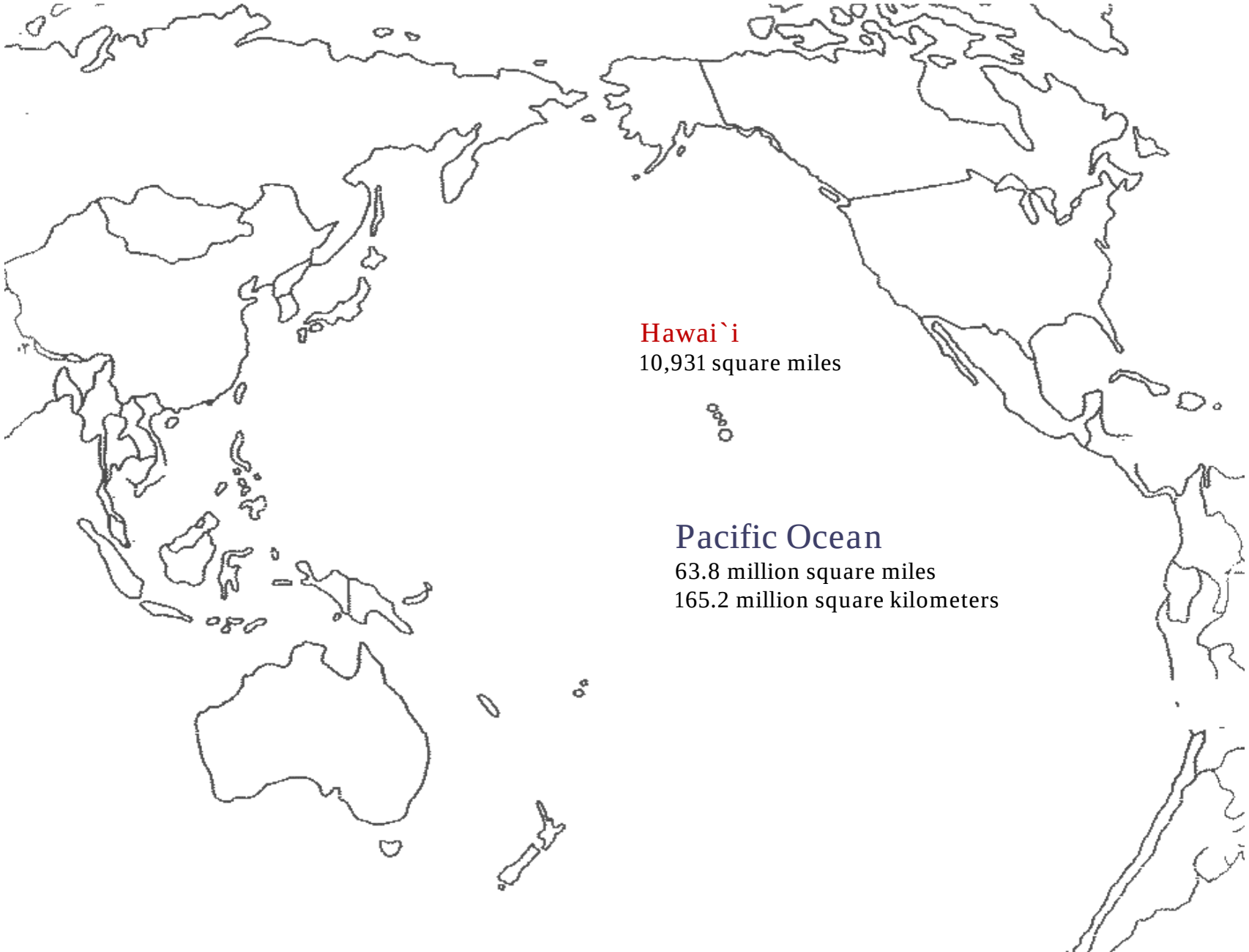
Asia Pacific Clean Energy Summit

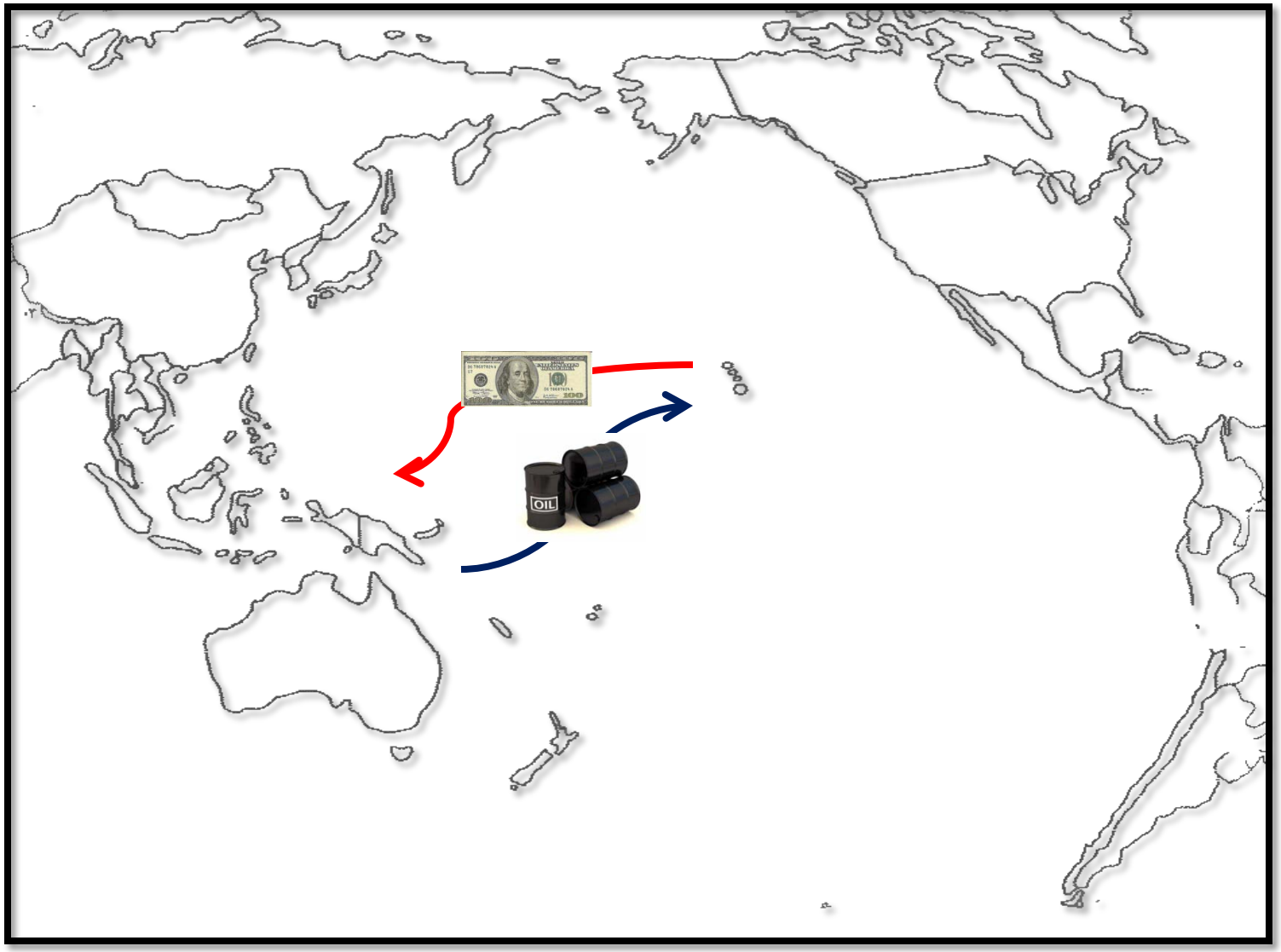
"Foundations for Clean Energy Future—
Policies, Strategies, and Frameworks That Transform the Energy Market"

Hawai‘i State Senator Mike Gabbard
Chair, Senate Committee on Energy and Environment


Hawai`i
10,931 square miles
Pacific Ocean
63.8 million square miles
165.2 million square kilometers

Ancient Hawaiians used the oil from *kukui* nuts (candle nuts) for torches.

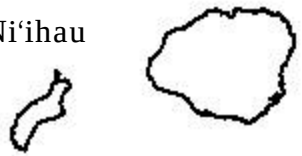
On November 16, 1886, ‘Iolani Palace in Honolulu became the first royal palace in the world to be illuminated by electric lights.



Hawai‘i imported 42 million barrels of crude oil from April 2010 to March 2011.

The Major Islands of Hawai‘i

Ni‘ihau



Kaua‘i

Regular gasoline on Kaua‘i averaged $4.473 as of 9/13/11

O‘ahu

Regular gasoline on O‘ahu averaged $4.068/gallon as of 9/13/11

Moloka‘i

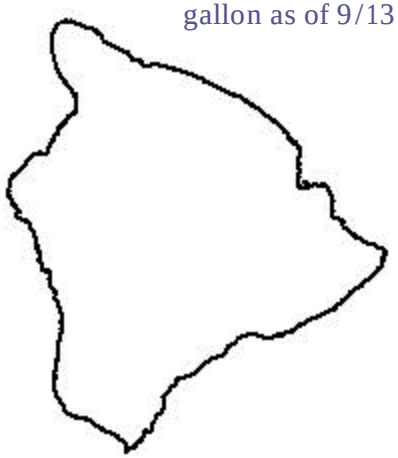
Regular gasoline on Maui averaged $4.392/ gallon as of 9/13/11

Maui

Lāna‘i

Kaho‘olawe

Regular gasoline on Big Island averaged$4.263 per gallon as of 9/13/11



Island of Hawai‘i (popularly called the Big Island)

Junk versus Healthy


Hawai'i iCONSERVE ENERGY INITIATIVE
Our Capitol is
Leading by
EXAMPLE
WE'RE COMPETING IN A NATIONAL COMPETITION TO
REDUCE ENERGY USE IN OUR BUILDING, AND WE NEED YOUR HELP!
Turn off the lights
Lighting accounts for 25-40% of the State's energy bill.
Even if you are gone for a short time, turn them off.
Hibernate/shut down your computer
Screensavers waste energy so don't use them. Shutting down/hibernating workspaces for lunch saves the State $6,675 annually.
Turn off/unplug/remove personal devices.
Turn off power strips, unplug chargers and remove personal appliances. 100 people removing their mini-fridges saves the State $6,489 annually.
Close the doors
Open doors allow precious air conditioning to escape.
Closing doors saves the State up to $5,500 annually per door.
Help support the Hawai'i Clean Energy Goal
The State of Hawai'i must change the way it consumes and secures energy. It begins with conservation. The State of Hawai'i is asking for you to conserve.
A recent survey of State employees shows that everyone is ready to do their part.
90% feel the State should conserve energy.
97% want to help the State conserve energy.
96% feel an "on-the-job" responsibility to help.
97% feel the State should encourage them to conserve.
Don't miss the iConserve Rally at the Capitol on June 29th at noon!
The iConserve Energy Initiative is a partnership between:
U.S. DEPARTMENT OF ENERGY
DBEDT
DEPARTMENT OF ACCOUNTING & GENERAL SERVICES
NORESCO
ENERGY CONSERVATION through BEHAVIOR CHANGE
Learn more and track our progress at
www.noresco.com/hi
BATTLE OF THE BUILDINGS
EPA's NATIONAL BUILDING COMPETITION
ENERGY STAR

Kalanimoku Building

200 kilowatt photovoltaic system installed on the roof


Photo by Carlton Saito

Hawai‘i State Capitol

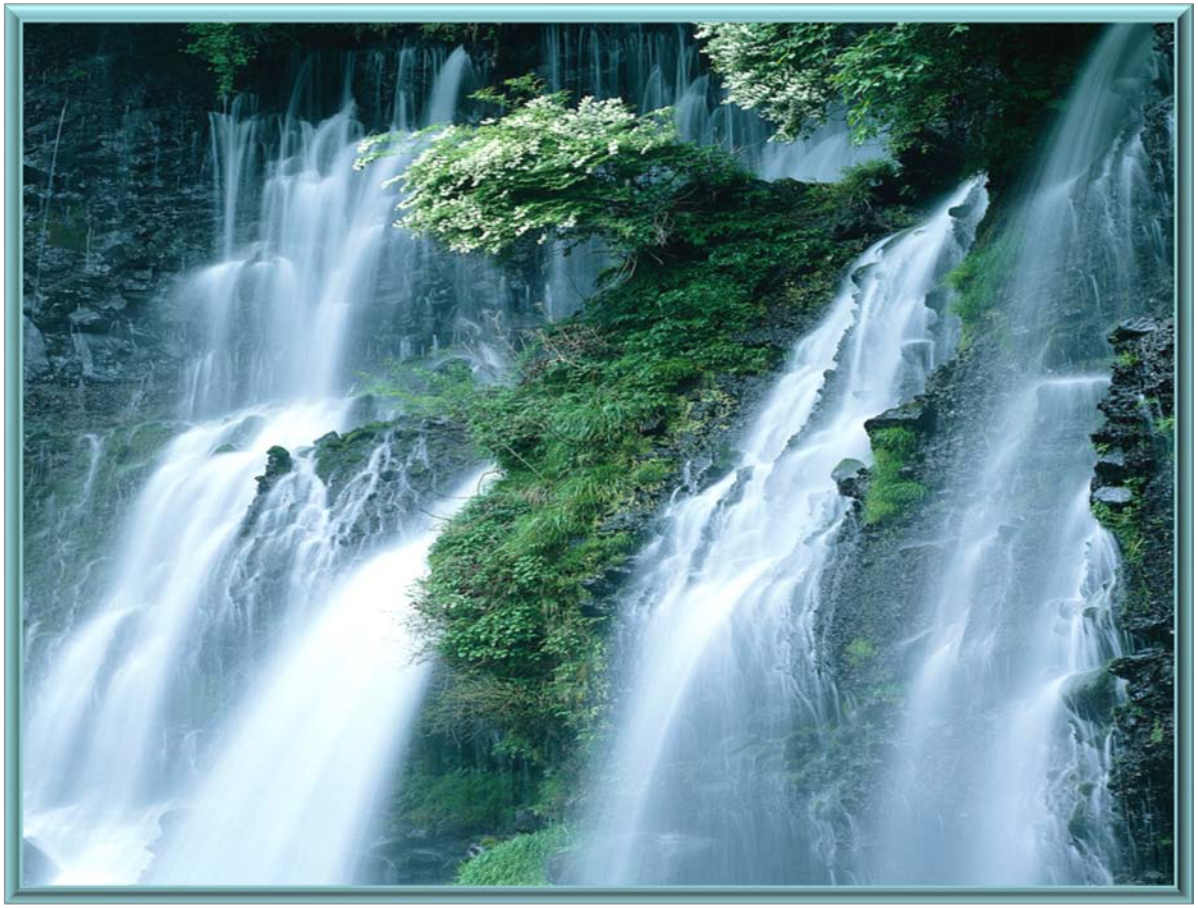
The Hawai‘i State Capitol is the only state capitol entered into the 2011 “Battle of the Buildings” national competition sponsored by the U.S. Environmental Protection Agency.

Electric Vehicle charging station at the State Capitol

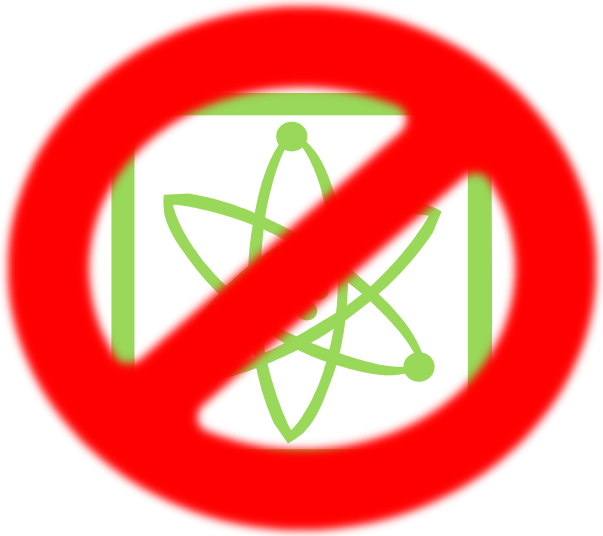
Companies like Aina Koa Pono, Hawai‘i Bioenergy, Cellana Inc., Pacific Biodiesel, and Green Energy Team, LLC have all made recent announcements that they’re forging ahead with local biofuels.

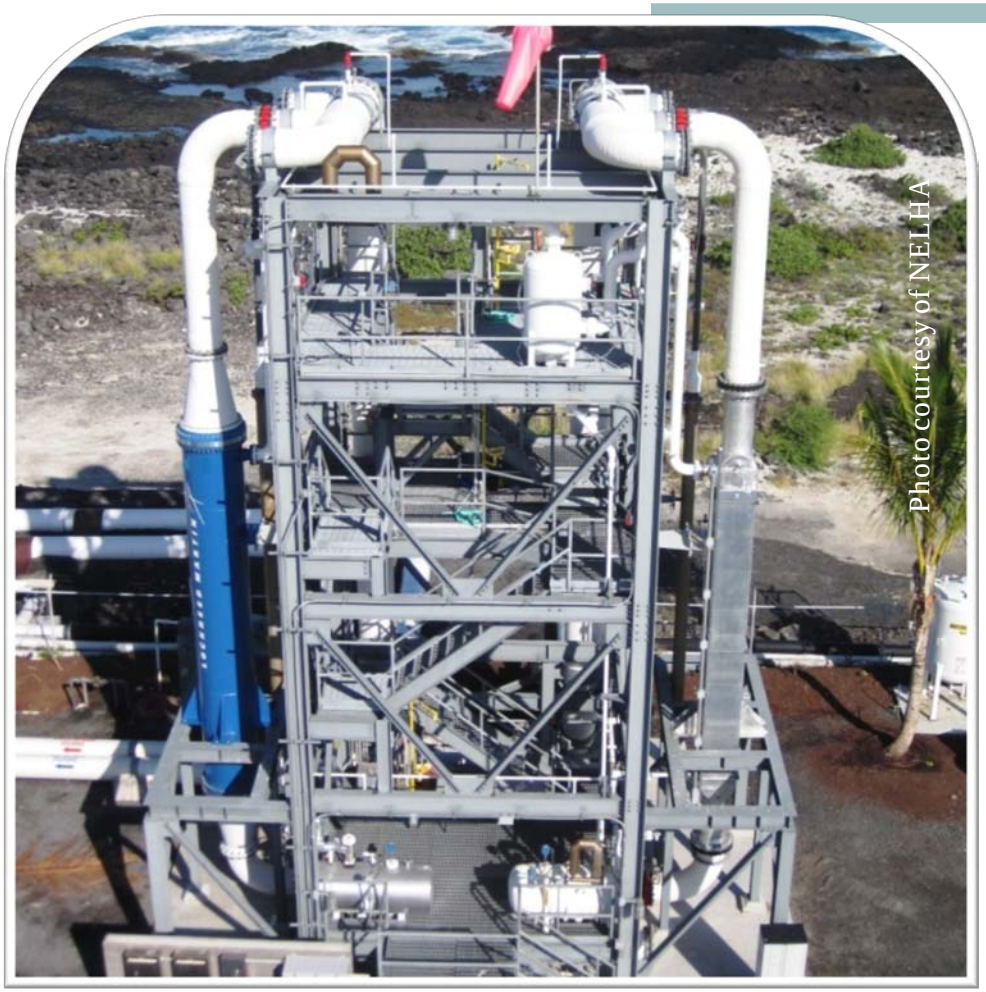
- The Big Island has a mean capacity of almost 1,400 megawatts of firm geothermal power. Maui has a capacity of one-tenth of that.

- Currently, 30 MW of geothermal in operation with 8 MW more coming on the Big Island at Puna Geothermal Venture's plant.



The Big Island gets more than 16 megawatts from hydroelectric power. Kauaʻi has eight existing small hydroelectric facilities with plans for six more, although some in the community have expressed concerns over FERC involvement.



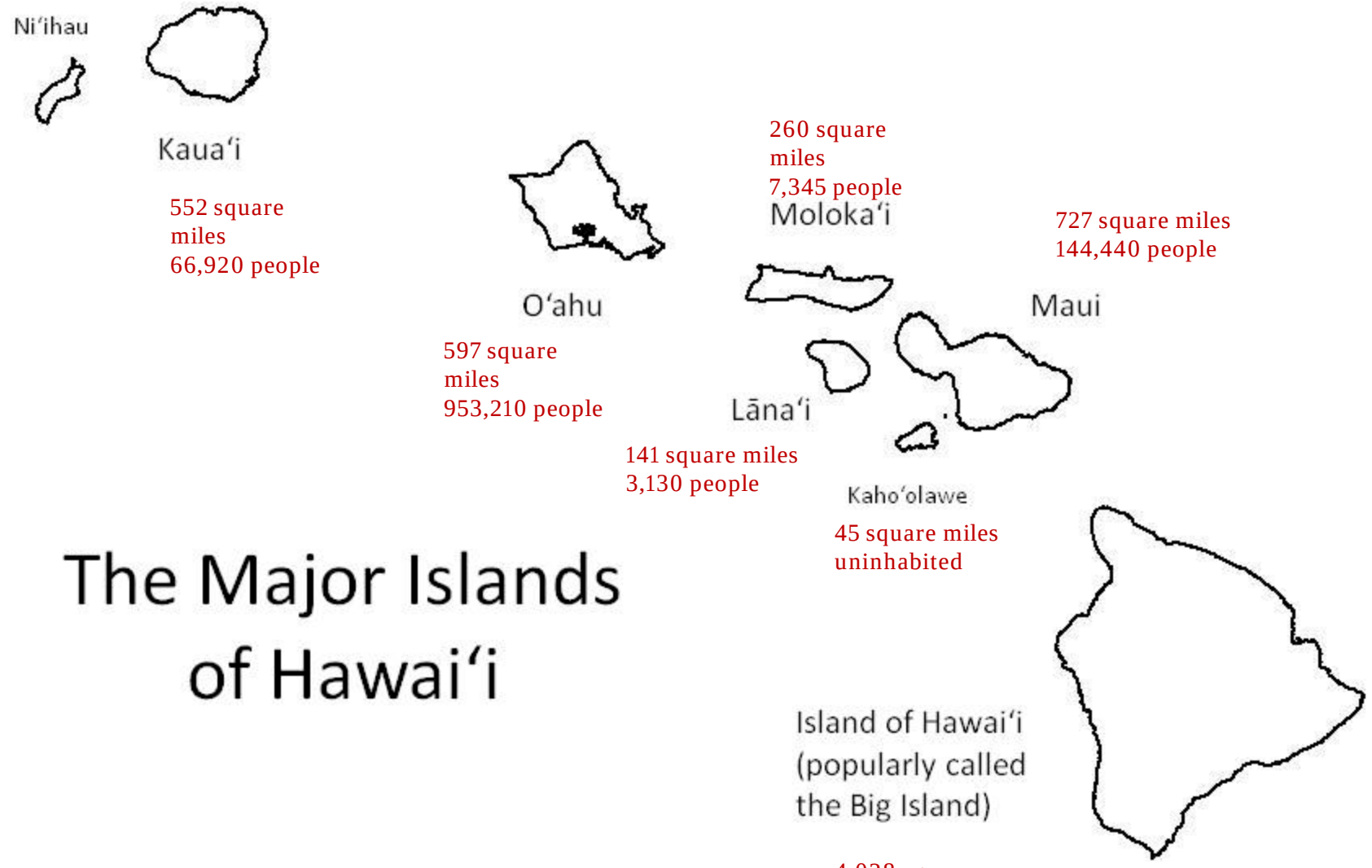


- A new heat exchanger for a 100-kilowatt OTEC demonstration plant was dedicated at NELHA in July.
- Plans are underway for 1 MW OTEC plant at NELHA.
- Ocean Power Technologies has a wave-powered buoy anchored off of Marine Corps Base Hawaii.
- Oceanlinx is pursuing a 500-kilowatt wave-energy project off of Paʻuwela Point on Maui.

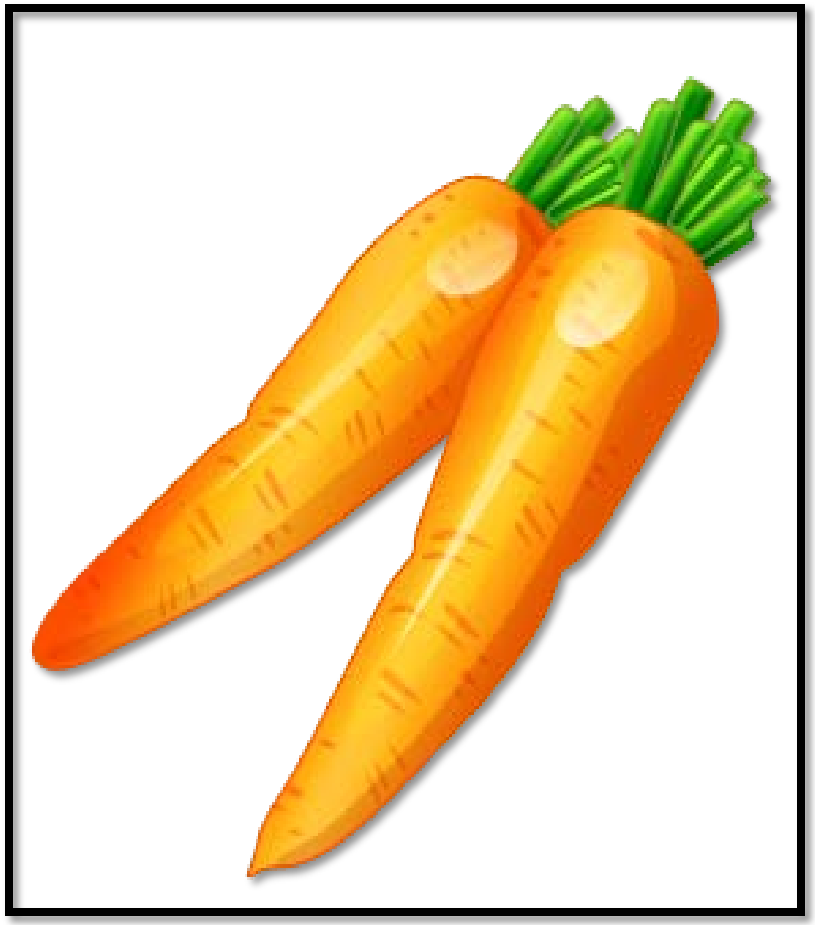
- Our island utilities ranked second, fourth, fifth and ninth in the nation among utilities for cumulative solar power per customer.
- By the end of July 2011, net energy metering reached 20 megawatts for O‘ahu, 7.5 megawatts for Maui County and nearly 7 megawatts for the Big Island.

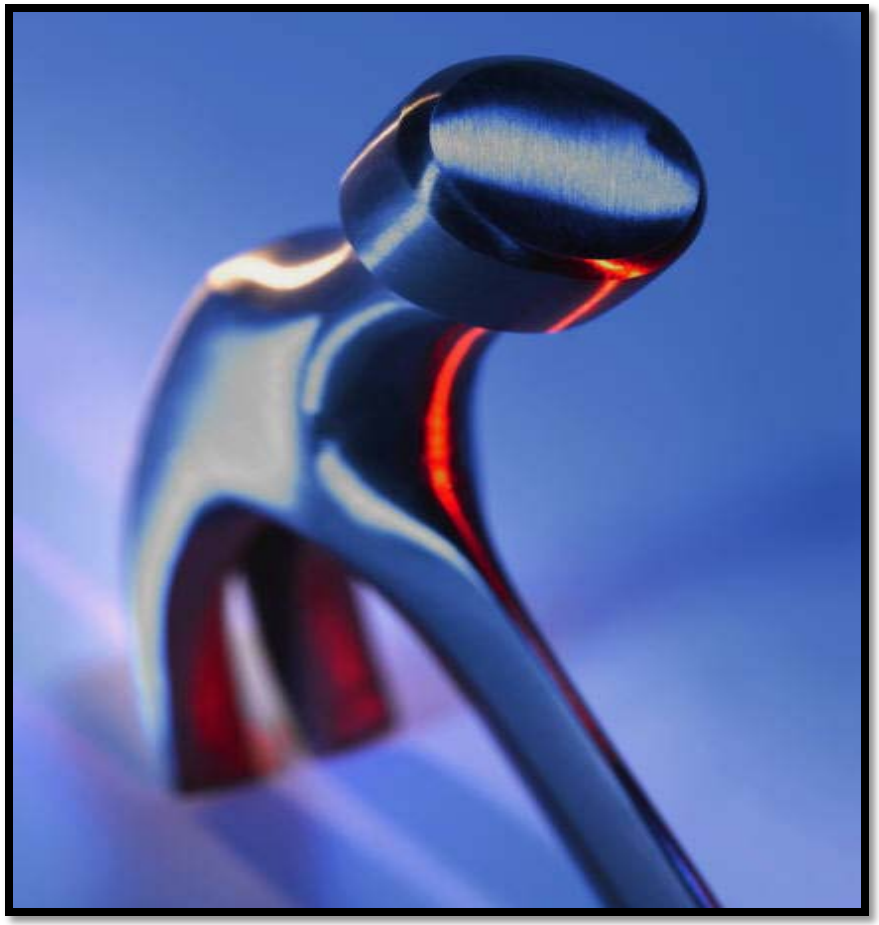
The Big Island, Maui, and Oahu combine for 91 MW in existing utility scale wind energy.

The Major Islands of Hawai‘i



Incentives versus Mandates





- Renewable Energy Income Tax Credit of 35% of actual cost up to caps:
- $5,000 per PV system for a single-family house
- $350 per unit per system for multi-family residential
- $500,000 per system for commercial property

Electric Vehicle State Rebates

- State rebate of $4,500 for purchase of a electric car, extended until January 31, 2012, or until the funds are depleted.
- State rebate of $500 per electric vehicle charging station.

Solar water heater

- Solar water heater tax credit of 35% of actual cost up to caps:
- $2,250 per system for single-family house
- $350 per unit per system for multi-family residential (condo, townhouse)
- $250,000 per system for commercial property

Key Energy Policies 2009

Act 155

- Raised RPS to 25% of net energy sales from renewable energy by 2020 and at least 40% by 2030.
- Added ocean thermal energy conversion in the definition of renewable energy.
- Directed the PUC to establish energy-efficiency portfolio standards to achieve 4,300 gigawatt-hours of electricity use reduction statewide by 2030 with intermediate goals.
- Required benchmarking of existing public buildings larger than 5,000 square feet or using more than 8,000 kilowatt-hours of electricity.

Act 50

- Delinked rate for renewable energy from "avoided cost" (cost that utility would otherwise have to pay to generate electricity from fossil fuels).

Act 156

- Required all public, private and government parking facilities that are available for use by the general public and have at least one hundred parking spaces shall designate 1% of its parking spaces exclusively for electric vehicles by December 31, 2011.
- Intended to stimulate market for electric vehicles.

Act 157

- Allowed Natural Energy Laboratory of Hawai'i Authority (NELHA) to sell electricity to its tenants without being regulated as an electric utility, provided that it does not require connection to the grid.

Key Energy Policies 2010

Act 53

- Allowed condominium associations to install solar and wind energy devices on common elements, provided that the owner's permission is obtained for limited common elements.

Act 186

- Prohibited condominium associations from preventing owners from installing electric vehicle charging stations on or near their parking stall on any multi-family residence or townhouse.

Act 201

- Prevents homeowners associations from hindering the installation of solar devices.

Key Energy Policies 2011

Act 9

- Allows an entity to own, control or operate a renewable energy system on another entity's property and sell electricity generated to the landlord and/or to an electric utility without being considered and regulated as a public utility.

Act 109

- Requires the PUC to consider the state's need to reduce its reliance on fossil fuels in exercising its authority and specifically when making determinations of reasonableness of utilities' capital improvements and operations.
- Allows PUC to consider impacts from use of fossil fuels in determining whether renewable energy's short-term or direct costs that are higher than those of fossil fuels are reasonable.

Act 198

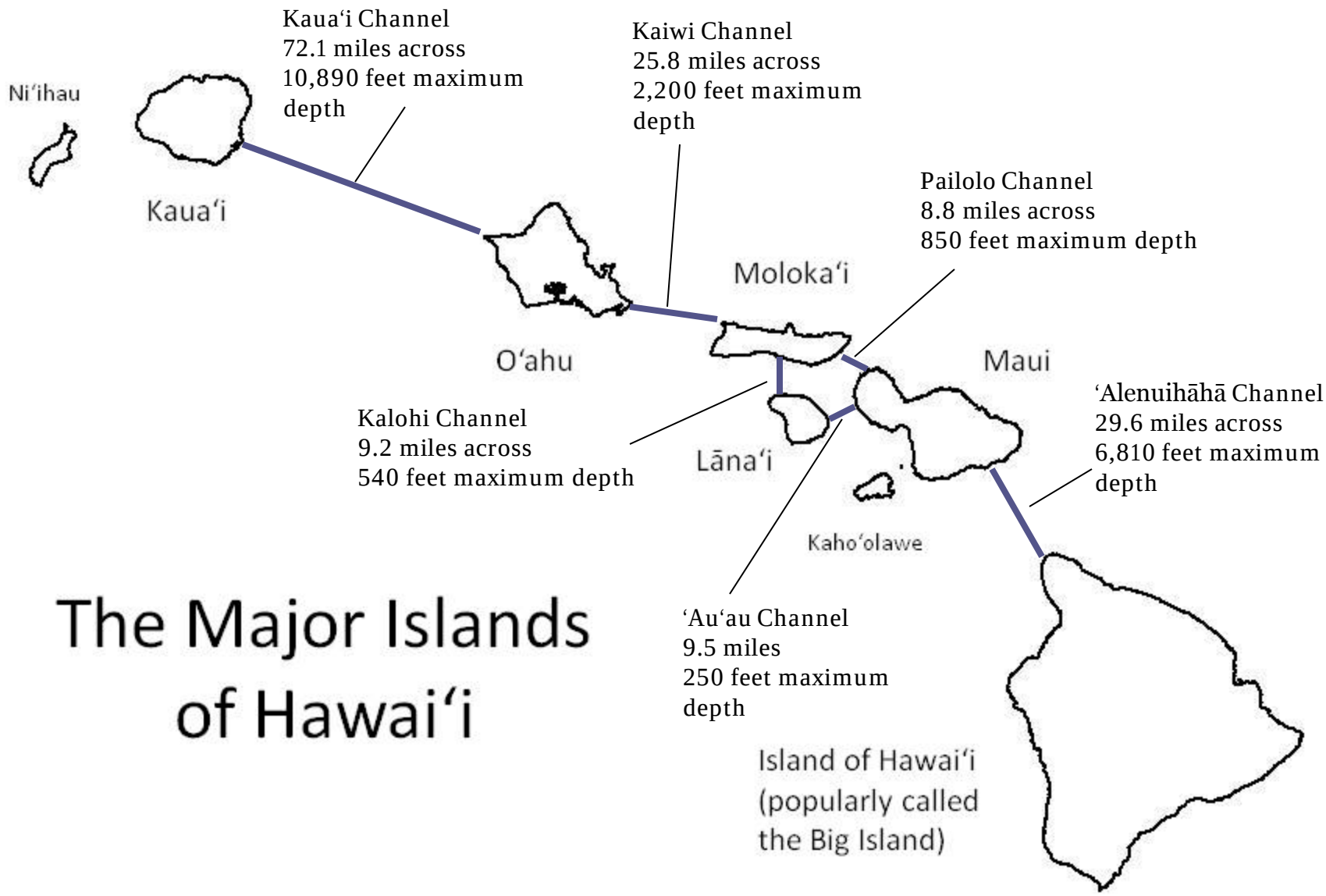
- Establishes a working group attached to DBEDT to study the feasibility of requiring all new single-family homes to be PV-ready at the time of construction.

Act 203

- Requires DBEDT to study biofuel production in Hawai‘i and report in 2012 and 2013.

Act 204

- Directs PUC to investigate the viability of establishing an on-bill financing program through which utility customers could finance the purchase of renewable energy systems and repay through assessment added to customers' electric utility bill.



The Major Islands of Hawaiʻi


Photo courtesy of First Wind


USGS

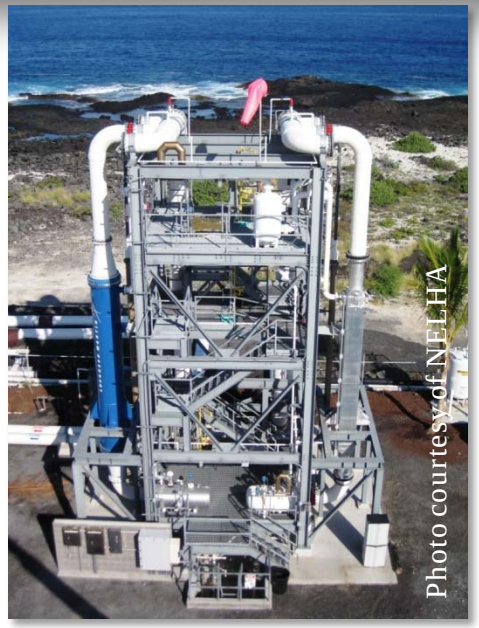
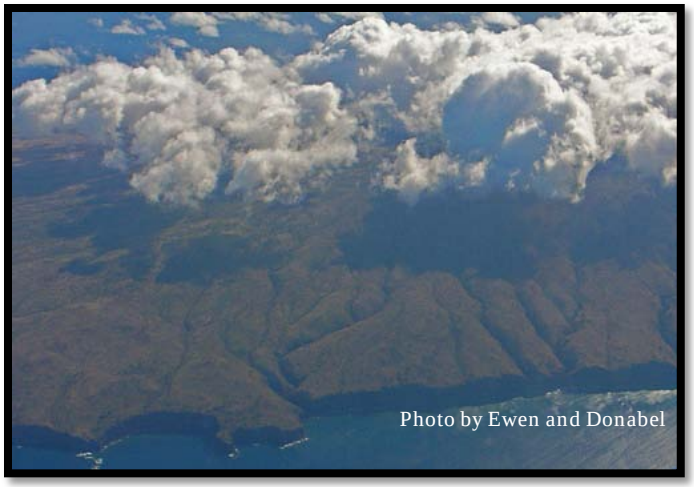


Photo courtesy of NELHA

Island of Molokaʻi



Island of Oʻahu

Island of Lānaʻi


Photo courtesy of NASA