

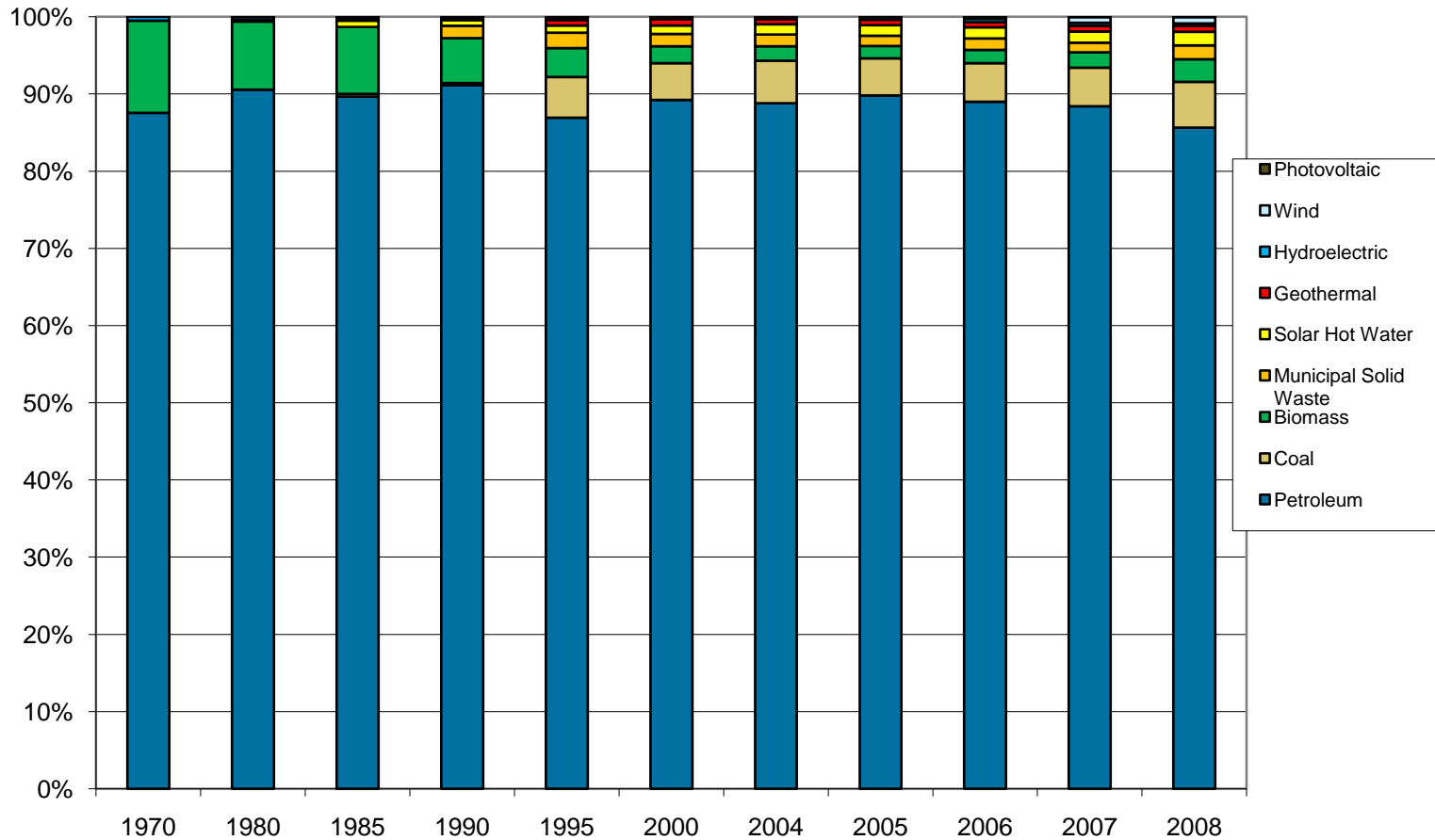


WASHTO
July 11-14, 2010

Driving Energy Independence

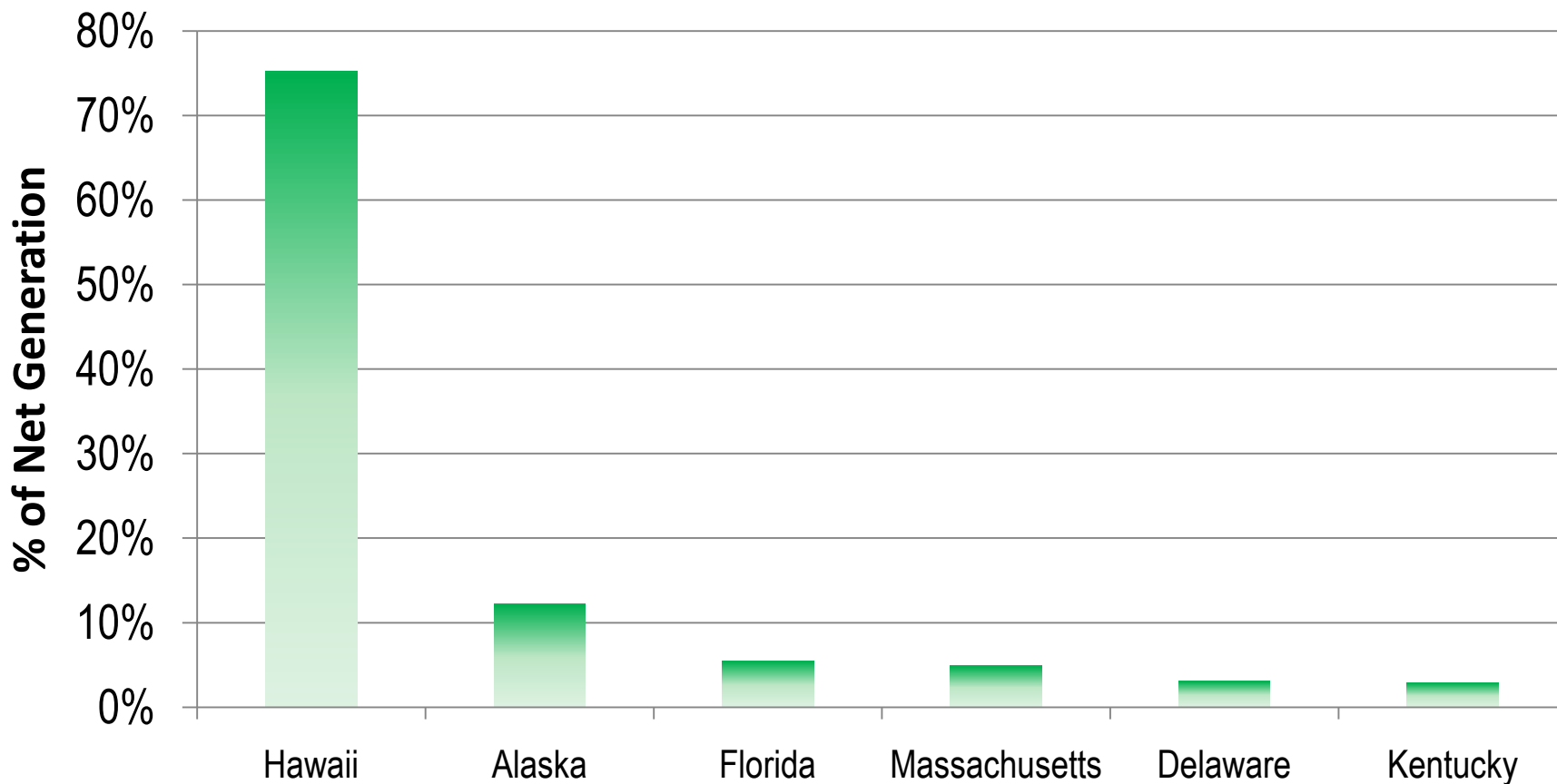
Hawaii's Historic Dependence on Fossil Fuels

Primary Energy Sources in Hawaii, 1970-2008, Selected Years



Over 36 years, petroleum consumption remains above 85%

Hawaii remains the most petroleum-dependent state

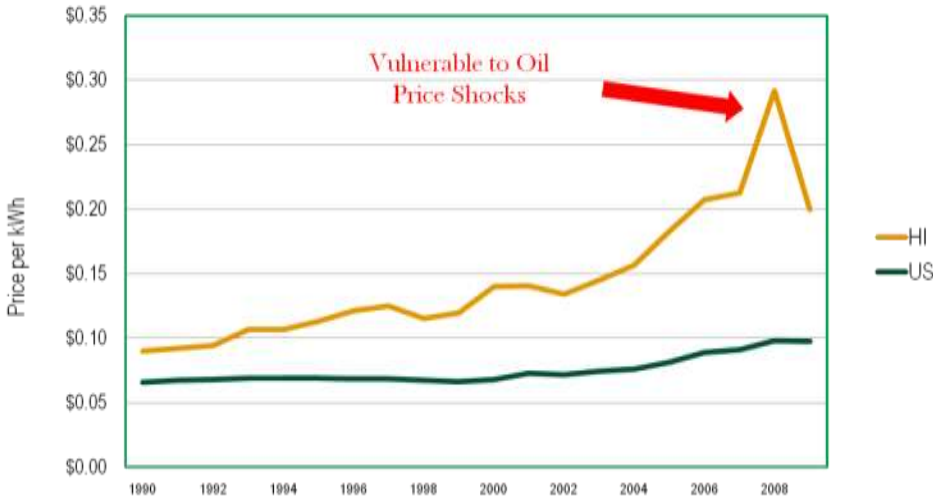


Source : EIA-923 and EIA-860, December 2008

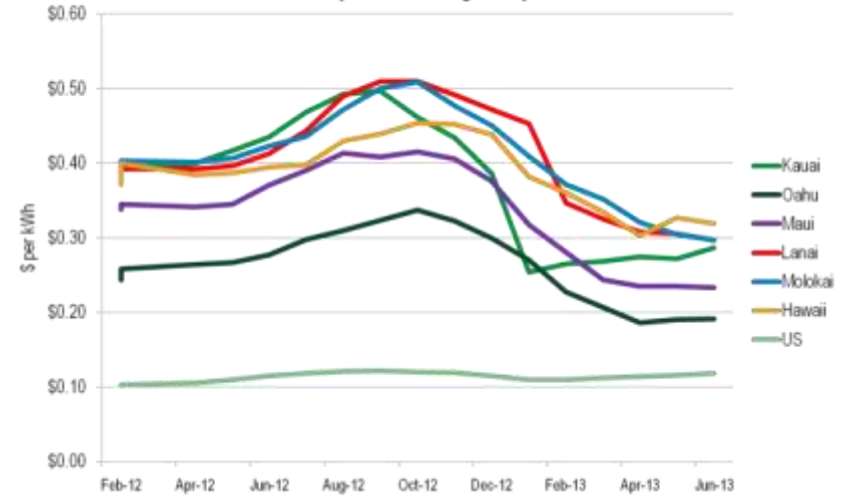
Petroleum dependence for electricity
Top six states

Hawaii has the highest electricity prices in the U.S.

US and Hawaii Average Retail Price All Sectors per kWh
1990 through August 2009

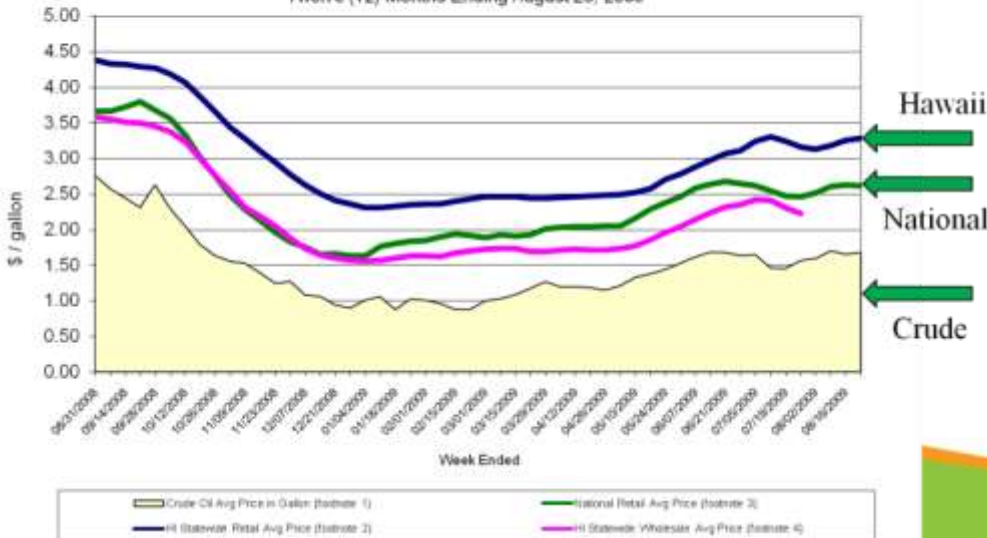


US and Hawaii Residential Price of Electricity
January 2008 through May 2009

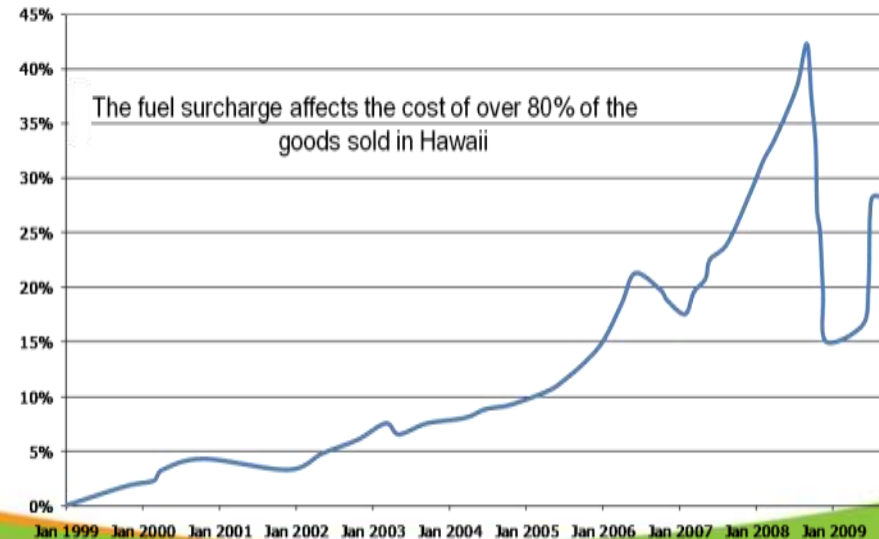


Hawaii's gasoline prices are among the highest

Regular Gasoline - Weekly Price Comparison
Twelve (12) Months Ending August 23, 2009

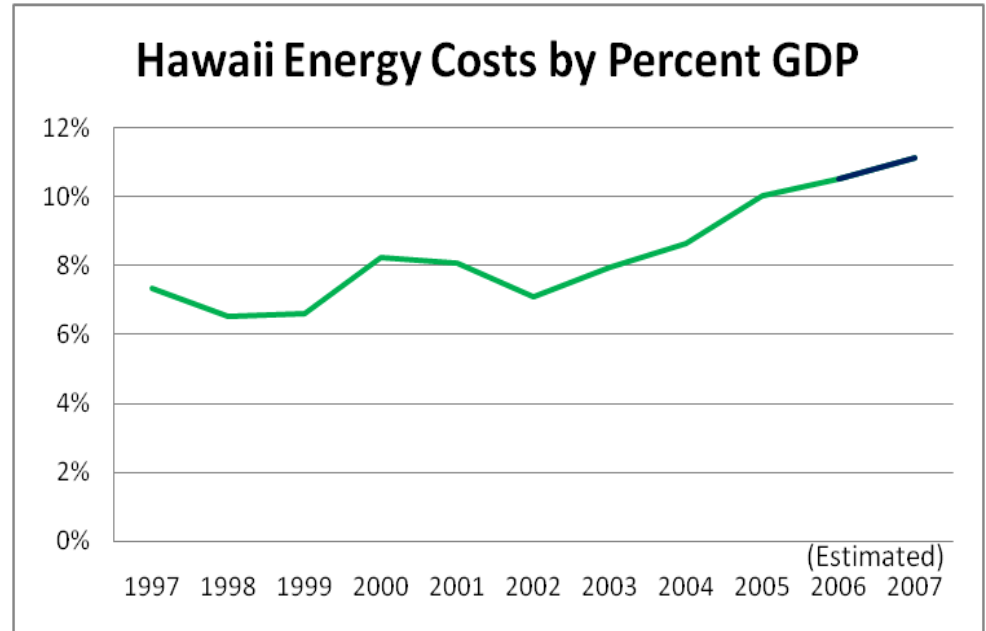


High energy costs multiply throughout the economy



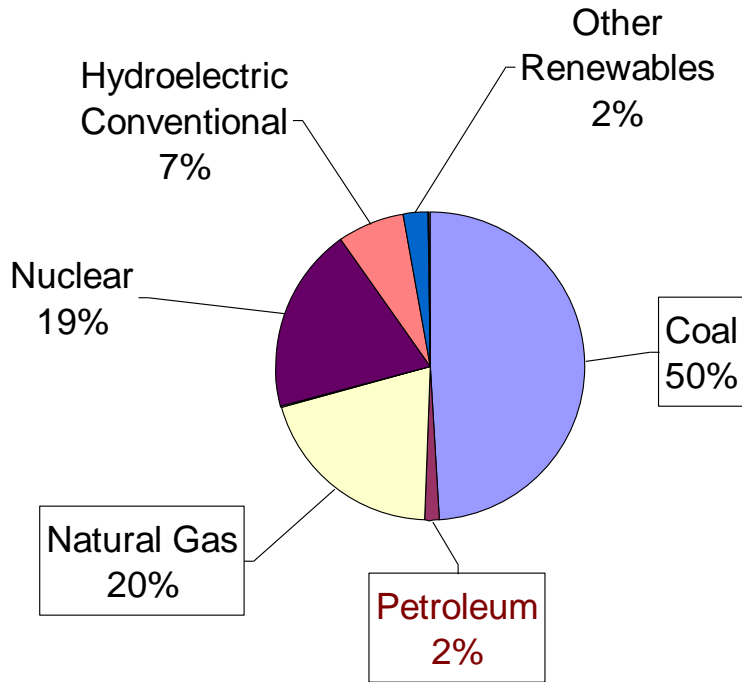
Economic impact of dependence on expensive energy

- Mainland energy costs are 4% of a state's Gross Domestic Product; in Hawaii, it is over 10%, **almost 3 times as much**

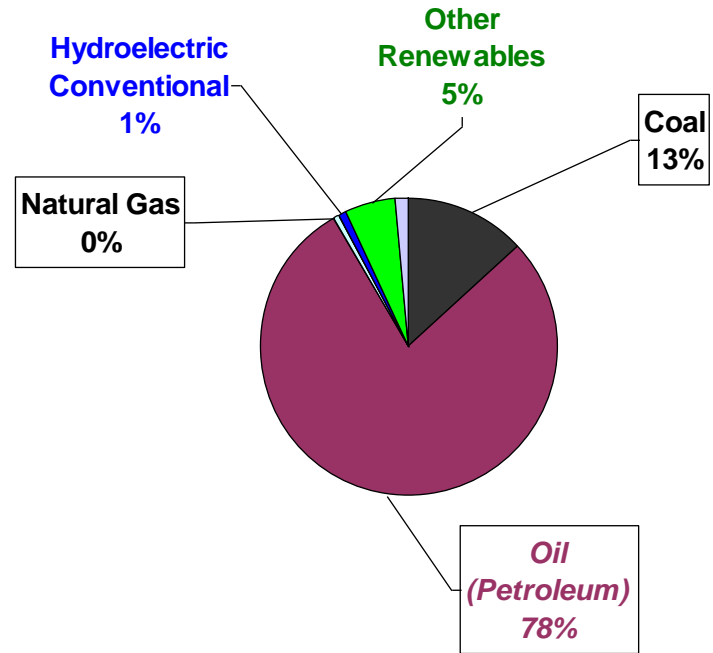


Hawaii is Uniquely Dependent on Oil for Electricity

U.S. Electricity Generation



Hawaii Electricity Generation



~ 80% Hawaii's electricity is from oil

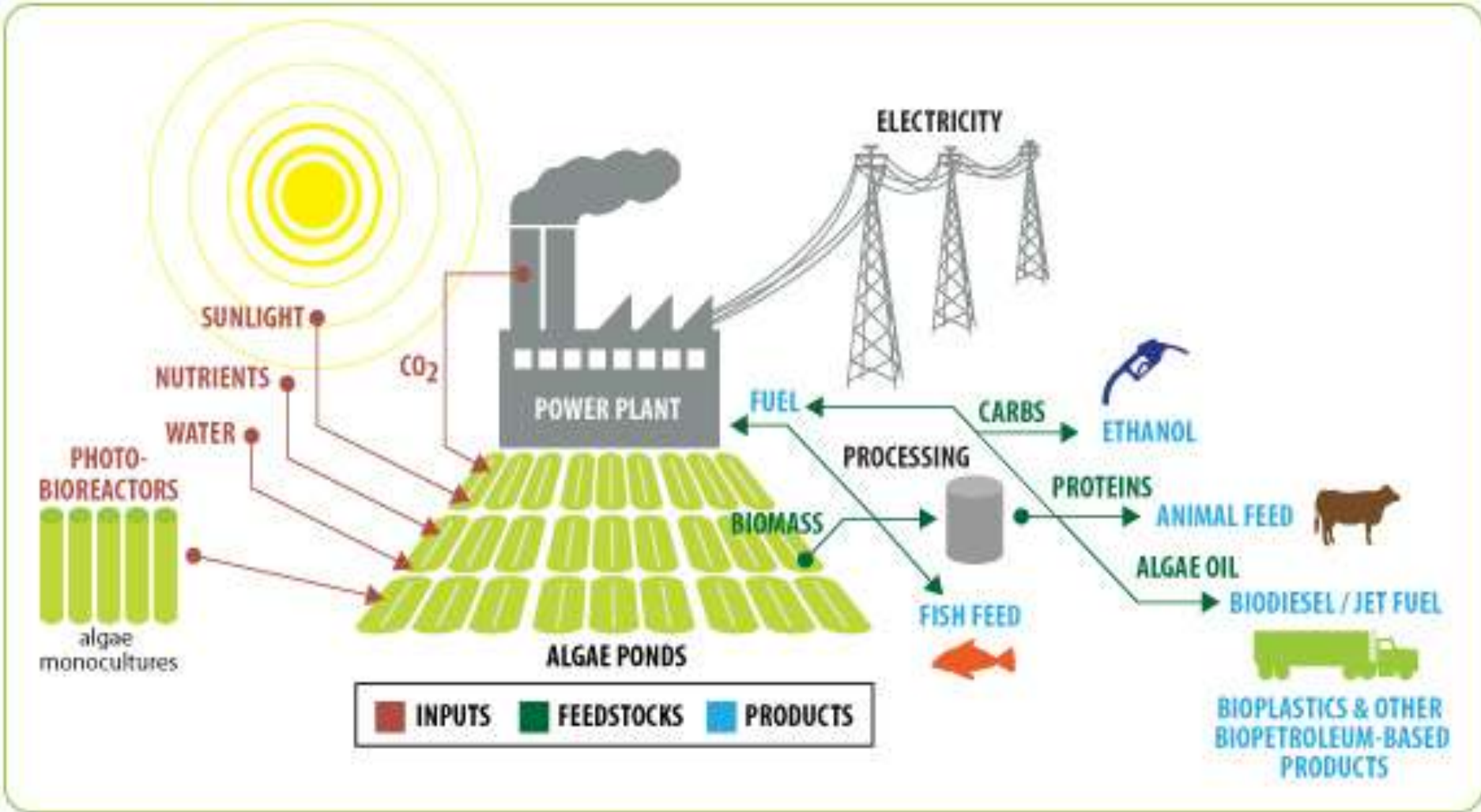
Hawaii Clean Energy Initiative

National Partnership to Accelerate System Transformation

The goals are:

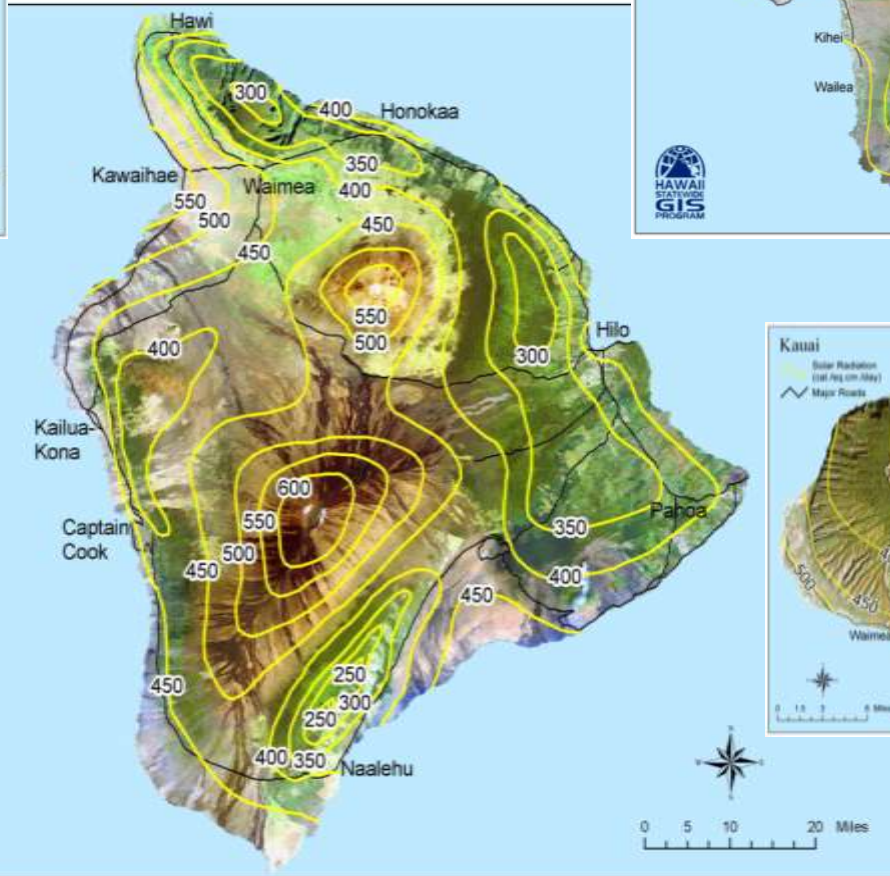
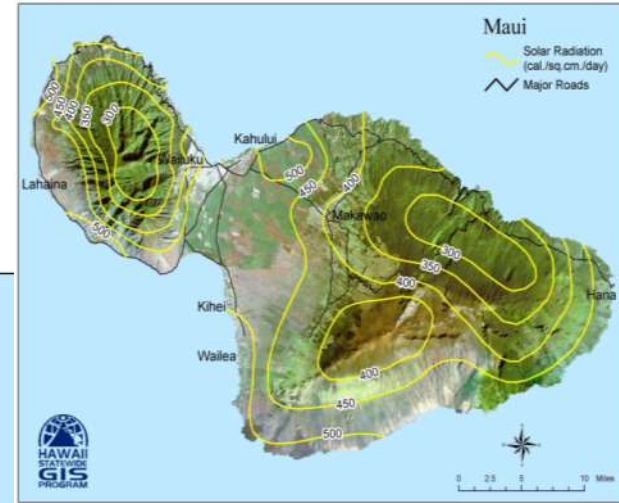
- Achieve a **70% clean energy economy** for Hawaii within a generation
- Increase Hawaii's **security**
- Capture **economic benefits** of clean energy for all levels of society
- Foster and demonstrate **innovation**
- Build the **workforce** of the future
- Serve as a **model** for the US and the world

Algae: Potential Source for Liquid Fuels

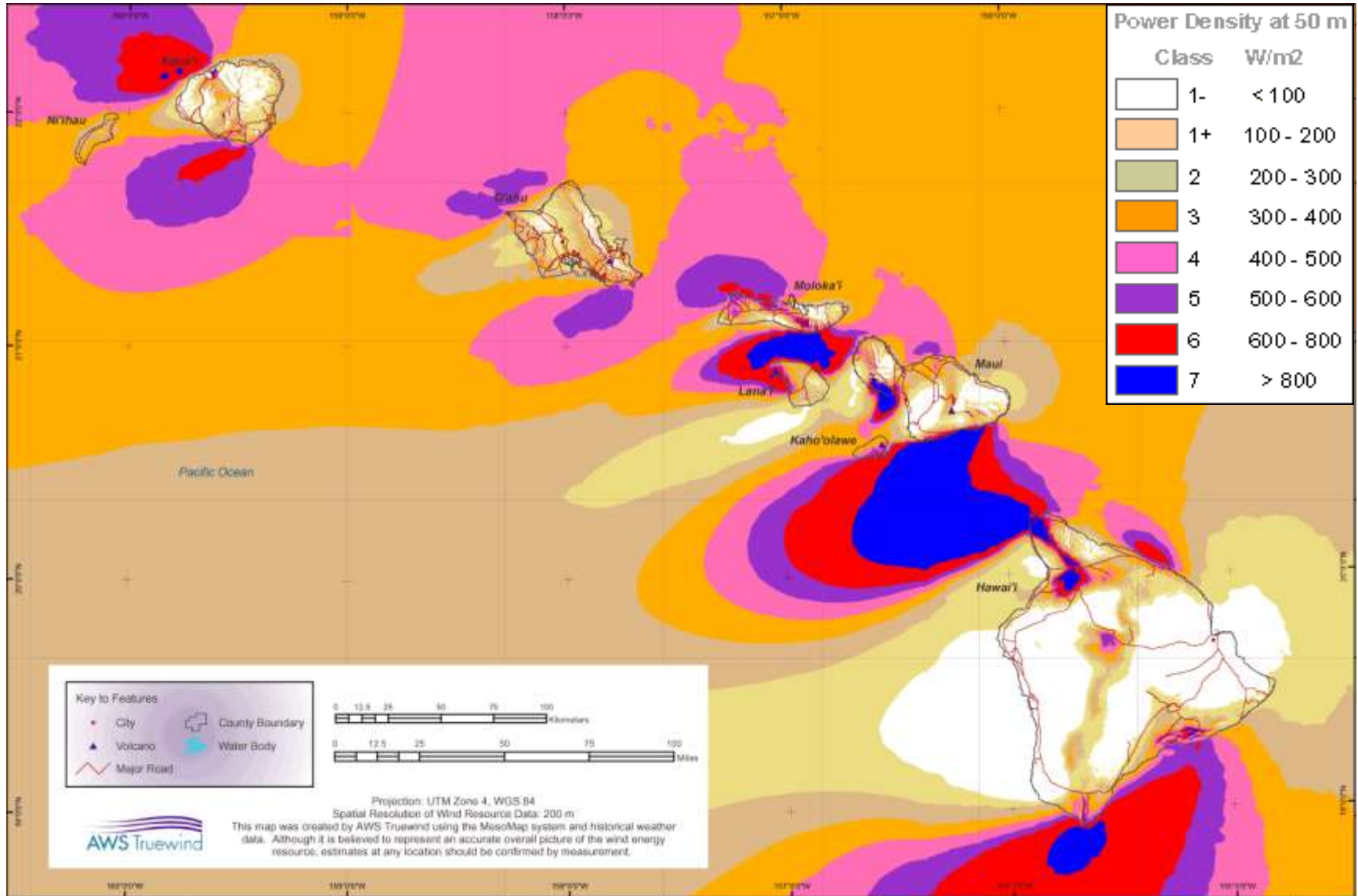


Some processes give multiple products: 40% jet / 30% diesel / 20% gasoline

Solar energy: Hawaii sites are rich in solar resources



Wind energy: Among the best sites in the nation



HNL: Energy Efficient Projects (Chiller Plants)

- Replacing air conditioning system with energy efficient components
- Chillers, pumps & cooling towers will be equipped with energy efficient variable speed motors
- Reduces consumption for AC by 40%
- Airports Division will receive \$250,000 for each chiller



HNL: Energy Efficient Projects (Wind Energy)

“Airfield Electrical Vault” Pilot Project

--Installed 16 turbines for \$100,000

--Supplies power to some sections of airport

--Increases reliability of electrical feed by taking on 50% of power load

--Reduces electricity costs



Honolulu International Airport: Photovoltaic Project

- Phase 1 Advertised December 2007: 20-Year Power Purchase Agreement
- Investment Tax Credit: 30% Federal and 35% State
- 20 Sites and 3 million SF of Area for PV Development
- 2 Proposals Received, Award Made
- Project Cancelled, Procurement Exemption Granted
- HokuSolar Comes Forward with Self-Financed Project



Photovoltaic Request for Proposals



Lihue Airport, Kauai
1 system, 338 kW



Kona Airport, Hawaii
1 system, 61 kW

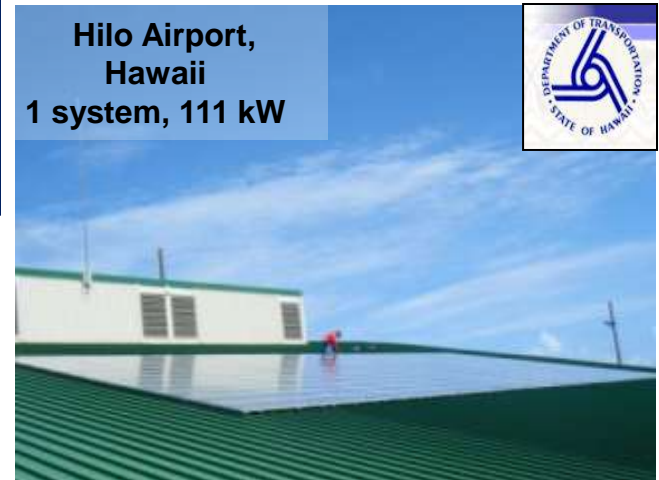
Phase 1 PV PPA portfolio

- ✓ Aggregate size: ~1MW+
- ✓ Total # of systems: 7
- ✓ Estimated annual power output: 1.5+ million kWh
- ✓ Total cost: \$8+ million

Kahului Airport, Maui
2 systems, 369 kW



Hilo Airport, Hawaii
1 system, 111 kW



Future Renewable Energy Projects

- **Phase II advertised on March 8, 2010**
- **18 sites statewide for HDOT, DBEDT and University of Hawaii**
- **Small/Large PV packages**
- **Photovoltaic**
- **Concentrated Solar**
- **Wind**



Hawaii EV Grant and Rebate Program

- To accelerate the deployment of EV and Chargers
- **\$4.5M from American Recovery and Reinvestment Act**
 - ~ \$1M for individual EV and charger rebates
 - ~ \$3M for integrated EV system deployment projects
 - ~ \$475K for State EV and chargers
- **New law requiring 1% of stalls in state parking facilities to be reserved for EV**



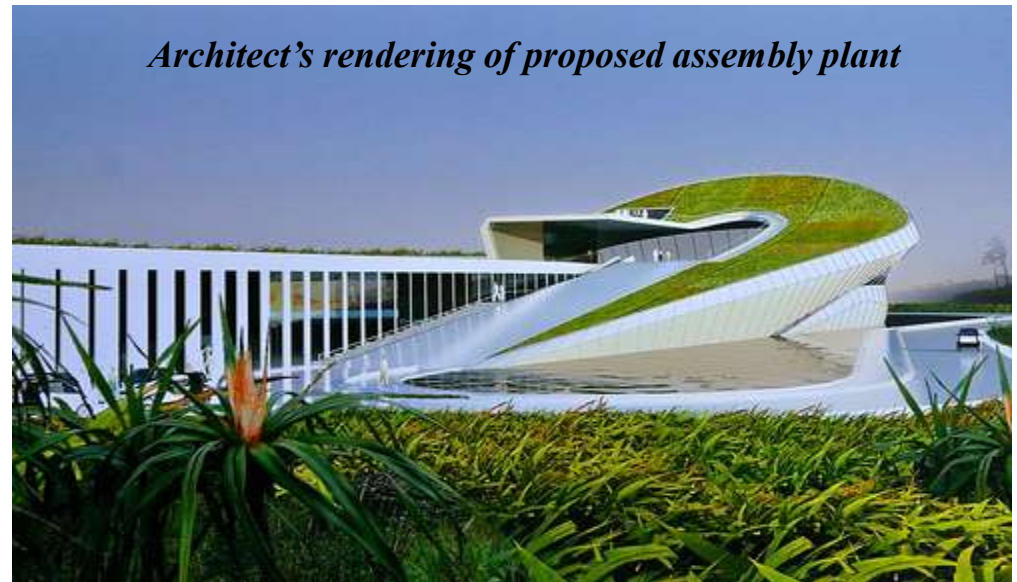
Recent Progress in Transportation Energy Diversification

- Hawaii Renewable Energy Development Venture planning to fund transportation projects
- Nissan launches LEAFs in Hawaii next year
- GM partnering with Gas Company to bring hydrogen fueling and Equinox Hydrogen Fuel Cell Vehicles to Hawaii



EV Assembly Plant & Resort in Hawaii

- South Korean automaker CT&T plans \$200M facility on Oahu
- Could generate 400 jobs
- Build 10,000 cars annually



- State chosen for HCEI & lower speed limits
- Construction begins in 18-24 months

Electric, Hybrid, and Fuel Cell Vehicles



Neighborhood Electric Vehicles



Fuel Cell Bus



Plug-in Hybrids



Hybrid electric-fuel cell bus for
Hickam Air Force Base

Future Energy Efficient Projects

- **Energy Savings Performance Advertised in April**
- **Full Range of Energy Services and Capital Improvements for Energy Conservation Measures for Airports, Highways and Harbors Facilities**
- **Investment Grade Audit to be Performed for Energy Conservation Measures on Systems including HVAC, Lighting, Building Envelope, Hot Water, Water Consumption and Sewage, Electrical Distribution and Metering**
- **Energy Conservation Measures to Fund Capital and Implementation Costs Amortized over the Contract Term**

Our Future Is Bright and Before Us!

Working as partners, we can achieve together what none of us
could do alone.

We can create a future of
energy, economic and
environmental security by
taking the needed steps now.

ALOHA AND MAHALO!

