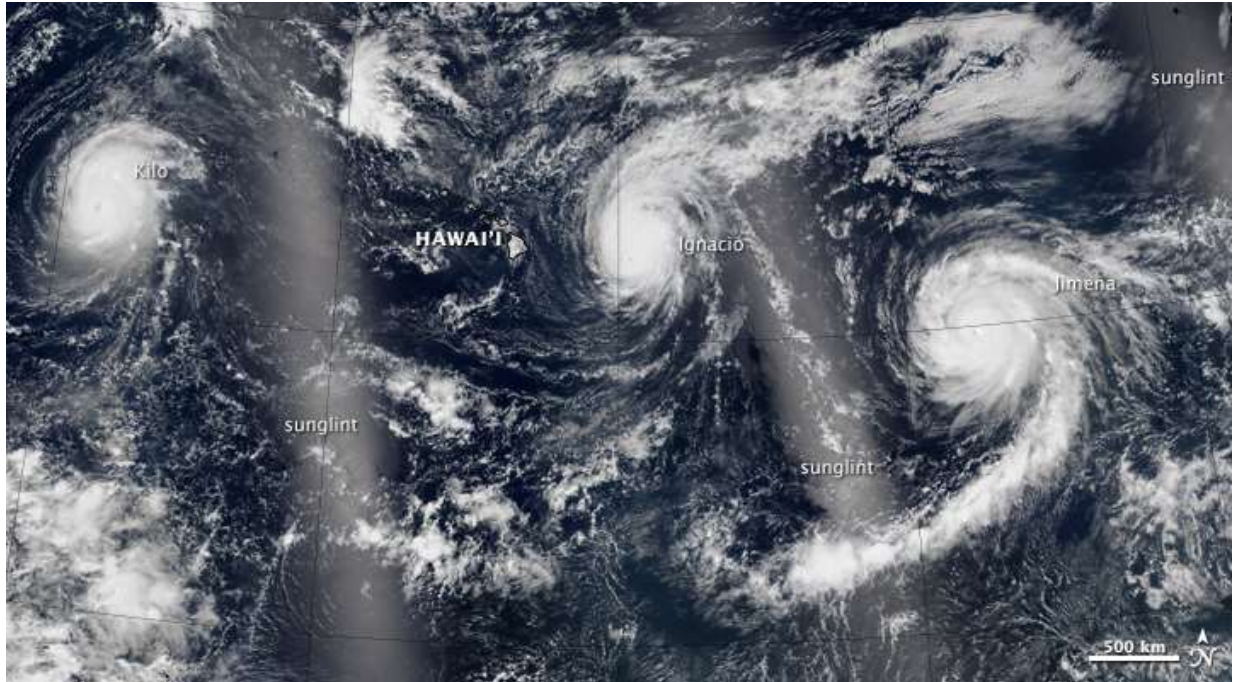
- Global Change Research Act of 1990
 - Mandates U.S. Global Change Research Program (USGCRP) deliver a report to Congress and the President no less than every four years



National Climate Assessment (2018)

- Worst case scenario: Sea level rise of up to 3.2 feet possible by 2060
 - 38 miles of major roads chronically flooded
 - 550 Hawaiian cultural sites flooded
 - More than 6,500 structures and 25,800 acres of land near the shoreline would be unusable or lost, displacing roughly 20,000 residents.
 - Economic loss of more than \$19 billion

August 2015: Cat 4 storms





April 2018 Kauai 49.69 inches
of rain in 24 hours

Capital Weather Gang • Analysis

Inside Hawaii's wild summer of broken high-temperature records

Honolulu set 29 record highs. Lihue had or broke record highs 20 days in a row.



The sun sets behind telescopes at the Big Island on July 14. (Caleb A. Cram)

By Matthew Cappucci in

Hawaii's iconic Waikiki Beach could be engulfed by the ocean in 20 years — here's the plan to save it

Aylin Woodward Apr 24, 2019, 9:35 AM



Waikiki Beach abuts Hawaii's capital, Honolulu, on Oahu's southern shore. Shutterstock

Hawaii State RE Mandate

Became law in June 2015:

- 30% by 2020
- 40% by 2030
- 70% by 2040
- 100% by 2045



KIUC Strategic Planning

KIUC Board of Directors' 2008 Strategic Plan

50% by 2030

Goal projected to be met in 2019

KIUC Board of Directors' 2017 Strategic Plan

70% by 2030

Goal projected to be met in 2023

Renewable Energy on Kauai

- Renewable mix: 55%
 - PV, Biomass, Hydro
 - Wind not feasible
- 90% plus daytime renewable
- Dispatchable PV
 - Meets up to 40% of nighttime peak

15 million gallons of diesel displaced annually

Koloa & Anahola Solar 12 MW

Koloa - 2014



Anahola - 2015



Green Energy

6.7 MW Biomass 2016



TESLA

13 MW | 52 MWh Storage 2017

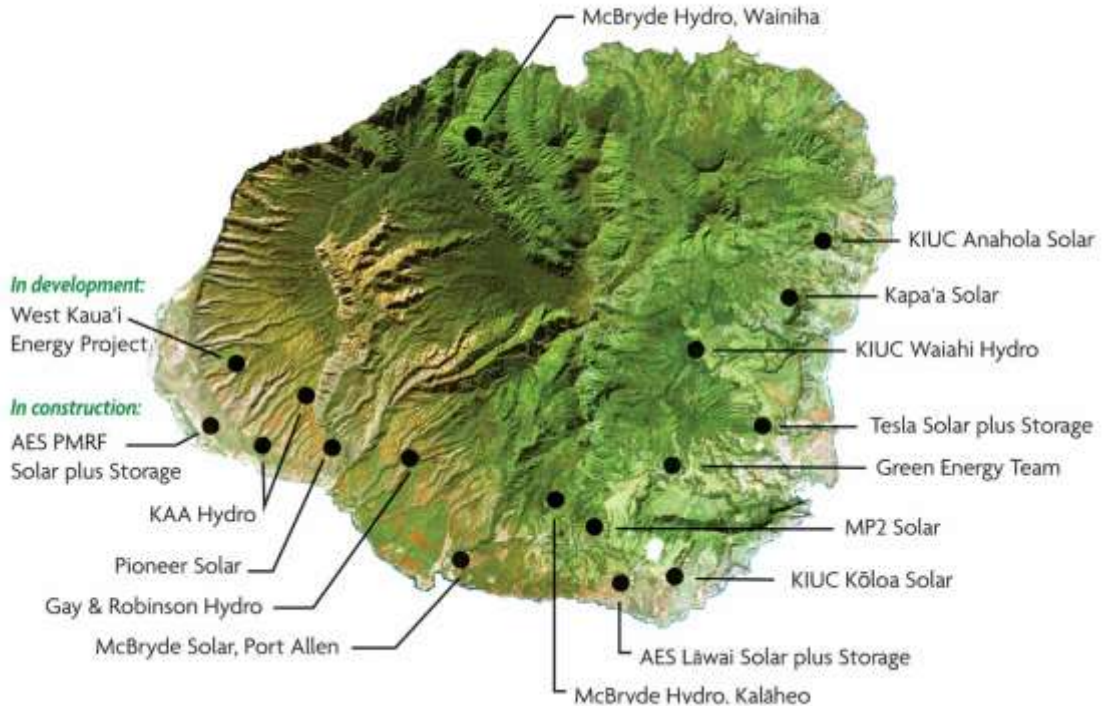


AES Lawai

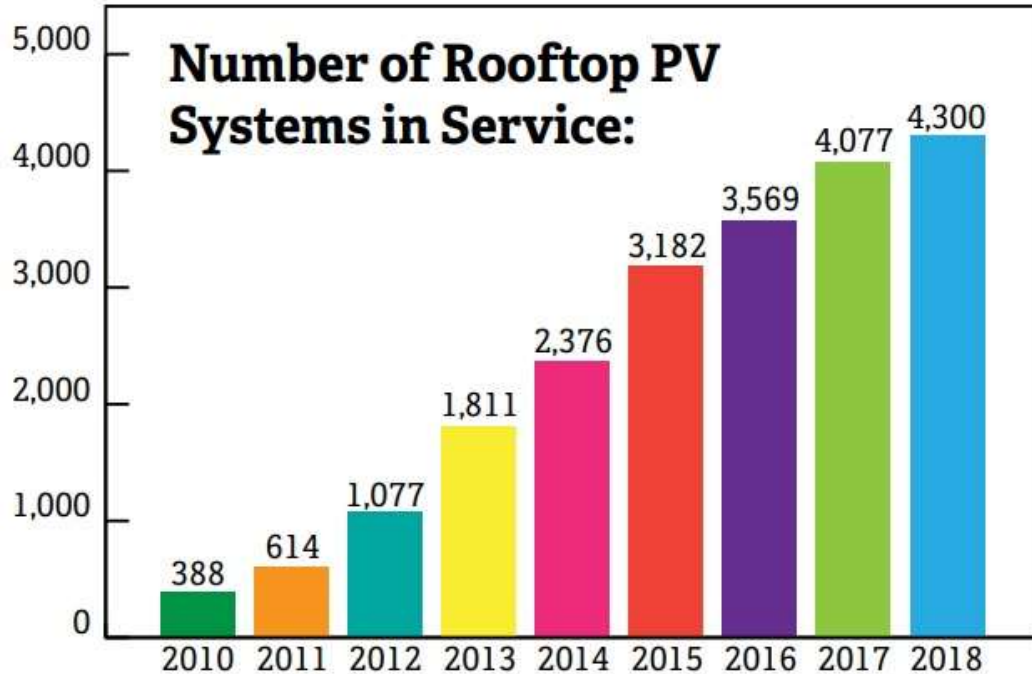
20 MW | 100 MWh Storage 2018



Renewable Energy on Kauai



Distributed Energy



KIUC Accolades

SEPA's Top 10 Utility Energy Storage Rankings

Each year, SEPA recognizes the U.S. utilities that interconnected the most new energy storage capacity in their service territories with two categories of Top 10 Rankings: most energy storage megawatt-hours (MWh) and watt-hours per customer (Wh/C)—which are listed in [Appendix B](#) for both 2018 and cumulative. Only utilities with at least 500 customer accounts were considered for the watt-hours per customer ranking. Complete detailed rankings from SEPA's 2019 Storage Utility Benchmarking Report are available to utility survey participants by contacting research@sepaenergy.org.

Table 1: Top 10 Utilities by Annual Energy Storage Capacity (MWh)

1	Southern California Edison	California	154.3
2	Kauai Island Utility Cooperative	Hawaii	102.0
3	Pacific Gas & Electric	California	73.2
4	Florida Power & Light Company	Florida	56.0
5	Salt River Project	Arizona	44.5
6	Long Island Power Authority	New York	40.0
7	San Diego Gas & Electric	California	33.7
8	Connexus Energy	Minnesota	30.0
9	Hawaiian Electric Company	Hawaii	23.3
10	United Power, Inc.	Colorado	18.2

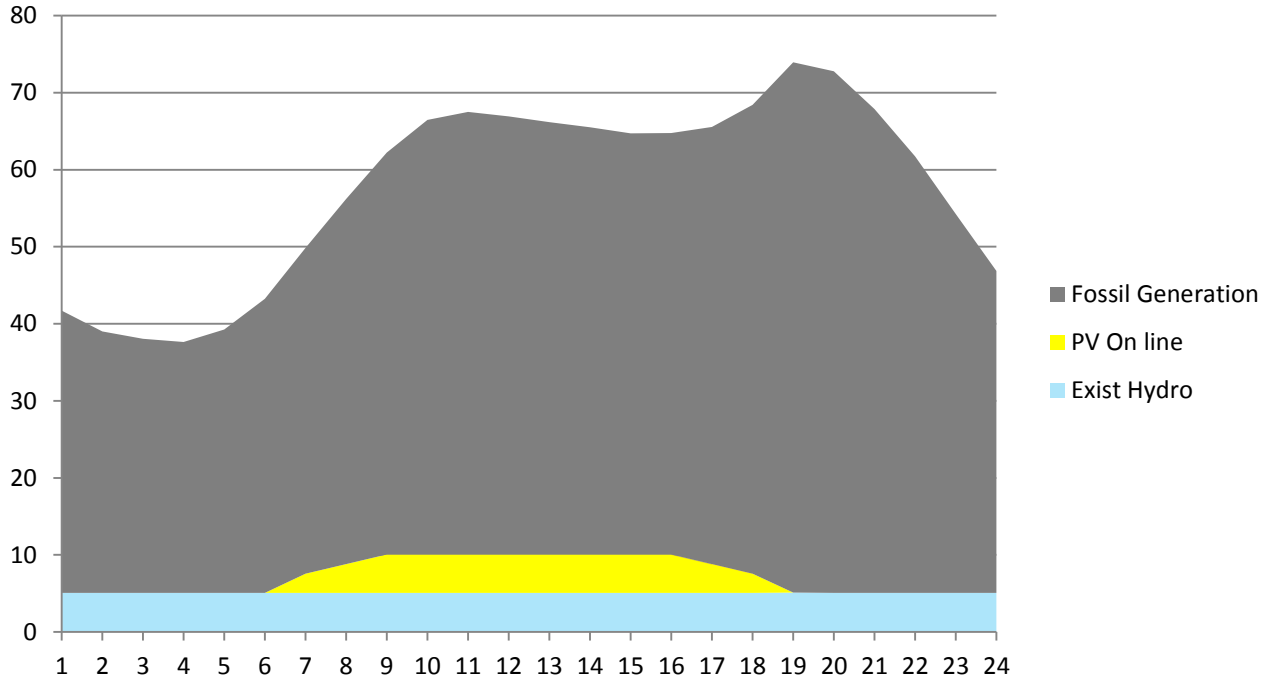
Source: Smart Electric Power Alliance, 2019.

Table 2: Top 10 Utilities by Annual Energy Storage Watt-Hours Per Customer (Wh/C)

1	Kauai Island Utility Cooperative	Hawaii	3,037.6
2	Sterling Municipal Light Department	Massachusetts	523.1
3	City of Holyoke	Massachusetts	341.6
4	Braintree Electric Light Department	Massachusetts	240.5
5	Connexus Energy	Minnesota	226.8
6	United Power, Inc.	Colorado	218.9
7	Hawaii Electric Light Company	Hawaii	95.2
8	Hawaiian Electric Company	Hawaii	76.3
9	Green Mountain Power Corporation	Vermont	66.3
10	Randolph Electric Membership Corporation	North Carolina	44.0

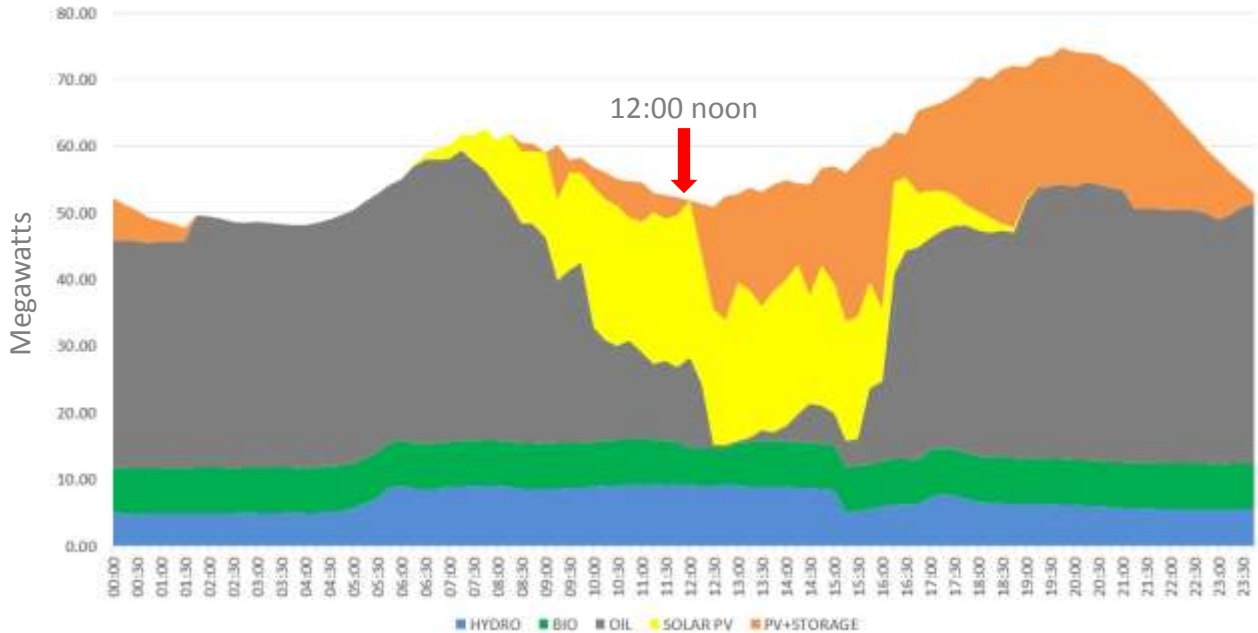
Source: Smart Electric Power Alliance, 2019.

2011 Generation Mix

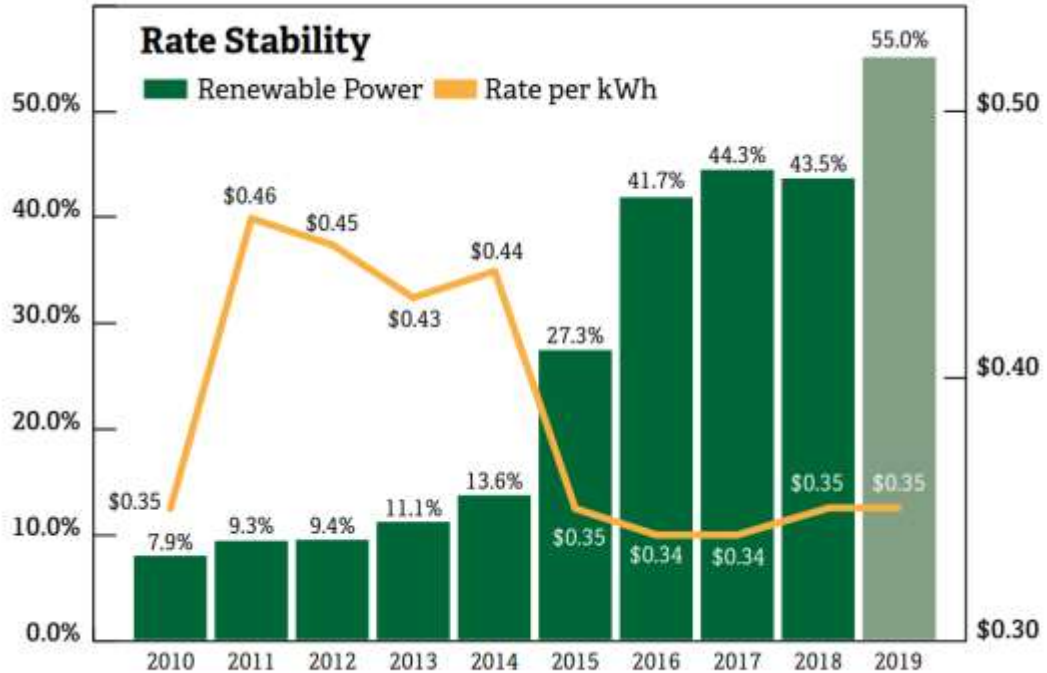


2019 Generation Mix

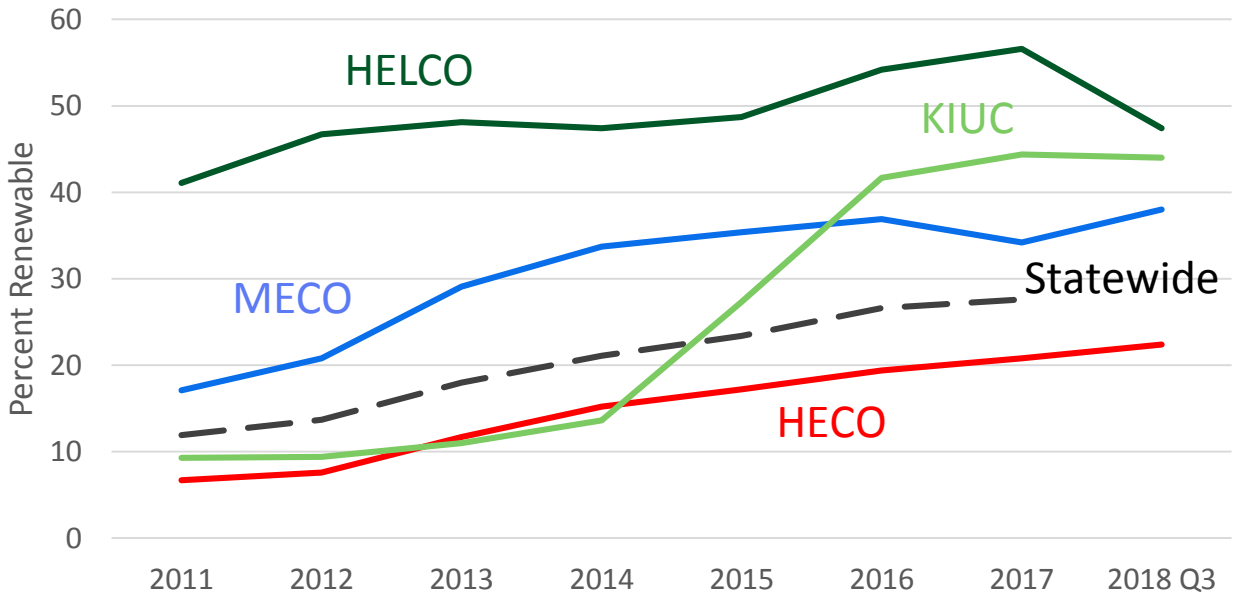
KIUC Daily Dispatch June 19, 2019



Renewable Energy on Kauai



Hawaii Renewable Progress

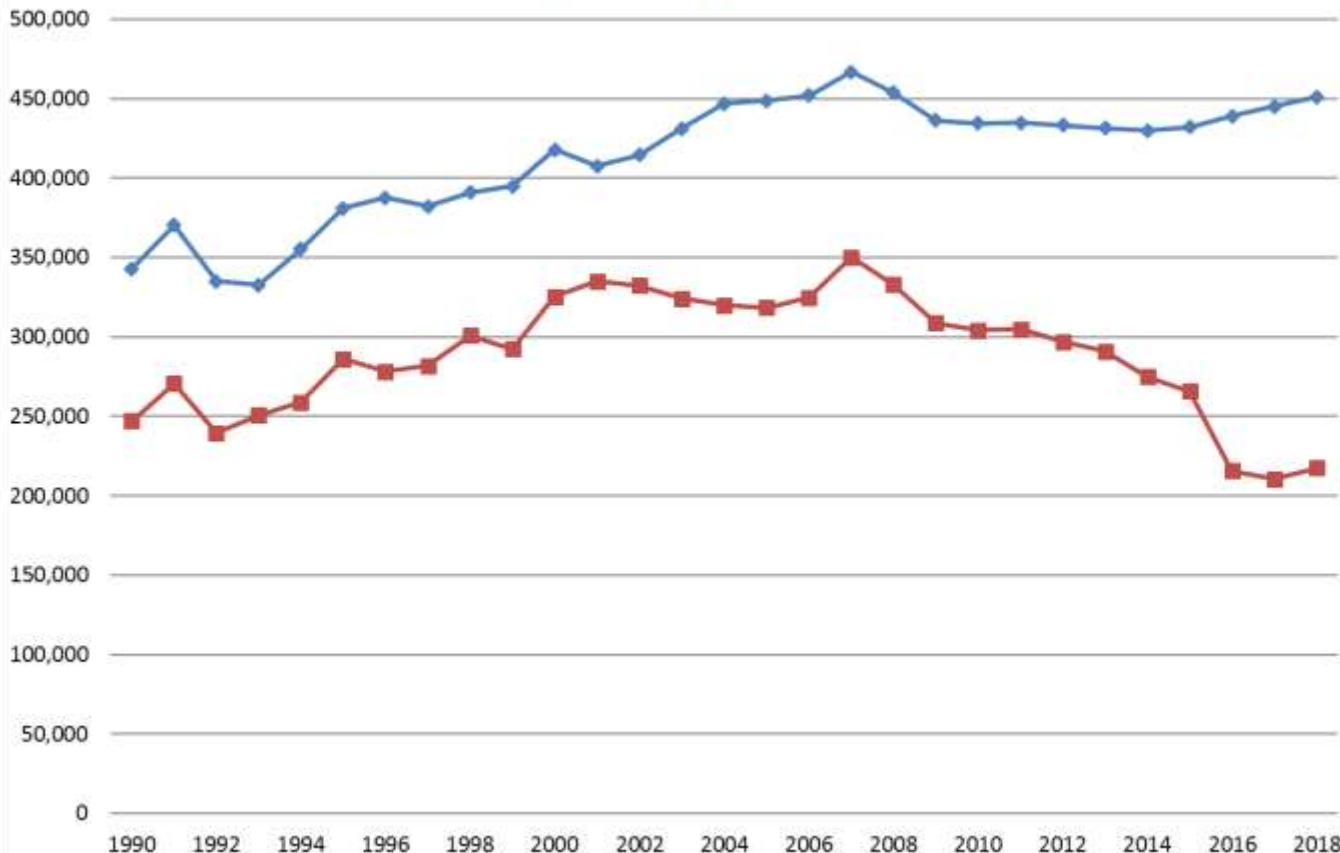


Source: RPS Annual Report 2011-2017, 2018 HECO website and estimated for KIUC

Reducing Kauai's Greenhouse Gas Emissions

KIUC Greenhouse Gas Emissions vs. Electric Sales

MWh Sales Tons CO2e



Mahalo!