

State of Hawaii Energy Resources Coordinator's **Annual Report 2012**



State of Hawaii Department of Business, Economic Development and Tourism
Hawaii State Energy Office • energy.hawaii.gov

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More information on the Hawaii State Energy Office's programs and initiatives can be found at energy.hawaii.gov.

TABLE OF CONTENTS

Welcome Page 04

IntroductionPage 05

SummaryPage 06

Key Indicator: Renewable Portfolio Standard (RPS) Page 12

Key Indicator: Energy Efficiency Portfolio Standard (EEPS)Page 21

Key Indicator: JobsPage 34

TransportationPage 38

Innovation, Planning & PolicyPage 43

Funding: Energy Security Special Fund (ESSF) & GrantsPage 49





Special Message from Governor Neil Abercrombie
In Recognition of

The 2012 Energy Resources Coordinator's Annual Report

November 9, 2012



On behalf of the State of Hawai'i, I am pleased to extend a warm *aloha* to all those whose dedication and commitment to our State's goal of energy independence have made the **Energy Resources Coordinator's Annual Report** possible.

Hawai'i's energy independence goals are rightfully ambitious and I commend the efforts of legislators, academics, entrepreneurs, public employees, community organizations, advocates and individuals who work each day to raise awareness, formulate plans and form working partnerships that move us toward those goals.

We must make Hawai'i's energy independence our collective mission and pass and implement innovative policies that open dialogues with communities and train our workforce to build and operate a clean energy economy.

I congratulate the Department of Business, Economic Development and Tourism and all those who had a hand in the 2012 Energy Resources Coordinator's Annual Report.

With warmest regards,

Neil Abercrombie

NEIL ABERCROMBIE

Governor, State of Hawai'i

INTRODUCTION

This edition of the Energy Resources Coordinator's (ERC) Report captures and summarizes the State of Hawaii's commitment to addressing the State's energy needs and its focus on developing and deploying clean energy programs and policies. The report reveals Hawaii's dependence on foreign oil and why there is an urgency to move from fossil fuels towards renewable energy resources including transportation. It also shows the roles energy efficiency, innovative planning and funding are playing in the clean energy pursuit and what impacts they are having on Hawaii's economy.

As this ERC report will demonstrate, the State of Hawaii is on the path to position itself as an energy leader and achieve its clean energy goal of 70% by 2030.

~ Richard Lim, Director, DBEDT

SUMMARY

The State of Hawaii has a bold energy agenda – achieve 70% clean energy by the year 2030. Along with reducing our islands’ dependency on fossil fuels and increasing efficiency usages, the clean energy plan is also contributing to the State’s economy by creating jobs and attracting foreign investment.

The State’s Department of Business, Economic Development and Tourism (DBEDT) is leading the charge via its Energy Office. The State Energy Office has embarked on a strategic plan with a mission to establish a clean energy infrastructure as a catalyst for economic growth, develop “test bed” investment opportunities and advance Hawaii’s energy security.

The clean energy plan is focusing on several key areas – Renewable Portfolio Standards (RPS); Transportation; Energy Efficiency Portfolio Standards (EEPS); Jobs; Innovation, Planning and Policy; and Funding.

KEY INDICATOR: RENEWABLE PORTFOLIO STANDARDS (RPS)

Today, imported oil supplies nearly all of Hawaii’s energy, making it the most dependent state in the U.S. The State of Hawaii must significantly change how it generates energy by achieving 40% from local renewable sources.

- Currently, Hawaii generates about 12% of its energy from renewable sources such as wind, solar, geothermal and biofuels, and is well on its way towards reaching its 2015 RPS benchmark of 15%
- Hawaii ranks third in the nation for cumulative installed photovoltaic capacity per capita.
- The State Energy Office is currently tracking 52 renewable energy projects currently in development.
- The State has partnered with the U.S. Department of Defense, Pacific Command’s Green Initiative for Fuels Transition Pacific (GIFTPAC) program to replace 25% of the petroleum fuel used by the Department of Defense in Hawaii with domestically produced, non-fossil, cost-competitive, military specification biofuel that reduces price volatility.

KEY INDICATOR: ENERGY EFFICIENCY PORTFOLIO STANDARDS (EEPS)

Energy efficiency is set to account for 30% of Hawaii’s 70% clean energy goal by 2030. The State Energy Office is encouraging Hawaii residents and businesses to adopt a more energy-efficient practice with numerous programs, including financial assistance for energy projects and technical evaluation for existing buildings.

- Currently, Hawaii’s EEPS level is over 12%.
- Hawaii’s annual electricity consumption decreased from 10.6 TWhs in 2006 to 9.9 TWhs in 2011.
- Hawaii’s annual electricity cost rose to \$3.1 billion in 2011 as a result of fluctuations in fuel prices.
- Hawaii ranks first in the nation for energy savings performance contracting per capita. The State Energy Office is aggressively working to retain the top spot.

KEY INDICATOR: JOBS

Hawaii's clean energy industry sector continues to grow, leading to the creation of more jobs and increased economic development.

- Currently, Hawaii ranks third in the U.S. in clean energy job growth.
- Hawaii has more than 11,000 green jobs statewide and is estimated to reach more than 19,000 green jobs in 2018.
- The solar industry accounted for 26% of all construction expenditures in Hawaii in 2012.

TRANSPORTATION

With the majority of our energy coming from imported oil supplies, reducing the use of petroleum fuel for ground transportation plays a key role in achieving Hawaii's clean energy goals. Notable progress has occurred in the deployment of electric vehicles and supporting infrastructure.

- Hawaii's gasoline prices are consistently higher than the national average. In 2012, the monthly state average regular gas price was \$4.39 per gallon.
- Hawaii has more than 200 publicly available electric vehicle chargers at over 80 locations statewide.
- The State Energy Office continues to develop key relationships, such as a partnership with the U.S. Environmental Protection Agency that is focusing on reducing Hawaii's Vehicle Miles Traveled (VMT) by at least 1% per year.

INNOVATION, PLANNING AND POLICY (IPP)

To remain focused on growing Hawaii's economy, the State Energy Office's Innovation, Planning and Policy (IPP) branch has an objective to spur innovation and job creation by seeking, attracting and developing clean energy opportunities for the State.

- The State Energy Office is participating in major energy policy issues and decisions, such as the interisland undersea cable system and the Integrated Resource Planning (IRP) process.
- IPP is building momentum among foreign investors from countries such as Japan, China and Korea who are looking to develop "test bed" projects in the islands.
- IPP is proposing legislation to develop a new program to enable low-cost loans for green infrastructure investments, with the goal to make clean energy affordable to all in order to increase penetration of energy efficiency and renewable energy, particularly in underserved markets.

FUNDING

The State Energy Office has allocated invaluable state and federal funds toward key initiatives that support growth of Hawaii's clean energy economy and achieves the State's 70% clean energy goal by 2030.

- In 2012, the State Energy Office moved towards converting 100% of its fiscal intake from the State-allocated Act 73 Energy Security Special Fund (ESSF) and the per-barrel tax on petroleum products.

HAWAII'S ENERGY LANDSCAPE: VULNERABILITY AND OPPORTUNITY

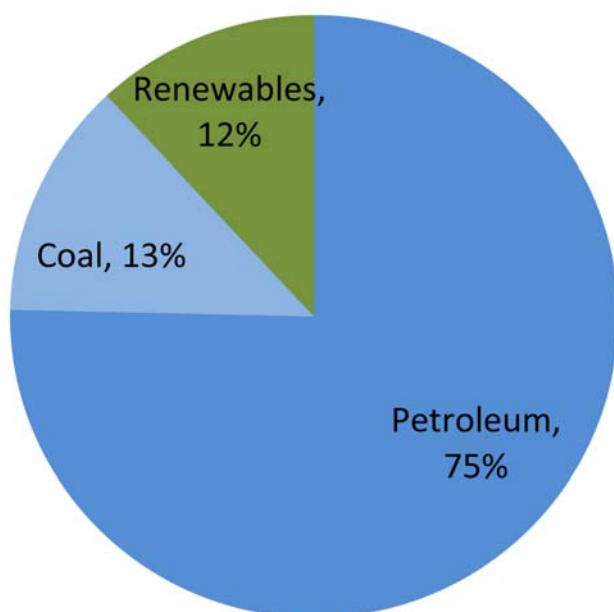
The following charts illustrate Hawaii's energy landscape. Hawaii is unique because it has both great vulnerability and great opportunity. Hawaii is vulnerable because of its isolation and dependency on the rest of the world for most of its food and resources. But this dependency, which results in extremely high energy costs, presents an opportunity to reposition its energy infrastructure through the development of renewables as it strives to achieve energy independence.

Dependence on Imported Fossil Fuels

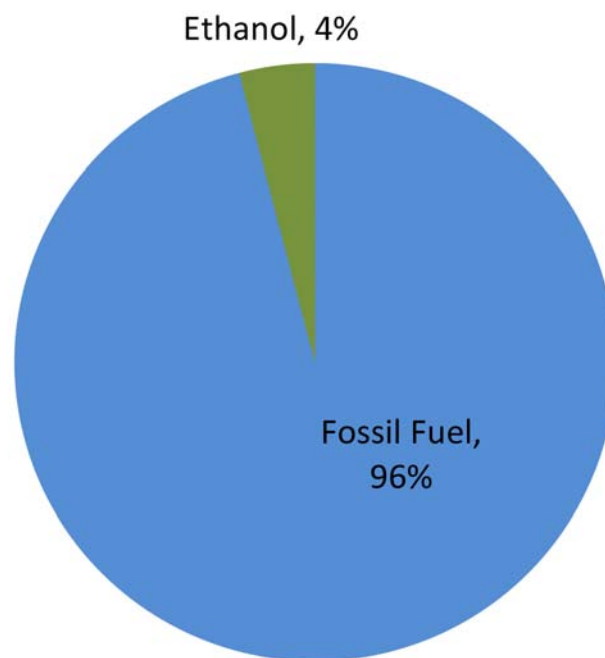
In the U.S., petroleum accounts for only 2% of electrical generation. In Hawaii, we rely on petroleum for 75% of our electrical generation and 96% of our fuel for transportation. Now, we get 12% of our energy from renewable energy sources, and we are on track to increase this figure to 15% by 2015.

Dependence on Imported Fossil Fuels

Electric Generation



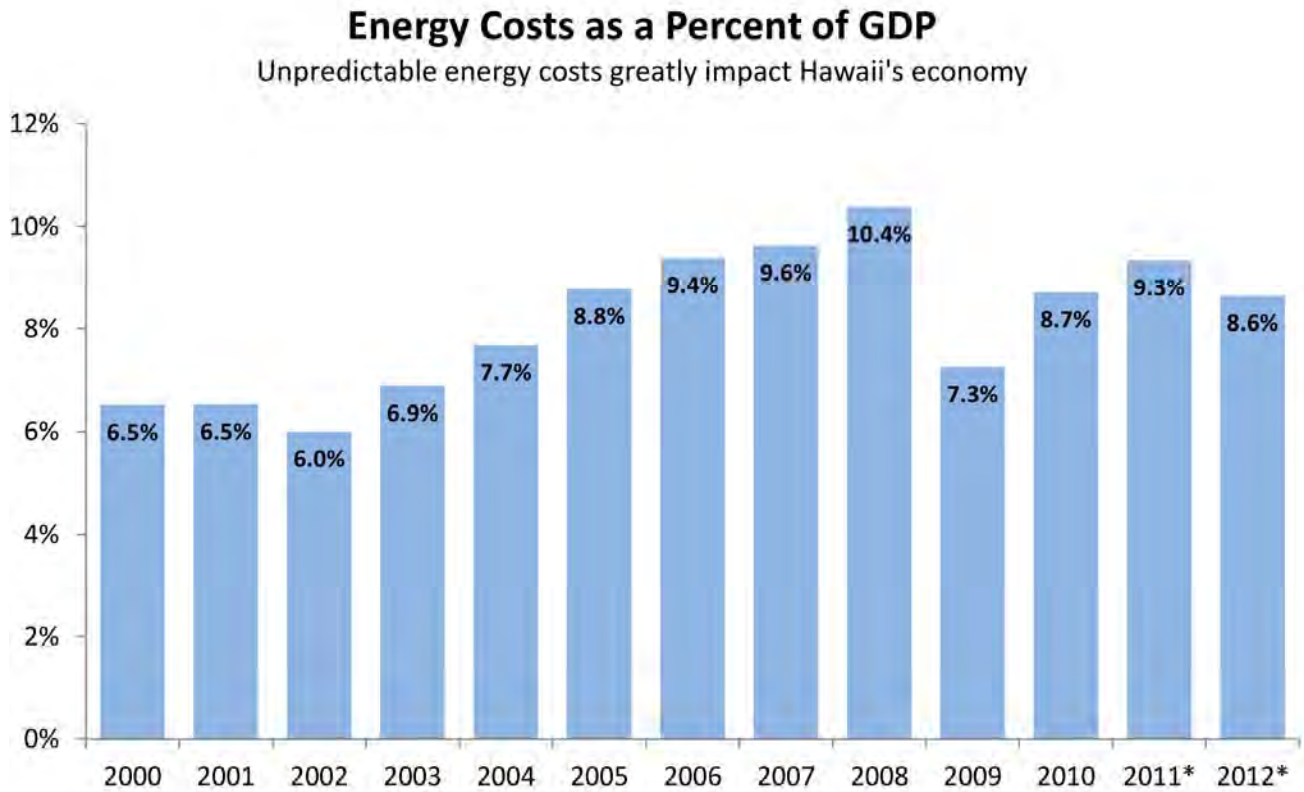
Transportation



Source: Department of Business, Economic Development & Tourism
Note: Estimated based on 2010 U.S. Energy Information Administration data

Energy Costs as a Percent of GDP

This chart shows energy costs in relation to our gross domestic product. The impact of oil volatility on Hawaii's economy is apparent. When oil prices rose between 2005 to 2008, and again in 2011, energy costs accounted for an outsized portion of the GDP.

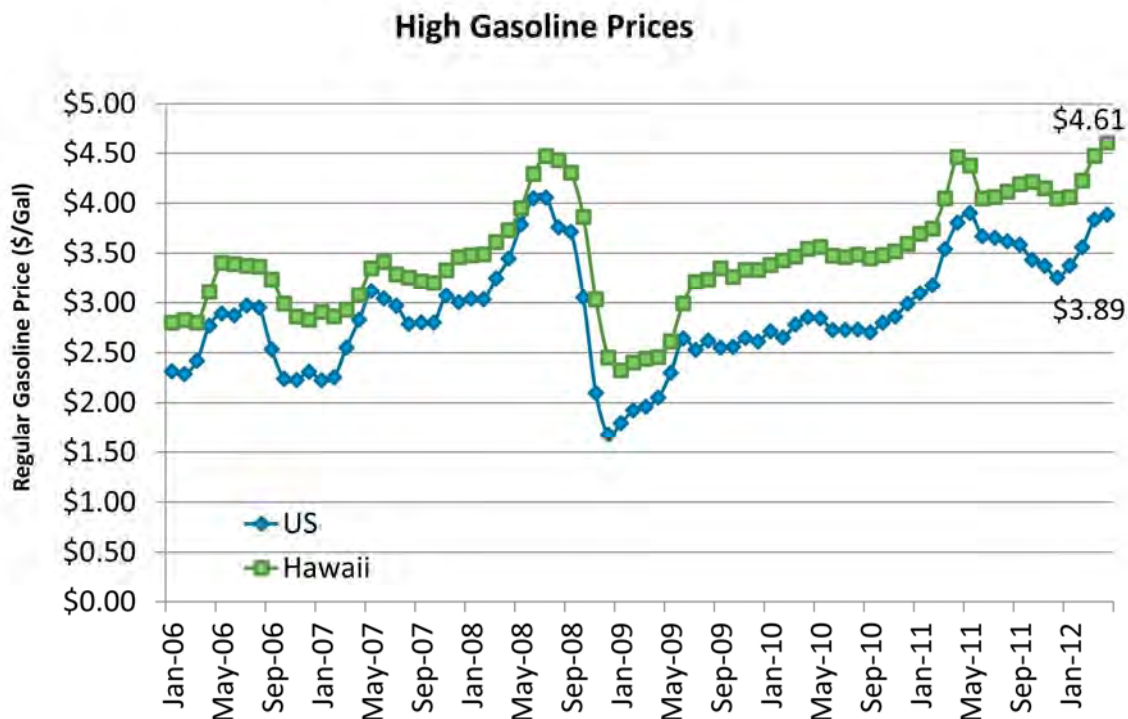


Source: October 2012 (Department of Business, Economic Development & Tourism)

*Estimated

High Gasoline Prices—Hawaii vs U.S.

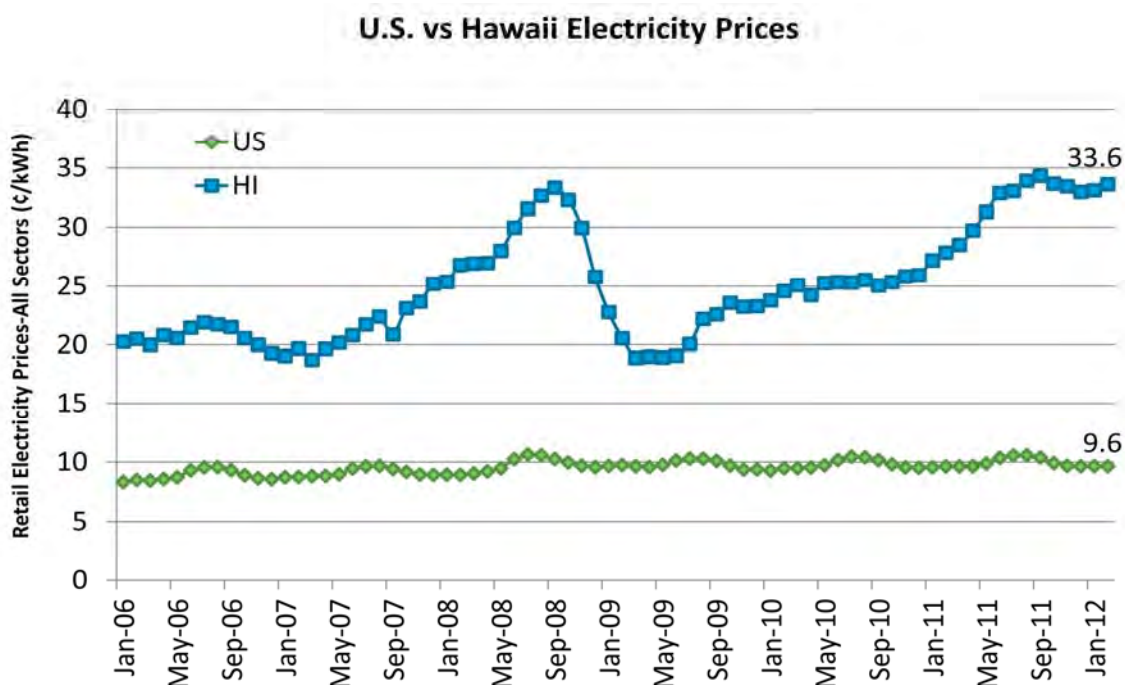
Hawaii's gasoline prices are some of the highest in the U.S. This comes as a shock to most residents in Hawaii and it serves as a catalyst to consider more fuel efficient cars.



Source: Monthly Energy Trends, May 2012 (Department of Business, Economic Development & Tourism, U.S. Energy Information Administration)

U.S. vs Hawaii Electricity Prices

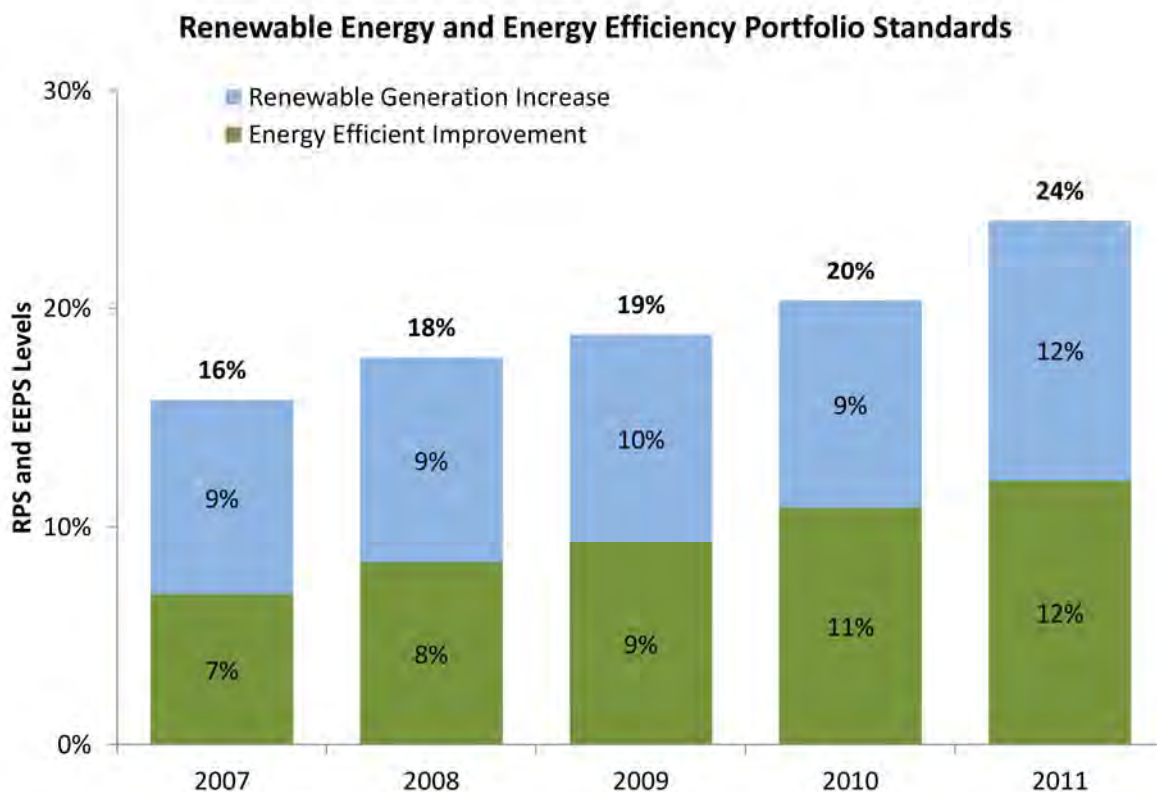
Hawaii's electricity prices are more than three times higher than the U.S. average. This is a significant tax on Hawaii's economy and its residents. These high prices make renewable energy projects more economically viable than in the rest of the United States.



Source: Monthly Energy Trends, May 2012 (Department of Business, Economic Development & Tourism, U.S. Energy Information Administration)

Renewable Energy and Energy Efficiency Portfolio Standards

With our sights set on achieving 70% clean energy by 2030, how is Hawaii doing now? The following chart displays the 2011 RPS and EEPS levels (11.9% and 12.1%, respectively, for a total of 24.0%) and illustrates how they have increased over the past five years. The next benchmark for RPS is in 2015 which is 15% and we feel we are on target to reach and possibly even exceed it.



Source: Renewable Portfolio Standards Status Reports, 2007-2011 (Hawaii Public Utilities Commission)

2012 Hawaii Report Card

Highlights:

National Rankings

- 1st in Energy Savings Performance Contracting
- 3rd in Cumulative Installed Photovoltaic Capacity per Capita

National Recognitions

- 1st Place in Race to the Top competition for Energy Savings Performance Contracting
- LEED Gold Certification for Existing Buildings: Operations and Maintenance for State Office Tower
- ENERGY STAR rating of 96 points for State Office Tower



KEY INDICATOR: **RPS**

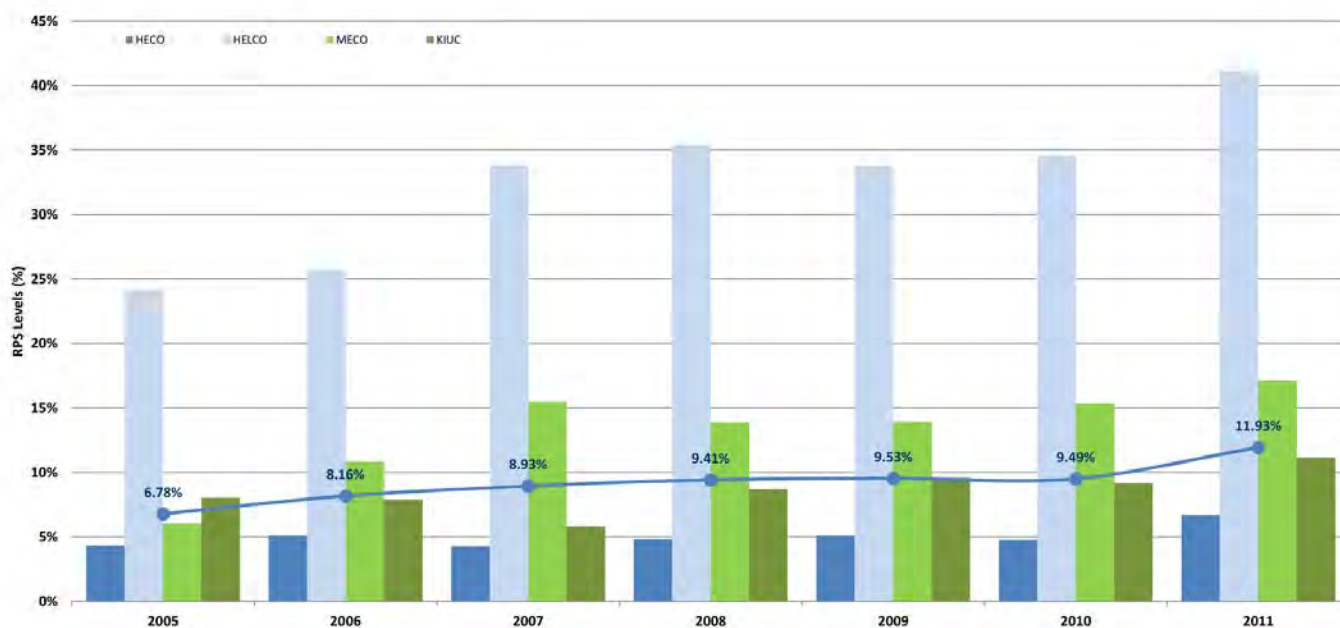
SECURING THE RENEWABLE FUTURE

Hawaii is rich in renewable energy resources that have the potential to free us from our dependence on imported oil, which today supplies the majority of our energy. With the islands' plentiful sunshine, strong trade winds, surrounding ocean, terrestrial streams, geothermal resource, temperate climate and year-round growing season, Hawaii is ideally poised to achieve its goal of 40% energy generation from renewable sources by 2030. The State Energy Office is now tracking 52 renewable energy projects that are in the development phase and 45 operational renewable energy projects.

Hawaii Renewable Portfolio Standards (RPS) Levels 2005-2011

This chart shows Hawaii's Renewable Portfolio Standards (RPS) levels from 2005-2011. State law requires that Hawaii achieve 15% of its electrical needs from renewable generation and energy efficiency by December 31, 2015. In 2011, the statewide RPS level was 11.93% - on track to meeting the 15% goal by 2015.

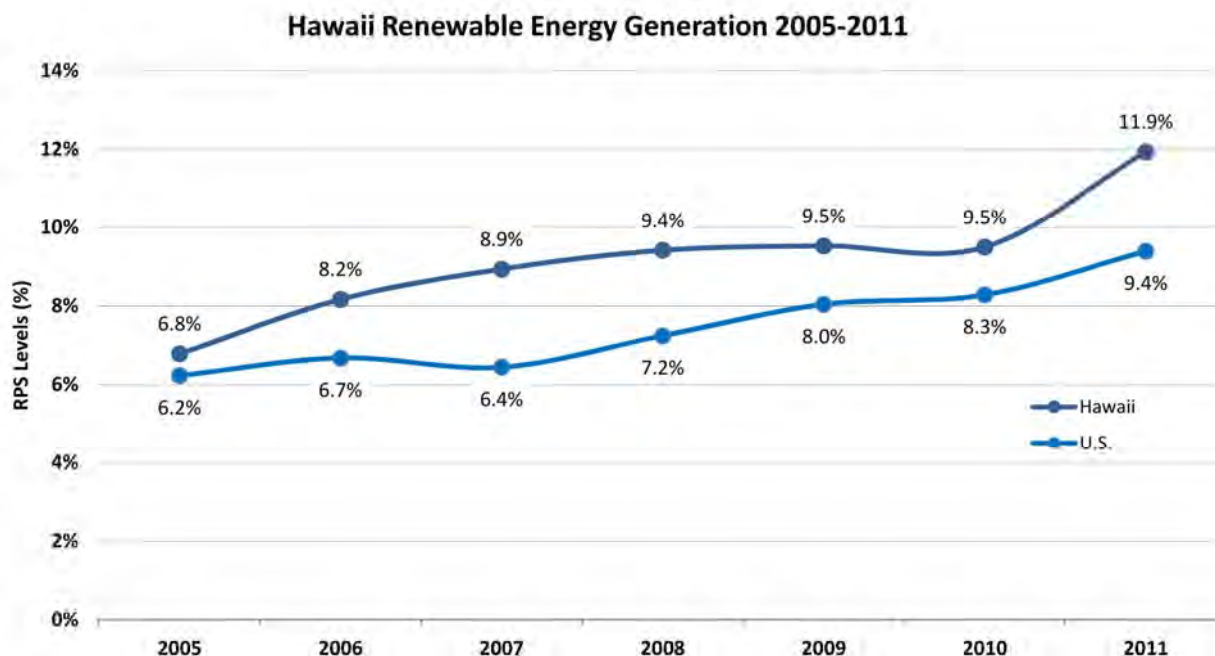
Hawaii Renewable Portfolio Standards (RPS) Levels from 2005-2011



Source: Renewable Portfolio Standards Status Reports, 2005-2011 (Hawaii Public Utilities Commission)

Hawaii Renewable Energy Generation 2005-2011

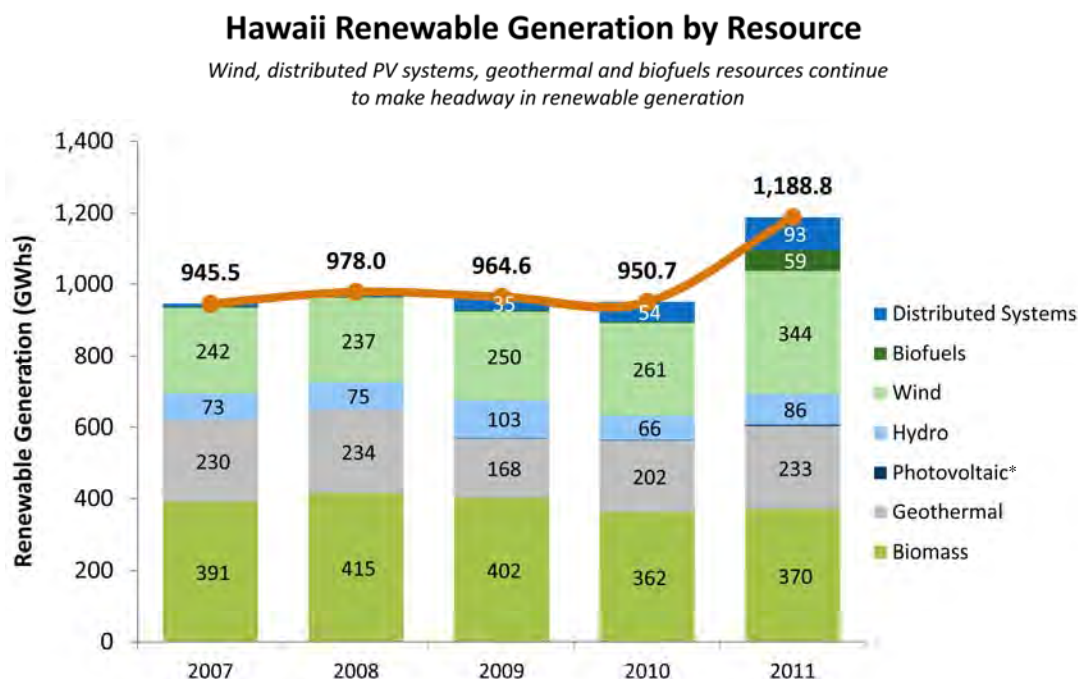
Since 2006, Hawaii's renewable electricity generation as a percentage of total generation has been on average 1.7% above that of the U.S.



Source: *Renewable Portfolio Standards Status Reports, 2005-2011* (Hawaii Public Utilities Commission), Energy Information Administration

Hawaii Renewable Generation by Resource 2007-2011

Of the electricity generated by renewable resources, those that are generated from wind, distributed photovoltaic (PV), geothermal, hydro and biofuels are increasingly contributing to Hawaii's renewable portfolio. Hawaii can anticipate continued growth in wind and PV, and is now working on laying the groundwork for geothermal and biofuel development, both of which require infrastructure and regulatory work.



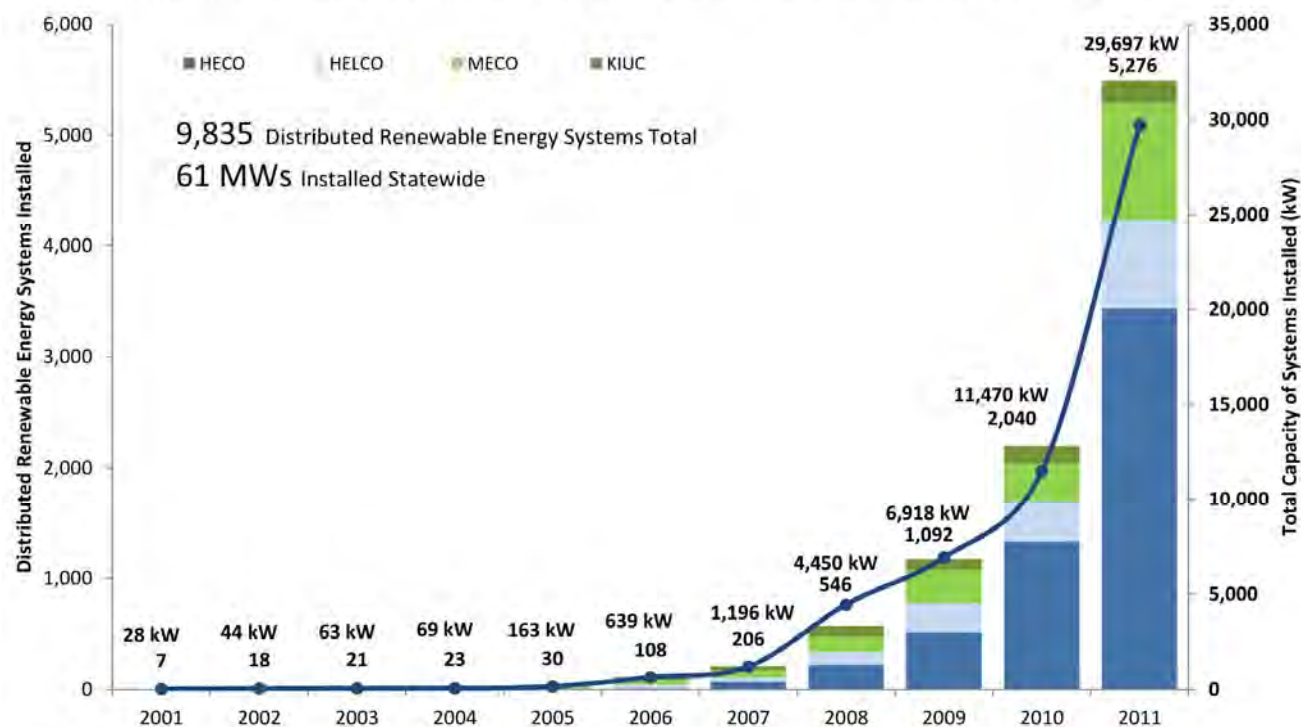
Source: *Renewable Portfolio Standards Status Reports, 2007-2011* (Hawaii Public Utilities Commission)

*1.85 GWhs attributed to photovoltaic in 2011

New Distributed Renewable Energy Systems Installed in Hawaii Annually 2001-2011

By 2011, 9,835 distributed renewable energy systems with a total capacity of 61 MWs were installed statewide under the utilities' Net Energy Metering, Schedule Q and Feed-In-Tariff programs. Since 2006, distributed generation system installations have increased rapidly. Whereas only 30 systems with a total capacity of 163 kW were installed in 2005, 5,276 systems were installed statewide with a total capacity of 29,697 kW in 2011 alone.

New Distributed Renewable Energy Systems Installed in Hawaii Annually 2001-2011



Source: Net Energy Metering Status Reports, 2011 (Public Utilities Commission)

Third in the Nation: Cumulative Installed Photovoltaic Capacity per Capita

Hawaii was ranked third in the nation in cumulative installed photovoltaic capacity per capita in 2011 according to U.S. Solar Market Trends, with 62.6 Direct Current Watts (W_{DC}) per capita installed at the end of 2011. The cumulative installations were 4.8 times the national average of 13 W_{DC} per capita.

Third in the Nation Cumulative Installed Photovoltaic Capacity per Capita

State	Cumulative Through 2011 (W_{DC} /person)	2011 Installations (W_{DC} /person)
1. New Mexico	80.4	59.3
2. New Jersey	64.4	34.8
3. Hawaii	62.6	29.7
4. Arizona	62.2	45.0
5. Nevada	45.9	7.2
National Average	13.0	6.0

Source: 2011 U.S. Solar Market Trends, August 2012 (IREC)

State Energy Project Tracking

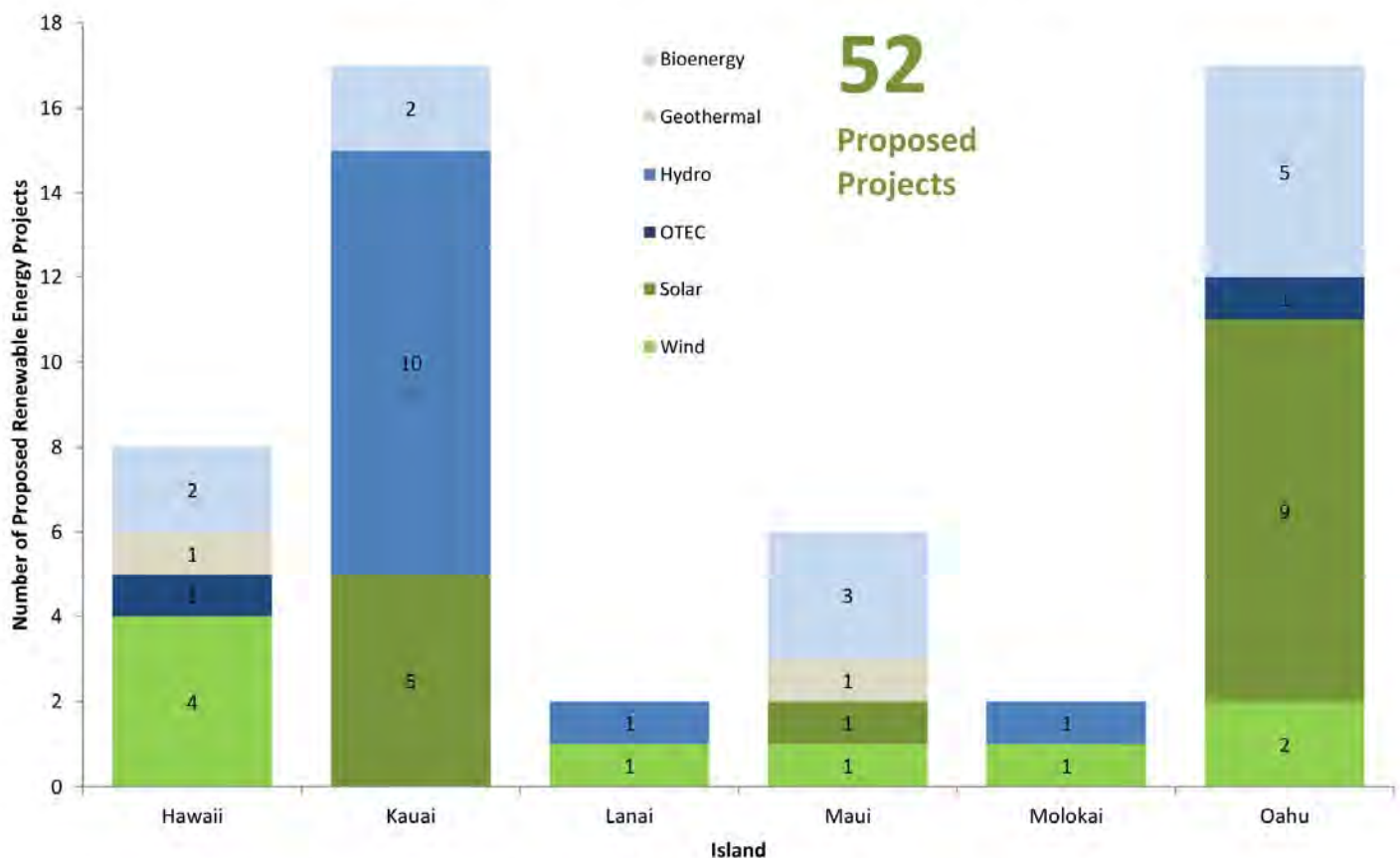
Along with continually monitoring and tracking the progress of renewable energy projects, the State Energy Office also assists with project development, including providing agency-developer coordination, clarifying permitting processes and requirements, accepting of environmental impact statements and offering general development guidance.

Based on available information as of October 2012, the State is tracking 52 proposed projects statewide that are in various stages of development. Once a project is up-and-running it is noted as being completed and transferred to our online map of operating renewable energy projects.

52 Currently Proposed Renewable Energy Projects in Hawaii

Clean energy will do more than improve the environment; it will also supercharge Hawaii's economy. As the chart below indicates, 52 renewable energy projects are in the development process, thus proving that Hawaii is the ideal laboratory for clean energy development and investment.

Currently Proposed Renewable Energy Projects in Hawaii



Source: Department of Business, Economic Development and Tourism, October 2012

The State Energy Office assisted with the permitting and siting of the following pilot and production facilities now operating or under construction:

- Auwahi Wind Farm (21 MW)
- HAWAI'I GAS Synthetic Natural Gas (SNG) Pilot Plant (demonstration project)
- Kaheawa Wind Power II (21 MW)
- Kalaeloa Renewable Energy Park (5 MW)
- Kalaeloa Solar Power I and II (2 x 5 MW)
- Kawaihoa Wind Farm (69 MW)
- UOP/Honeywell Integrated Bio-Refinery Facility (4 barrels/day, demonstration project)

As of October 2012, five projects reached the completion phase this year:

Big Island Biodiesel (Pacific Biodiesel, Inc.)

Resource: Biofuel

Production: 5 MGY

HAWAI'I GAS (formerly The Gas Company)

Resource: Synthetic Natural Gas (SNG)

Demonstration project

Kaheawa Wind Power II (First Wind)

Resource: Wind

Production: 21 MW

Kapolei Sustainable Energy Park (Forest City)

Resource: Photovoltaic

Production: 1.18 MW

Puna Geothermal Venture Expansion (Ormat)

Resource: Geothermal

Production: 8 MW

2012 ACTIVITIES AND PROGRAMS

HAWAII CLEAN ENERGY PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS)

The Hawaii Clean Energy Programmatic Environmental Impact Statement (PEIS) will analyze, at a programmatic level, the potential environmental impacts of clean energy activities and technologies with the potential for near-term development or application in Hawaii.

- As a cooperating agency, the State of Hawaii assisted the U.S. Department of Energy (DOE) with gathering public comments on the scope of the PEIS and continues to gather reports, assessments, and other resources to be included in the PEIS.
- The scoping process sought public input and comment on a variety of clean energy activities and technologies, including energy efficiency, distributed renewables, utility-scale renewables, alternative transportation fuels and modes, and electrical transmission and distribution.
- Meetings were held throughout the State, on the islands of Oahu, Kauai, Maui, Molokai, Lanai and Hawaii.
- Reports developed by the State and comments received previously will be available for use by the DOE and its cooperating agencies in the PEIS project.
- DOE's proposed action is to develop guidance that it can use in making decisions about future DOE funding or other actions to support Hawaii in achieving the State's clean energy goals.
- The PEIS will support the achievement of statewide clean energy objectives by providing reference information to assist in the development of diverse energy projects throughout the State.

RENEWABLE ENERGY PROJECTS IN HAWAII—HAWAII'S CLEAN ENERGY LEADERS

This list showcases 40 renewable energy projects that are demonstrating progress in becoming commercial enterprises and have potential to assist the State of Hawaii in achieving its collective goals under the Hawaii Clean Energy Initiative. Updated quarterly to reflect industry developments, this list can be found at energy.hawaii.gov/programs/cleanenergy-leaders.

Project Name/Developer	Island	Resource	Project Description	Proposed Projection Capacity
1 Kona Wind / First Wind	Oahu	Wind	First Wind plans its fourth wind farm in Hawaii with a capacity of 68 MW on former sugarcane land owned by Kamehameha Schools northeast of Haleiwa. When complete, it will produce enough energy to power 14,500 Oahu homes.	68 MW
2 Auwahi Wind Farm / Semptra Generato	Mau	Wind	Auwahi Wind will be Maui's third wind farm and will integrate 21 MW of wind with a 12 MW battery energy storage capacity. The facility will be built at Ukupāhina Ranch. When complete, Auwahi Wind will produce enough clean, renewable electricity to power 10,000 Maui homes.	21 MW
3 Honolulu Emergency Power Facility / State Department of Transportation, HSDOT	Oahu	Biofuel	The State Department of Transportation (DOT) is constructing a new Emergency Power Facility (EPF) for Honolulu International Airport. The EPF will use four generators to provide up to 10 MW of electrical power to the airport in the event of a major emergency or natural disaster.	8 MW

ISLAND CLEAN ENERGY PROJECTS MAP

The *Island Clean Energy Projects* map is an interactive tool that charts a variety of renewable energy projects and their locations throughout the State.

Users can search by name, island, location or technology for a specific project. By clicking on the project, users can get more details such as the amount of energy/fuel that is being generated and the project status. This interactive map can be found at hawaiiicleanenergyinitiative.org/island-projects-new/.

Project Name	Island	Location	Technology
Hawaii Pure Plant Oil	Hawaii	Kona	Biofuel
Hawaii Wind Farm	Hawaii	Upolu Point	Wind
Hawaii at Kaula Point	Hawaii	Kaula Point	Solar
Kona Demonstration Facility (Cellana)	Hawaii	Kailua Kona	Biofuel

PERMIT FACILITATION

- Published Version 1 of the online Permitting Wizard, which identifies the permitting requirements for individual projects. It also provides useful information (permit packets) for over 160 federal, state, and county permits, including process steps, estimated timelines and costs, agency contacts, and relevant laws or references.
- Published Version 2 of *A Guide to Renewable Energy Facility Permits in Hawaii*, provides useful information on permitting and renewable energy project development in Hawaii based on input from the regulatory agencies, development community, and other stakeholders.
- Funded and supported the Department of Health's (DOH) online ePermitting Portal and electronic document tool. DOH now has many environmental permits available for online processing and estimates this may save up to 30% of permit process time. Since its public release in April 2012, over 700 clean water permit renewals, totaling over \$300,000 in fees, have been electronically submitted to and processed by DOH. The tool also gives DOH the ability to immediately modify permit applications and forms. Furthermore, ePermitting serves as a model for other state and county permitting agencies seeking to implement similar online permitting services.

Home Login Register

Renewable Energy Permitting Wizard

Welcome to the Renewable Energy Permitting Wizard. This tool was developed to help those proposing renewable energy projects understand the county, state, and federal permits that may be required for their individual project. This tool works for projects ranging in size from residential solar installations to large utility-scale facilities. Since every project and permit is different, the results of this tool only represent an initial appraisal of the necessary permitting requirements. **Additional permitting requirements may apply. The Energy Office strongly recommends consultation with an expert.**

The tool works by presenting a series of questions about the proposed project. Based on your responses, a list of permits potentially required is displayed with typical time frames for each permit. You may save the output as a BMP or PNG file.

We suggest you pull your notes together in advance and be prepared to answer as many as 80 questions in one session. If you register and login before starting your evaluation session, your answers will be saved automatically as you advance. If you do not login, your answers will be retained for 20 minutes of inactivity and will be lost when you close your browser.

Login

Login to save a session in progress, update a session in progress, or save a completed session.

Email Address:

Password:

Starting Page:

☐ Remember Login Information

[Forgot Your Password?](#)

New user? [Register Now](#) to save your sessions and evaluation history.

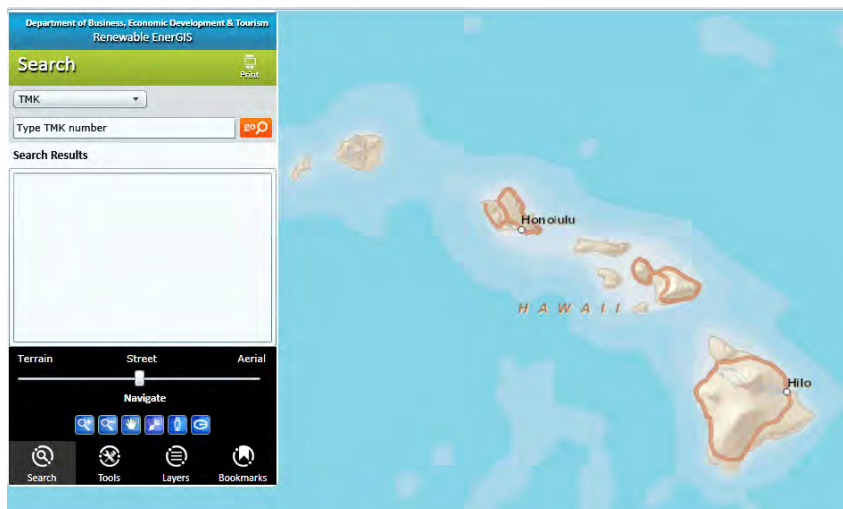
INSTALLATION OF HELCO'S BATTERY ENERGY STORAGE SYSTEMS (BESS)

This program, funded by the 2009 American Recovery and Reinvestment Act (ARRA) - State Energy Program, helped HELCO install a Battery Energy Storage System in order to demonstrate stabilization of voltage and frequency fluctuations on a 12 kV distribution circuit for intermittent renewable energy sources. The application of energy storage technology offers a promising potential to optimize integration of Hawaii's wide variety of available renewable energy sources, and provides progress towards meeting the goals of the Renewable Portfolio Standards and the Hawaii Clean Energy Initiative.

"RENEWABLE ENERGIS" MAP APPLICATION

The application provides a way to search for and map the renewable energy (solar, wind, geothermal, hydro, biomass, OTEC and/or wave) attributes of any piece of property statewide. To get this information, the user simply needs to specify a street address or a tax map key (TMK), point the cursor on the map or draw a polygon on the map.

Renewable EnerGIS will serve as an invaluable renewable energy project planning and development tool by providing site-specific information on resource potential and permitting requirements.





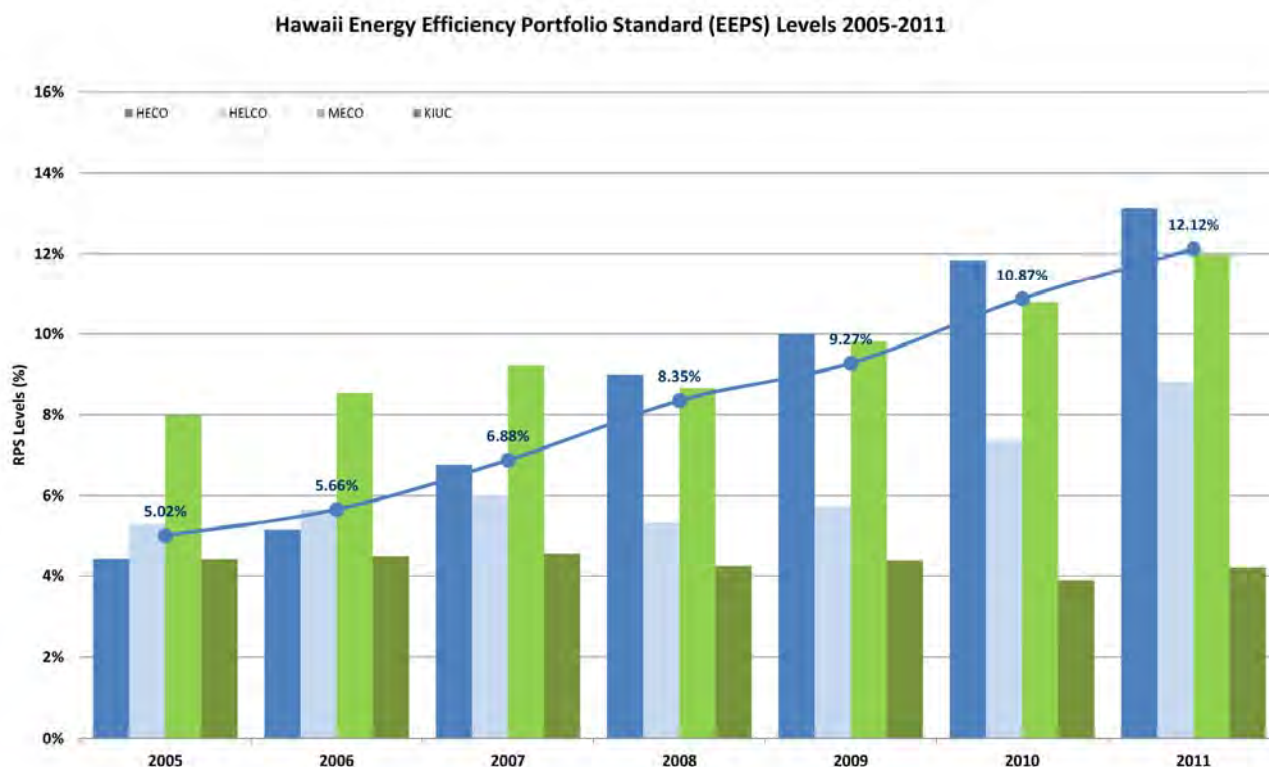
KEY INDICATOR: **EEPS**

ACHIEVING EFFICIENCY

A big part of the State of Hawaii's clean energy goal is to decrease electricity consumption by 30% (4,300 gigawatt hours) by the year 2030. Cutting the amount of electricity businesses and households utilize will lead to smaller utility bills, thus saving consumers money that can be reinvested into the economy. The State Energy Office is seeking solutions that will chart a practical way to reduce energy use through efficiency methods.

Hawaii Energy Efficiency Portfolio Standards (EEPS) Levels 2005-2011

This graph shows Hawaii's Energy Efficiency Portfolio Standards (EEPS) levels from 2005-2011. The EEPS requires that by 2030, annual energy savings amount to 30% of annual electricity sales statewide. In 2005, the statewide EEPS level was 5.02%. By 2011, the EEPS level rose to 12.12%.

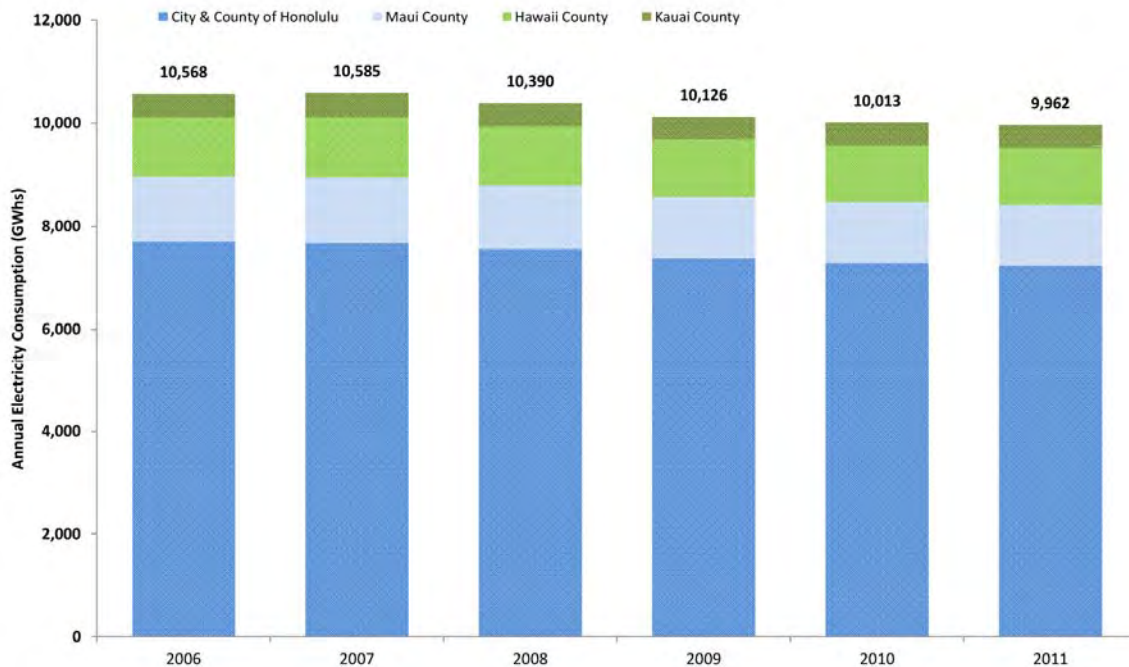


Source: Renewable Portfolio Standards Status Reports, 2005-2011 (Hawaii Public Utilities Commission)

Hawaii Annual Electricity Cost and Consumption 2006-2011

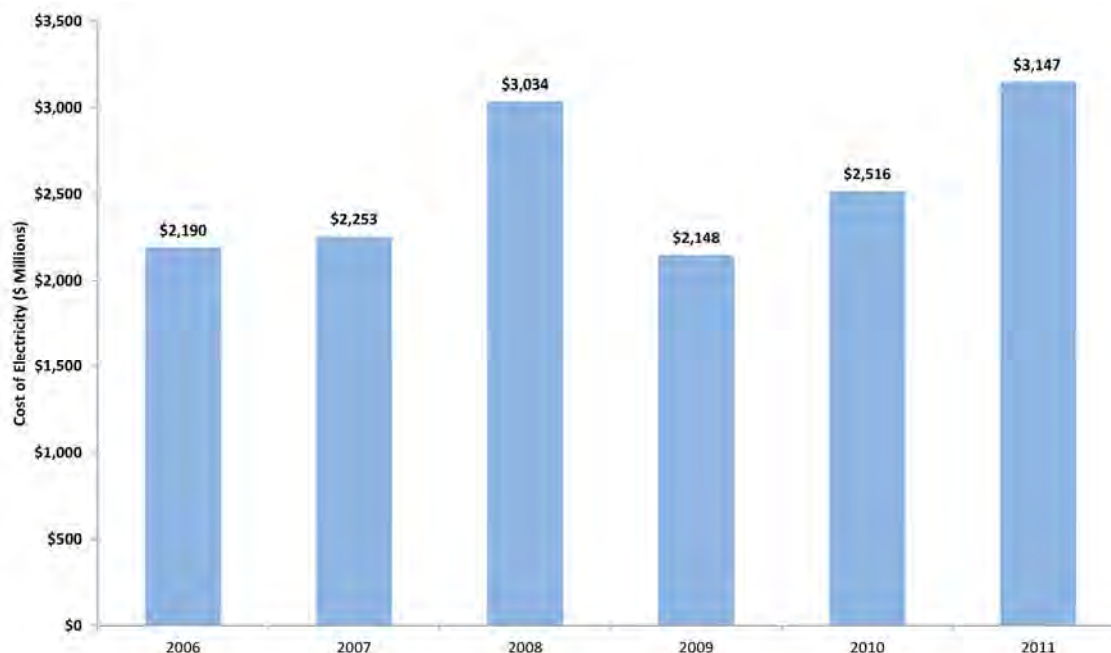
Hawaii's annual electricity consumption has decreased in the past 6 years from 10.6 TWh in 2006 to less than 10.0 TWh in 2011. However, the cost of electricity has varied as a result of fluctuations in fuel prices. At its peak, the annual cost of electricity in Hawaii rose to \$3.0 billion in 2008 from \$2.2 billion in 2006. In 2009, the cost of electricity dropped to \$2.1 billion, only to increase to over \$3.0 billion in 2011.

Hawaii Annual Electricity Consumption 2006-2011



Source: Monthly Energy Trends, 2006-2011 (DBEDT)

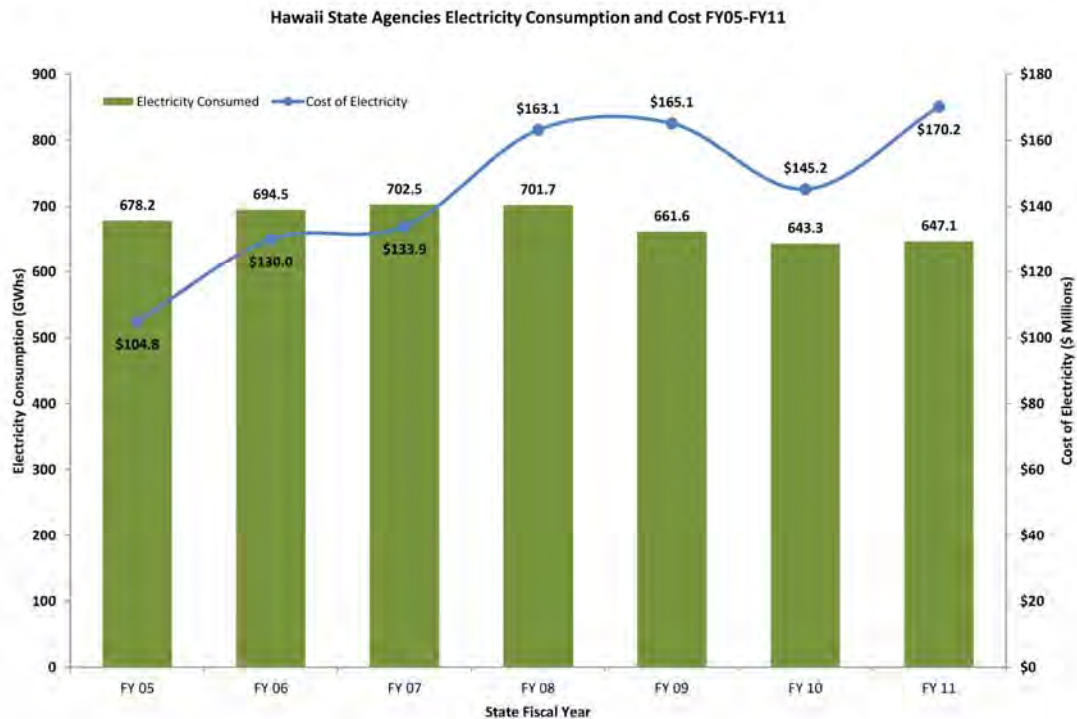
Hawaii Annual Electricity Cost 2006-2011



Source: Monthly Energy Trends, 2006-2011 (DBEDT)

Hawaii State Agencies Electricity Consumption and Cost FY05-FY2011

The chart shows Hawaii state agency electricity consumption increased slightly from fiscal years 2005 to 2007. Starting in fiscal year 2008, however, electricity consumption declined for three years in a row as a result of efficiency measures. There was a slight increase in 2011, mostly attributed to new facilities coming on line. Overall, since fiscal year 2005, the State has decreased its electricity consumption by 4.6%, but, due to the increased cost of oil, state electricity costs have risen 62.4%. Note: 2012 data forthcoming. Check energy.hawaii.gov for updates.



Source: Department of Business, Economic Development and Tourism, December 2011

First in Nation: Energy Savings Performance Contracting Per Capita

Hawaii was ranked first in the nation for energy savings performance contracting by the Energy Services Coalition, with \$132.25 per capita in energy savings performance contracts. This is almost 3.7 times the national average of \$36.04 per capita.

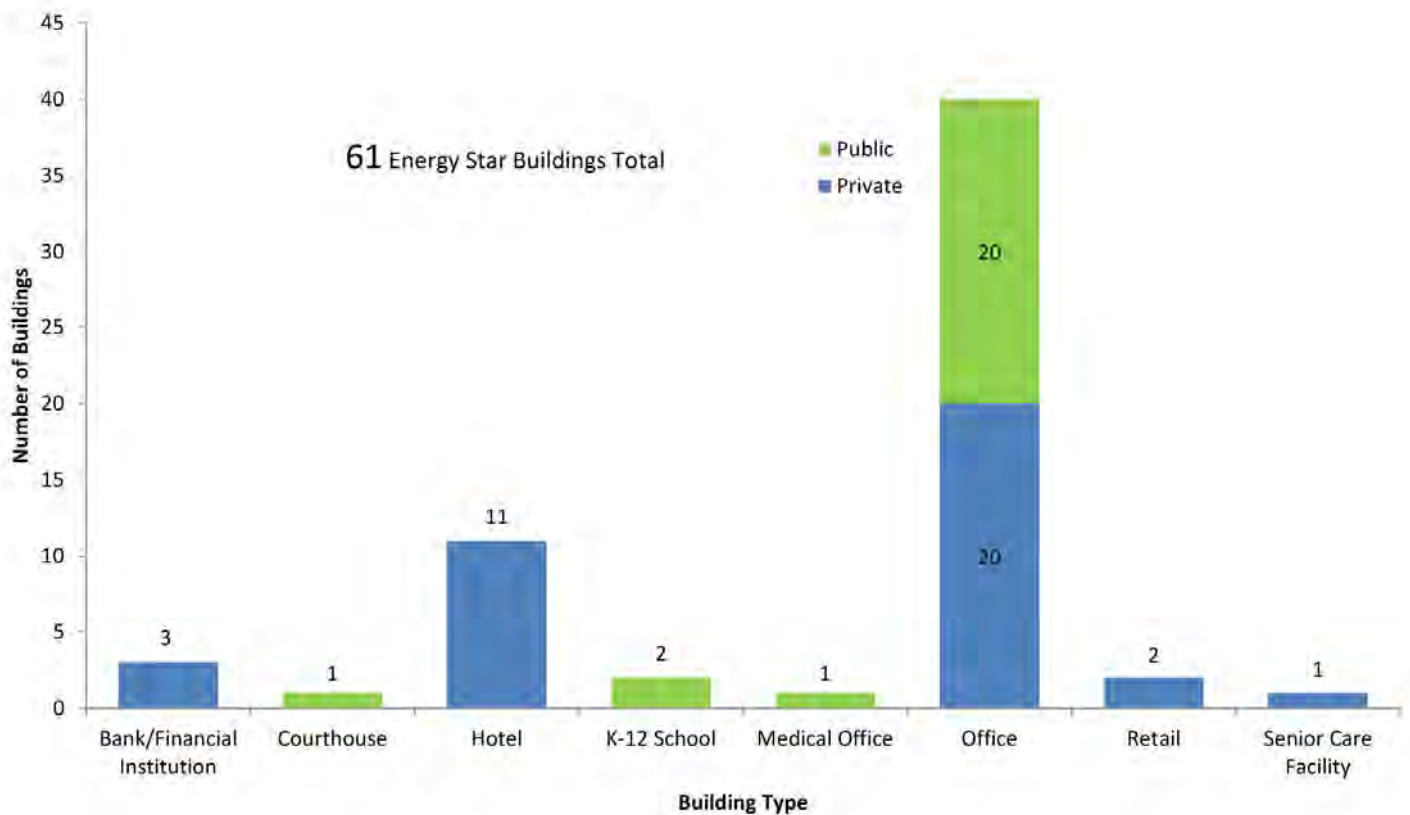
First in Nation Energy Savings Performance Contracting Per Capita

State	Dollars per Capita (\$)	Total Performance Contracting (\$)	Jobs Created (Job Year)
1. Hawaii	\$132.25	\$171,281,027	1,862
2. Ohio	\$108.58	\$1,252,683,627	13,616
3. Kansas	\$90.81	\$259,094,503	2,816
3. Idaho	\$90.27	\$129,000,000	1,402
4. Massachusetts	\$71.53	\$457,696,106	4,975
National Average	\$36.04	\$174,662,883	1,841

Source: *Performance Contracting Impacts - State Comparison*, October 2012 (Energy Services Coalition)

Hawaii ENERGY STAR Building 2003-2012

Agencies can benchmark buildings to compare energy usage with other buildings in their portfolio or similar buildings nationally to identify investment priorities. If a building's ENERGY STAR score ranks in the top 25% of all buildings of its type, it can be certified as an ENERGY STAR building. Since 2003, 61 Hawaii buildings have received the ENERGY STAR certification. They include 24 public and 37 private buildings totaling approximately 15.5 million square feet of floor space.

Hawaii ENERGY STAR Buildings 2003-2011

Source: *Energy Star.gov*, September 2012 (US Environmental Protection Agency & US Department of Energy)

2012 ACTIVITIES AND PROGRAMS

FIRST IN THE NATION: “RACE TO THE TOP” FOR PERFORMANCE CONTRACTING

The State Energy Office took home top honors on behalf of the State of Hawaii in the 2012 “Race to the Top” competition, presented by the Energy Services Coalition (ESC). “Race to the Top” ranks states by investment per capita in energy savings performance contracting, which enables building owners to use future energy savings to cover upfront costs for energy saving projects, eliminating the need to dip into capital budgets. The State of Hawaii has invested \$132.25 per capita, an increase from its previous figure of \$117.09 per capita. ECS is a national nonprofit organization composed of a network of experts who collaborate to increase energy efficiency and building upgrades through energy savings performance contracting.

Additional projects not included below, but under development, include: Department of Transportation (15 airports/5 harbors and highways facilities), City and County of Honolulu Board of Water Supply, City and County of Honolulu Honouliuli Waste Water Treatment Plant, and the University of Hawaii at Hilo.

State ESPC Projects 1990-2012

Agency	Facilities	Investment Value (2011\$)	Average Annual Savings	Savings Over 20 Years
UH-Hilo	NA	\$11.3M	\$770,644	\$15.4M
HHSC	5 hospitals	\$32.6M	\$2.3M	\$45.1M
Judiciary	5 courthouses	\$2.1M	\$423,684	\$8.5M
City and County of Honolulu	4 buildings	\$16.6M	\$1.1M	\$21.9M
County of Hawaii	28 buildings	\$2.9M	\$343,489	\$6.9M
County of Kauai	34 buildings	\$904,102	\$53,782	\$1.1M
DAGS Phase I	10 Downtown Buildings	\$34.5M	\$3M	\$60M
UHCC	4 Oahu campuses, Kauai CC	\$32.8M	\$4.5M	\$90M
Public Safety	Halawa high security and med security, OCC, 1 jail	\$25.5M	\$2.3M	\$46M
DAGS Phase II	33 buildings	\$22.5M	\$1.5M	\$30M
City and County of Honolulu	Kailua Wastewater Treatment Plant	\$12M	\$772,000	\$15.4M
Total		\$171.3M	\$15M	\$341.3M



Energy savings for these projects over 20 years (1.1 billion kWh) is equivalent to powering an estimated 171,623 households for one year.

Jobs maintained or created: 4,501 (source: National Association of Energy Service Companies)

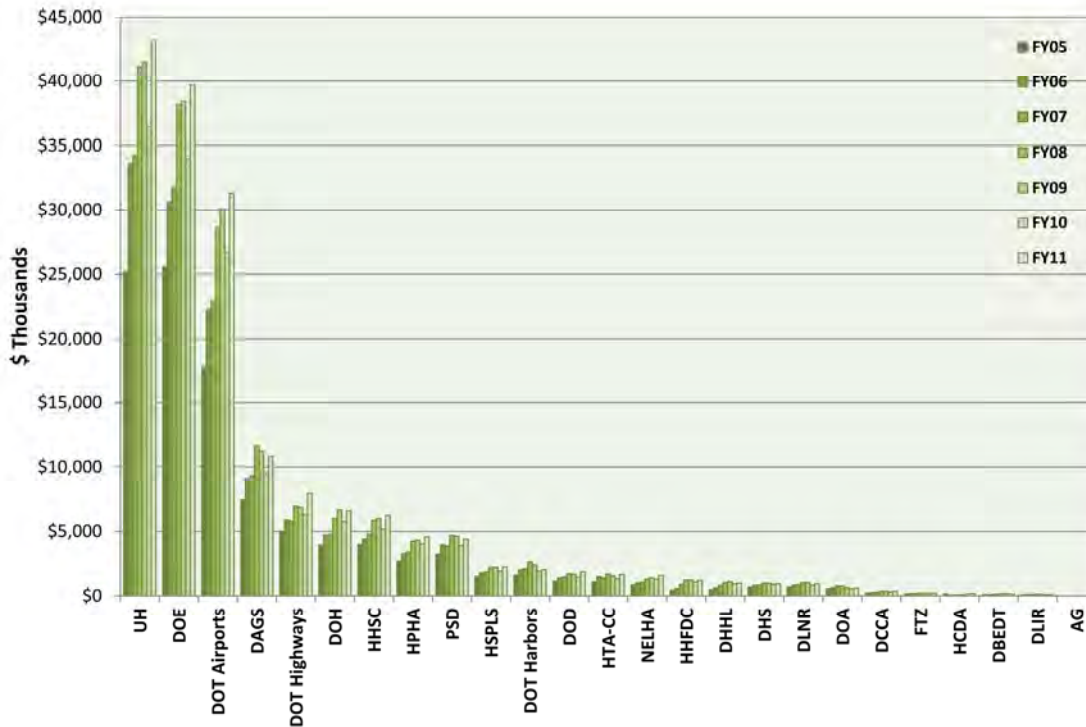
LEED GOLD CERTIFICATION FOR STATE OFFICE TOWER

The U.S. Green Building Council recognized the State Office Tower (SOT) with a prestigious Leadership in Energy and Environmental Design (LEED) Gold Level award in the category of Existing Buildings: Operations & Maintenance. The SOT is the first major office building, public and private, to receive LEED Gold in the category for Existing Buildings. The certification is a third-party verification that the 161,000-square foot SOT is being operated in a manner that maximizes operational efficiency and minimizes environmental impacts: reduced energy, water and resource consumption; enhanced indoor environment; minimized operational costs. The State Office Tower achieved a score of 96 under the ENERGY STAR Portfolio Manager program of the U.S. Environmental Protection Agency. A score of 96 means the SOT is in the 96 percentile for energy efficiency of similar buildings in the nation.



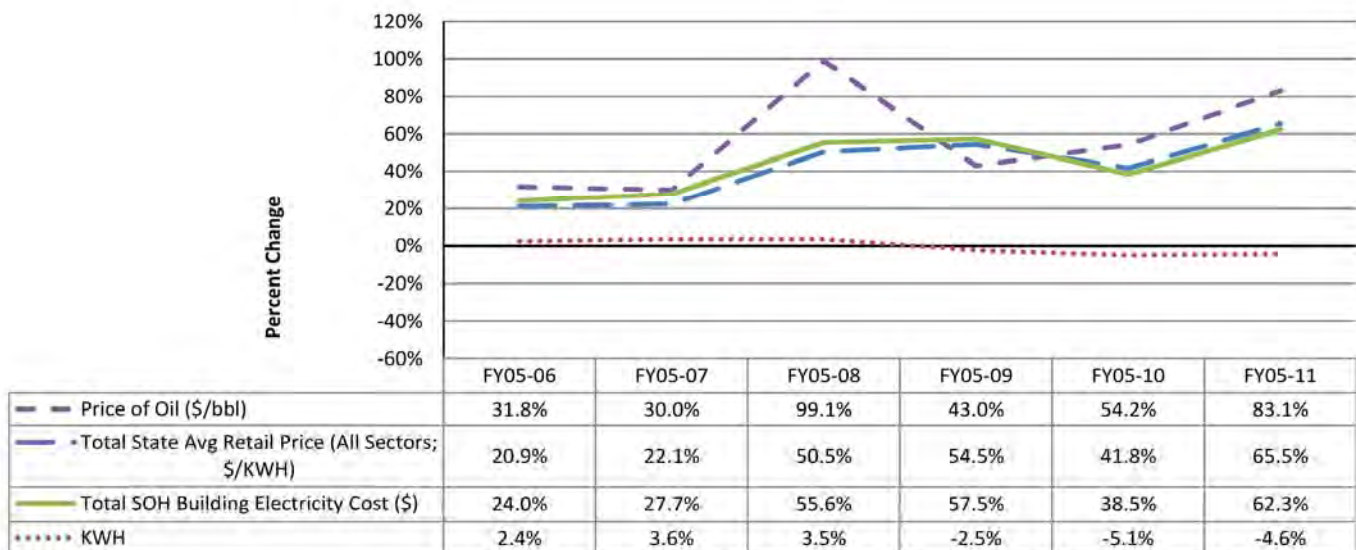
STATE AGENCIES ARE MANAGING THEIR ENERGY USE

During FY11, state agencies' energy consumption increased minimally by 0.6% above FY10 levels, but the state paid 17.1 %, more than FY10. When comparing FY11 figures against the 2005 baseline year, energy consumption dropped 4.6%, but, due to the increasing cost for electricity, costs rose 62.3%. Data for FY 12 forthcoming. Check energy.hawaii.gov for updates.



Sources: HECO and KIUC

The chart below shows the percentage of change from the baseline year each year since the Lead By Example program began. Shown are the price of oil, the average retail price of electricity (based on EIA-826 reporting, dividing utility total revenues by total kWh sold and including fuel adjustment cost), total State of Hawaii electricity costs and the State of Hawaii electricity consumption (kWh).



Sources: NYMEX WTI Future Price; EIA-826 ; Utility (HECO, MECO, HELCO, & KIUC) Billing data

ADVANCING ENERGY EFFICIENCY IN HAWAII PUBLIC FACILITIES

DBEDT was awarded a U.S. Department of Energy grant for a \$350,000 State Energy Program 2012 Competitive Award which will be applied to strengthening, enhancing and expanding its existing energy efficiency programs by:

- Incorporating ENERGY STAR Portfolio Manager to benchmark appropriate State Executive Branch facilities.
- Using the results to encourage state agencies to bundle facilities to pursue energy efficiency through energy savings performance contracts or other financing mechanisms.

RURAL SMALL BUSINESSES AND FARMS PROGRAM

DBEDT was awarded a U.S. Department of Agriculture grant for the Rural Energy for America program which provides professional services to prepare energy audits for eligible rural small businesses and farms, with support and in partnership with Hawaii Energy and the Counties of Maui and Hawaii. The program also assists the audit recipients in locating funding to implement the energy efficiency measures identified in the audit. Audit recipients will provide 25% of the cost of the audit and DBEDT is providing \$25,000 in-kind cost share for managing and marketing the program. The project will advance Hawaii's food and energy security.

AMERICAN RECOVERY AND REINVESTMENT ACT-FUNDED ENERGY EFFICIENCY IMPROVEMENT IMPACTS IN THE COMMUNITY

GREENSUN HAWAII LOAN PROGRAM

On October 26, 2011, the State launched its GreenSun Hawaii Loan Loss Reserve (LLR) Program for energy efficiency and renewable energy installations for residential and commercial (including multi-family and nonprofit) properties. The LLR Program gives participating lenders access to a loan loss reserve designed to cover a portion of the risk financial institutions face in making loans to finance energy efficiency measures and renewable energy systems. The program currently has ten Participating Lenders and 32 Authorized Contractors statewide.



GreenSun Hawaii has since passed the \$1 million milestone in low interest loans issued. We estimate energy savings of 258,000 kilowatt hours annually (6,450,000 over the life of the installations) and a combined savings in the participants' electric bill in excess of \$108,000 annually (\$2.7 million over the life of the system). The energy saved annually is equivalent to powering 460 households a year.

ASSISTANCE TO BUSINESSES

The State Energy Office benchmarked and certificated 23 buildings as ENERGY STAR, mainly hotels, office buildings, and medical facilities, and schools. We also worked with building owners to bring buildings to ENERGY STAR standing.

ASSISTANCE TO NONPROFITS

The State Energy Office provided energy efficiency rebates through Hawaii Energy so that it could offer government and non-profit organization facilities up to 25 percent of costs to purchase and install customized energy efficiency measures: recipients included Castle Medical Center, the largest recipient of those funds, followed by Royal Iolani's Association of Apartment Owners (AOAO), Bishop Museum, Pali Momi Medical Center, 1717 Ala Wai AOAO, and Moana Pacific AOAO.

ASSISTANCE TO RESIDENCES

There were a number of programs covering all islands. Programs were provided through Hawaii Energy, Kauai Island Utility Cooperative, the State Department of Hawaiian Home Lands, and the State Department of Labor and Industrial Relations' Office of Community Services. Residences received one or more of the energy conservation measures noted below. Recipients varied depending on the programs and included residences such as utility rate payers to any utility in the state as well as low-income households that qualified under federal guidelines. The aggregated amount from all energy conservation measures listed below are the equivalent of powering 9,485 homes for one year.

	Installed	Estimated Savings
CFL	4,359	\$ 540,255.49
E* Refrigerators	8,280	\$ 3,539,858.98
SWH	2,470	\$13,898,240.83
Heat Pumps	37	\$ 226,877.53
Clothes Washers	13	\$ 10,916.91
A/C	8	\$ 12,195.59
Power Strips	998	\$ 1,016,195.29
Low-Flow Aerators	476	\$ 0.00
Low-Flow Shower Heads	505	\$ 603,391.93
Solar PV	33	\$ 1,926,135.20
TOTAL		\$21,424,396.16

ASSISTANCE TO GOVERNMENT AGENCIES

- Provided technical assistance for performance contracting to state and county agencies that resulted in the Race to the Top Award.
- Certified the State Office Tower for Leadership in Energy and Environmental Design (LEED) Gold for Existing Buildings: Operations & Maintenance.
- Installed 1,005 photovoltaic panels on the Kalanimoku Building.
- Updated the State of Hawaii building code for state public buildings.

HAWAII GREEN BUSINESS AWARDS (MARCH 2012)

Fifteen companies and government agencies were recognized as leaders, demonstrating that investing in energy efficiency, recycling and preserving natural resources can protect the environment and make good business sense.

Hard Rock Café Waikiki: The theme restaurant uses recycled tile and bottle glass in its flooring and employs ultra-efficient, ENERGY STAR-certified kitchen equipment and LED lighting.

The Kahala Hotel and Resort: The luxury hotel cuts its energy costs by using seawater pumped from deep water wells to cool its chillers. It also uses ENERGY STAR-rated equipment, light sensors, low ceiling fans, and low-flow showers and faucets to further cut energy and water usage.

Ferraro Choi and Associates: Its Ala Moana headquarters is one of the few offices in Hawaii to obtain the prestigious LEED Platinum designation. A state-of-the-art energy management system helped the company to operate 25% below a code compliant baseline and allows the firm to calculate its own carbon footprint on a daily basis.



Hau'oli Mau Loa Foundation: Another LEED Platinum designee, the foundation's downtown office uses translucent partitions and light reflective shelves to reduce energy usage. It also cut water use by 43% by installing low-flow fixtures and by implementing green cleaning practices.

Kona Brewing Co.'s Kona Pub & Brewery: The Hawaii Island brewery uses a solar photovoltaic system for 48% of its energy needs. It also recycles the water that collects as condensation in its air conditioning system to irrigate plants, saving over 53,000 gallons a year.



Kilauea Lakeside Estate: The Kauai resort gets almost all of its electricity from a solar photovoltaic system and produces nearly zero waste. Its green waste is composted into mulch for botanical gardens, fruit orchards and vegetable and herb gardens.

Marriott's Maui Ocean Club: The Ka'anapali resort recycles most of its construction and electronic waste and donates all HI-5 recyclables to local high schools. Motion sensor light switches and low-flow water fixtures and toilets have sharply reduced its water and energy usage.



Il Gelato Hawaii: The local gelato maker reuses its large tubs used to deliver its products, sparing Oahu's landfills over 12,000 containers each year. It has also controlled gasoline costs by improving the scheduling of its delivery and pick-up routes.

Hyatt Regency Waikiki Beach Resort and Spa: As part of a \$13 million facelift to its third floor level, the ENERGY STAR-labeled Waikiki hotel opted to use recycled glass planters and drought tolerable plants to help save more than 4.7 million gallons of water a year.



Central Pacific Plaza: The downtown high-rise, which has earned the ENERGY STAR designation for the past eight years, has reduced its energy usage by an average of 25% a year. The building's water retrofits have saved more than 2.7 million gallons since 2003.

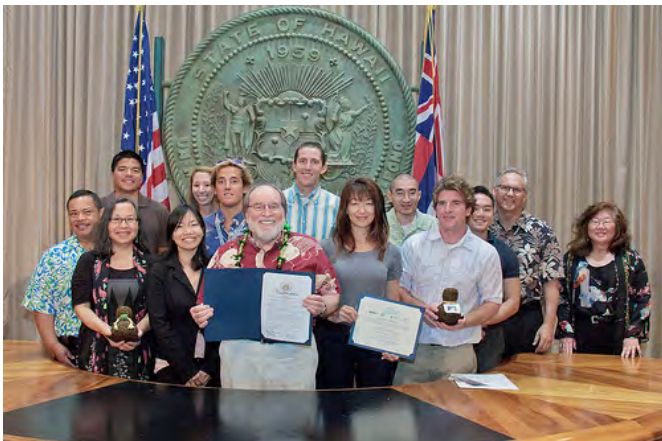
Holiday Inn Waikiki Beachcomber Hotel: As an ENERGY STAR-rated building, the Waikiki hotel installed variable speed chillers and other energy efficiency measures, reducing energy use by over 20%, equivalent to 4,000 kWh per day. An upgraded cooling tower saves more than 624,000 gallons of water each year.

The Ritz-Carlton Kapalua Maui Resort and Luxury Hotel: By investing in computerized moisture sensing devices for its irrigation system and modifying irrigation schedules, the luxury hotel sharply reduced its water usage. It also installed LED lighting in public areas and adjusted hot water heater settings to cut energy use.

Honeywell Utility Solutions: Through the Hawaii Energy “Go Green” program, Honeywell helps Hawaii’s consumers qualify for incentives for installing solar water heaters or make other energy efficiency measures. At its own local offices, the company provides subsidized bus passes to employees, eliminated the use of all plastic utensils and buys only recycled paper products.



County of Maui Water Resource and Planning Division: The county division installed more efficient toilet fixtures and flow restrictors at its faucets, cutting water usage by 56% or roughly 133 gallons per day.



The Department of Business, Economic Development and Tourism and the Department of Accounting and General Services: To achieve a LEED certification for the State Office Tower building in downtown Honolulu, high-efficiency lighting, lighting sensors, low-flush toilets and low-flow faucets were installed, saving 36,270 gallons of water a year and 100,000 kWh of electricity.



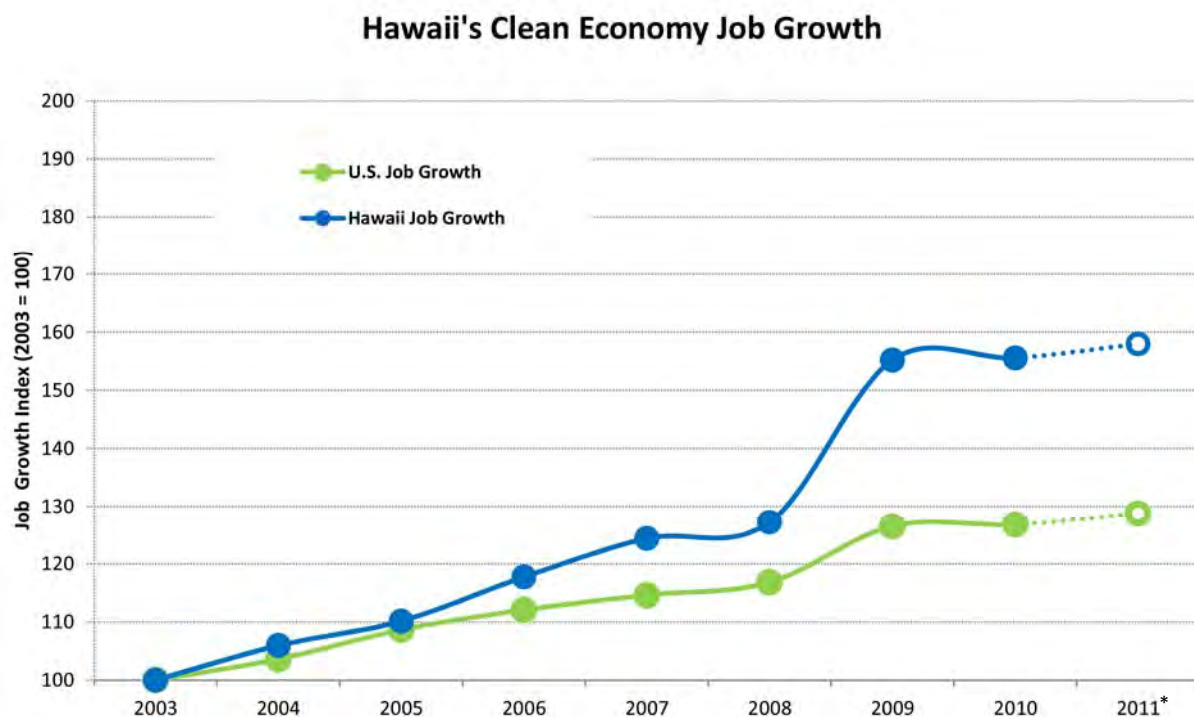
KEY INDICATOR: **JOBS**

POWERING THE ECONOMY

Hawaii's pursuit of energy independence by 2030 is contributing to Hawaii's economy by generating millions of dollars in new investment and creating thousands of new jobs. With more than 11,000 green jobs statewide, Hawaii ranks third in the nation for clean tech job growth, which is helping to offset job losses in the traditional construction sector.

Hawaii's Clean Economy Job Growth

Hawaii is positioning clean energy as a catalyst for economic growth and job creation with 6.5% increase in green jobs between 2003 and 2010 with continuing gains in 2011.



Source: *Sizing the Clean Economy*, August 2011 (Brookings Institute)

*Estimated. Source: *Reality Check: How Green is Hawaii's Workforce*, April 2012 (Department of Labor & Industrial Relations)

Green Jobs by Industry

Clean energy is powering Hawaii's economy by attracting green business and creating a workforce for the future. The chart below shows which industries account for green jobs and how they are estimated to grow from over 11,000 in 2010 (the last year data was reported) to an estimated 19,250 in 2018.

Green Jobs by Industry	Current (2010)	2012 (Avg)	2014 (Avg)	2016 (Avg)	2018 (Avg)
Agriculture, Forestry, Fishing, & Hunting	278	413.0	544.5	676.5	807.0
Construction and Mining	3,330	4,373.0	5,849.5	6,789.0	7,494.0
Manufacturing	347	382.0	410.5	437.5	463.5
Transportation, Warehousing, & Utilities	389	406.5	431.0	444.0	450.0
Retail and Wholesale Trade	1,494	1,611.0	1,735.5	1,857.5	1,973.5
Finance, Insurance, and Real Estate	98	5.0	5.0	5.0	5.0
Health Care and Social Assistance Services	183	197.0	240.0	232.5	249.0
Accommodations and Food Services	174	240.0	310.0	381.5	455.0
Other Services	4,854	5,494.0	6,148.5	6,778.0	7,353.0
Total	11,147	13,122	15,675	17,602	19,250

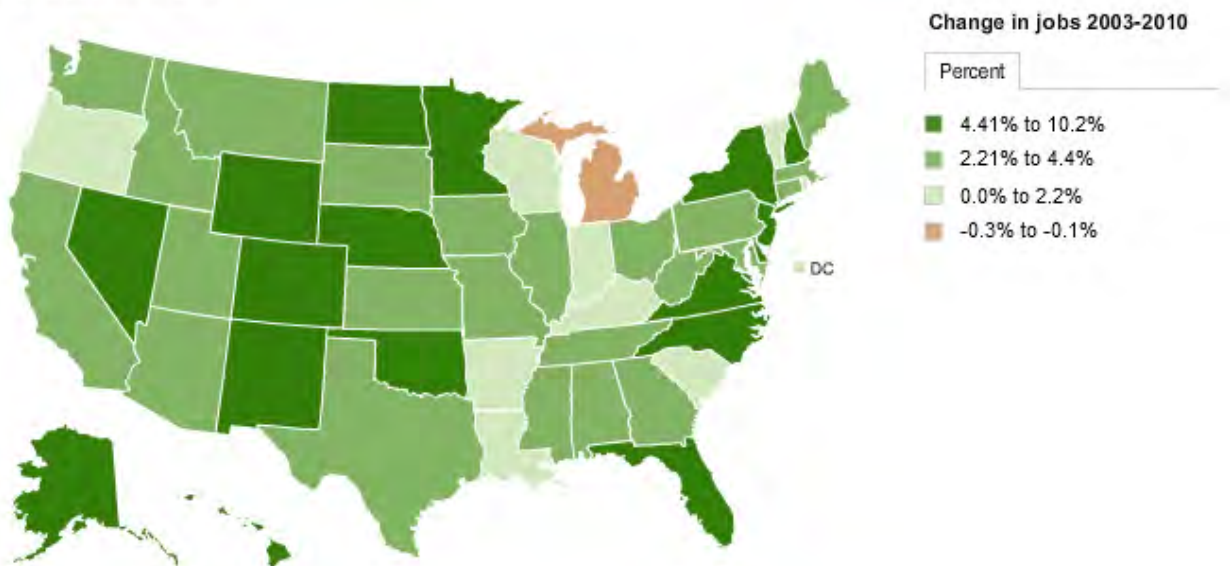
Source: DLIR Beyond the Baseline Report, Appendix A: Green Jobs by Industry

Aggregate Clean Economy

Hawaii ranked third in the nation in clean energy jobs from 2003-2010 by the Brookings Institute. The chart below illustrates Hawaii as being in the top percentile in this nation-wide study.

Aggregate Clean Economy

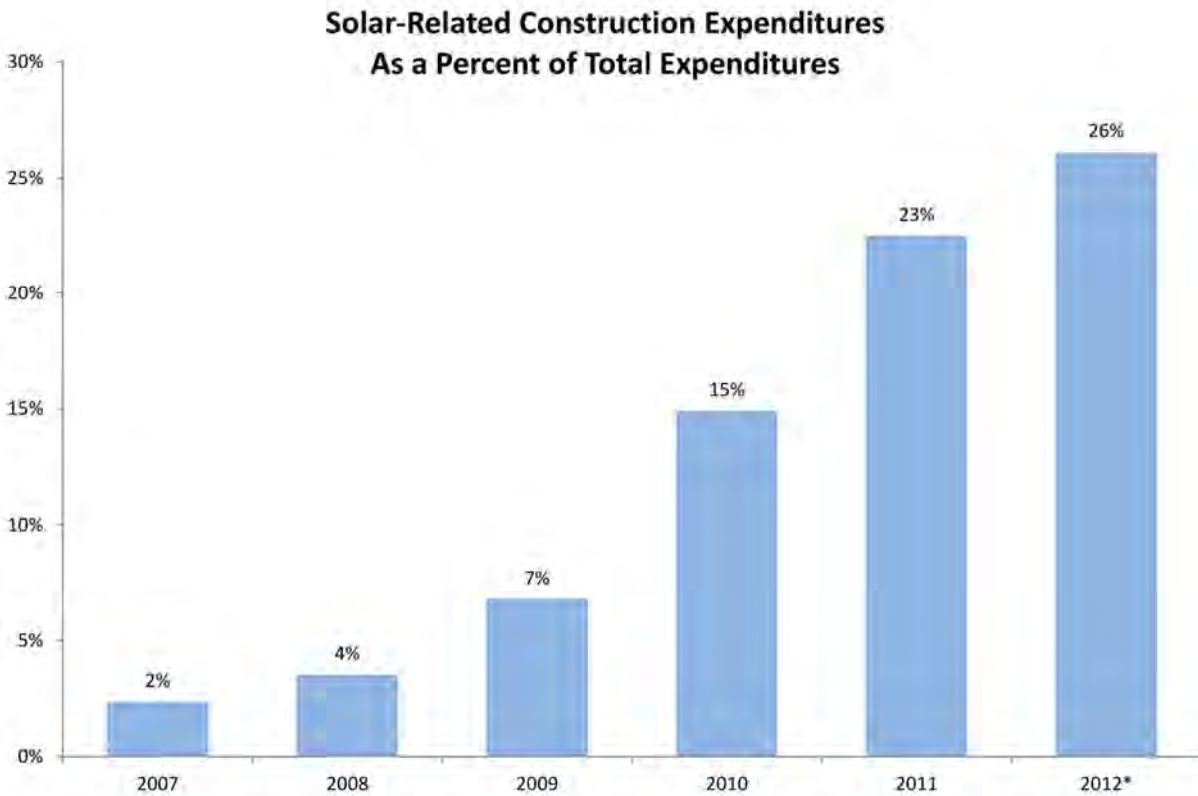
Change in jobs 2003-2010



Source: *Sizing the Clean Economy*, August 2011 (Brookings Institute)

Solar-Related Construction Expenditures

Hawaii's solar industry has had a significant impact on the construction industry. As of 2012, it accounted for 26% of all construction expenditures in the State, providing a much needed stimulus to the construction industry, which has been severely impacted by the downturn in real estate development.



Source: October 2012 (Department of Business, Economic Development & Tourism)

*Estimated



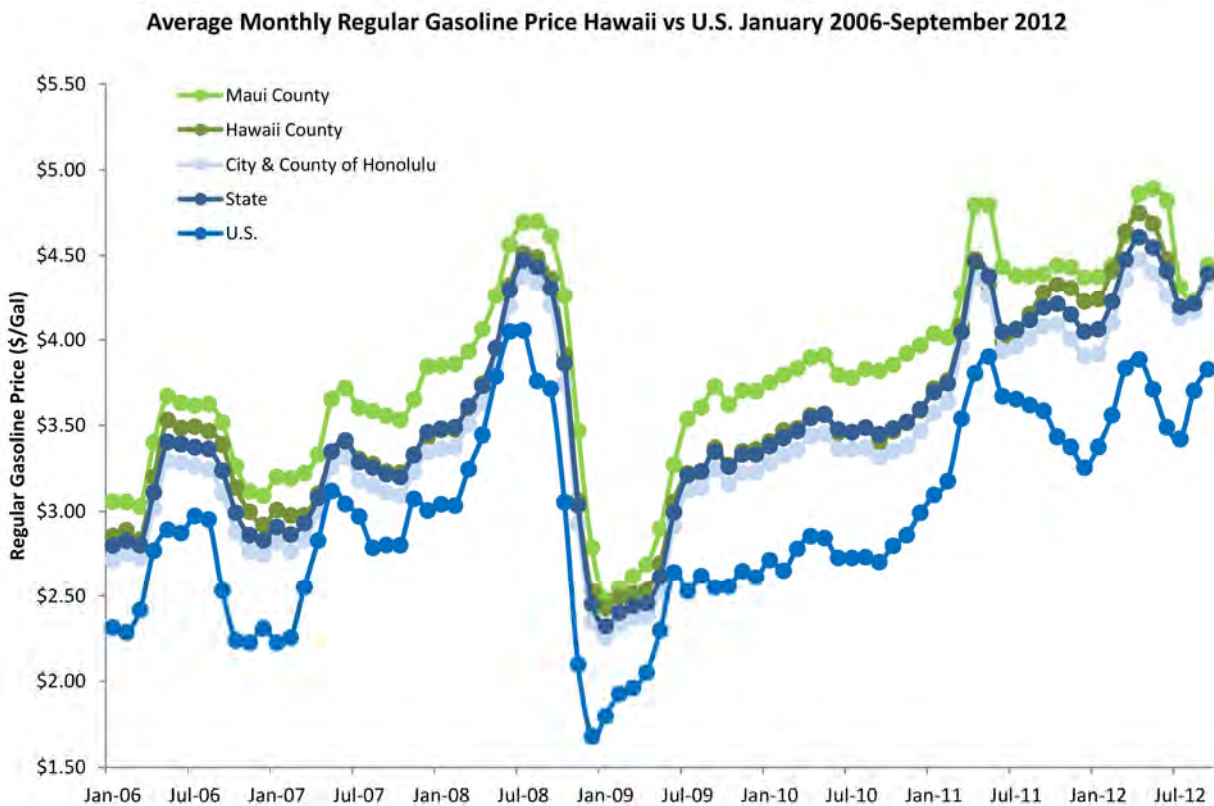
TRANSPORTATION

TRANSPORTATION ON THE MOVE

To reduce Hawaii's consumption of petroleum within the transportation sector, the State Energy Office is looking at plug in electric vehicles (EV) as well as other alternative transportation solutions to address the challenges of modernizing our energy system and building a clean transportation future. Hawaii's leaders and stakeholders view the adoption and widespread deployment of EVs as a key approach towards the reduction of our fossil fuel dependency. To date, there are 1,016 EVs registered in Hawaii, up from 581 at the end of 2011. According to an October 31, 2012 Edmunds.com press release, Hawaii ranks 10th in the nation for EV registrations, with 2.9% of all EVs sold in the country in 2012 being here in the islands.

Average Monthly Regular Gasoline Price Hawaii vs U.S. January 2006-September 2012

Hawaii's gasoline prices are consistently higher than the national average. From 2006 to September 2012, the monthly state average regular gasoline prices ranged from \$2.80 to \$4.39 per gallon, whereas the national average ranged from \$2.29 to \$3.83 per gallon. Of the various counties in the state, Maui County consistently had the highest gas prices followed by Hawaii County and the City & County of Honolulu. Kauai County data points are not included as the data source for this chart does not track monthly regular gasoline prices for Kauai County.



Source: Monthly Energy Trends, 2006-2012 (DBEDT)

Current EV Charging Network

The adoption of public charging locations will play a vital role in limiting EV drivers' range anxiety and reaching the HCEI target of reducing petroleum use for ground transportation. The State Energy Office has recognized that charging availability is a key driver for EV adoption in Hawaii and a potential barrier if infrastructure is not developed to meet the needs of EV deployment in a timely manner. Thanks largely to the successful Hawaii EV Ready Program, Hawaii has surged to the national forefront for the deployment of public charging stations and is currently the nation's leader for public EV charging stations on a per capita basis. The following charts show Hawaii's publicly available chargers across the State, as of October 2012. Note – A 'charger' can have one or more ports. The number of 'ports' determines how many vehicles each charger can service at a time. One 'port' can service one vehicle.

Number of Publicly Available EV Chargers Installed

Island	Number of Chargers	Number of Ports
Oahu	155	179
Hawaii	20	34
Kauai	18	21
Maui	31	39
State of Hawaii	224	273

Source: Department of Business, Economic Development & Tourism, September 2012



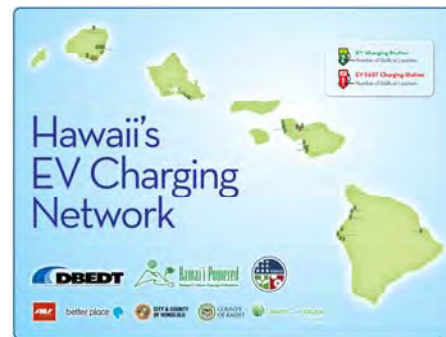
Charging station at Turtle Bay Resort, Oahu. Photo courtesy of Better Place

2012 ACTIVITIES AND PROGRAMS

THE HAWAII EV READY PROGRAM

The Hawaii State Energy Office completed The Hawaii EV Ready program, designed to help accelerate EV adoption across Hawaii. Funded by the American Recovery and Reinvestment Act (ARRA), the Hawaii EV Ready program provided grants and rebates to stimulate the market demand of EVs and charging infrastructure.

- The Hawaii EV Ready Grant Program helped to install >> over 230 Level 2 EV charging sites and six DC fast chargers, at more than 95 locations statewide. The new stations were made possible by private, Hawaii business investment, and \$2.3 million in federal ARRA stimulus funds through the Hawaii EV Ready Grant Program.



- In partnership with EV Grant recipient Plug in America, the State Energy Office published the *EV Ready Guidebook for Commercial Electric Vehicle Charging Station installations*, available free of charge online at the State Energy Office's and Plug In America's websites. >>
- Grant recipient, The City and County of Honolulu, made residential building permits available online for the installation of charging stations.
- The EV Ready Rebate program ran through April 2012 and provided rebates for the purchase of EVs and chargers. The program provided 455 rebates for EVs, and 279 public and private charger rebates.



- The EV Ready Program also allocated \$475,500 to the State of Hawaii's Department of Accounting and General Services Automotive Management Division. The Division's State motor pool purchased a total of 10 EVs (Chevrolet Volts and Nissan LEAFs) and installed over a dozen level two charging stations at the state motor pool and in state owned public parking lots.

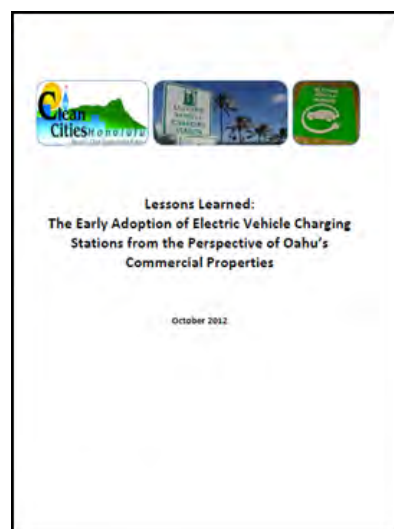
MAUI ELECTRIC VEHICLE ALLIANCE

The State Energy Office continues to support the Maui EV Alliance under the Department of Energy “Clean Cities Community Readiness and Planning for Plug-In Electric Vehicles and Charging Infrastructure” grant, which was awarded to the University of Hawaii Maui College in September 2011. The primary goal of the grant project is to develop an EV Implementation Plan for Maui County. The plan is intended to be a model that can be adapted for broader application across the State of Hawaii and other regions of the United States.

The State Energy Office is drafting an EV report for the Maui EV Alliance titled: *Driving EVs Forward: A Case Study of the Market Introduction and Deployment of the EV in Hawaii*. The purpose of the report is to share Hawaii’s experiences on EV demonstration and deployment, identify challenges and opportunities, and highlight best practices for creating a prosperous EV market in Hawaii.

HONOLULU CLEAN CITIES

The State Energy Office partnered with the Honolulu Clean Cities Coalition to directly assist the Maui EV Alliance. The Energy Office provided technical advice and information pertaining directly to the preparation and editing of Honolulu Clean Cities Coalition recently published report titled: “Lessons Learned: The Early Adoption of Electric Vehicle Charging Stations from the Perspective of Oahu’s Commercial Properties.” The report is available free of charge online at the State Energy Office’s and Honolulu Clean Cities’ websites: energy.hawaii.gov
honolulucleancities.org



STATE OF HAWAII EV CHARGING STATIONS DATABASE

The State Energy Office has created a statewide database for publicly available EV charging stations and continuously updates the database as new charging stations come online. The database provides general directions to EV chargers by island, city, zip code, parking lot, street address, station availability (hours), number of chargers, number of ports, charger level, charge fee, and manufacturer. The database is available for download on the State Energy Office website – energy.hawaii.gov.



INNOVATION, PLANNING & POLICY

SEEKING, ATTRACTING AND DEVELOPING CLEAN ENERGY OPPORTUNITIES

With the evolving energy environment in Hawaii, the State is also focused on expanding the current clean energy momentum to spur economic development and diversification with sustainable job and business growth through the creation of an innovation ecosystem. The State Energy Office has a new focus on Innovation, Planning and Policy to help shape the State's energy future through core policy and planning activities and by attracting innovation and investment opportunities, including positioning Hawaii as the clean energy test bed of the world.

2012 ACTIVITIES AND PROGRAMS

ENERGY POLICIES

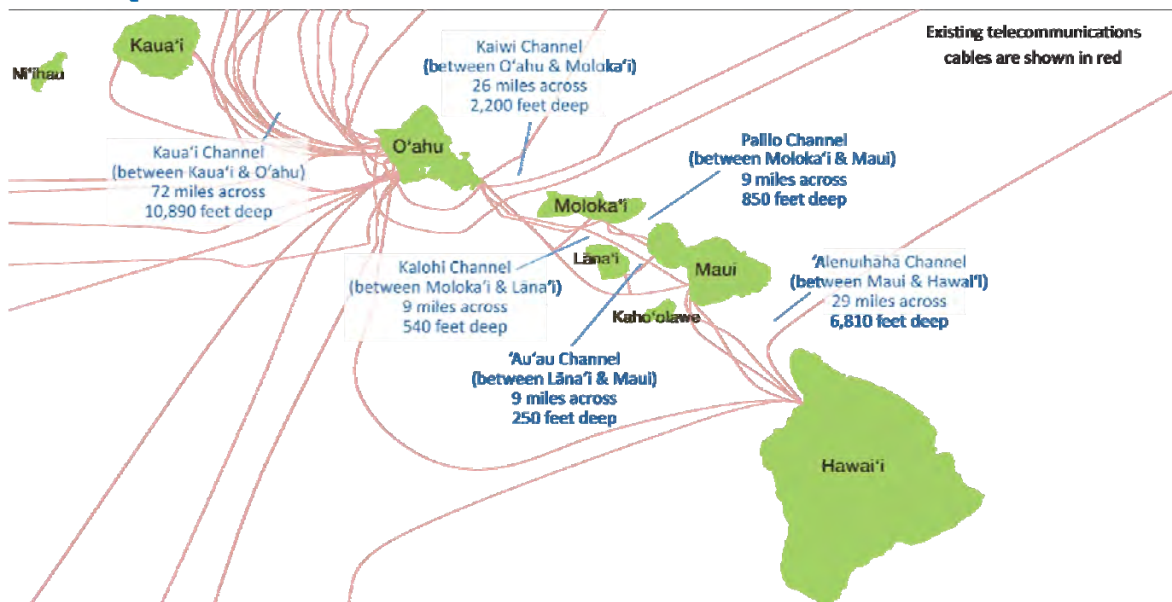
The State Energy Office continues to lead DBEDT's participation in major energy policy issues and decisions to ensure Hawaii's energy transformation to reduce its dependence on imported foreign oil.

ACT 165 – INTERISLAND ELECTRIC TRANSMISSION CABLE SYSTEMS

On June 27, 2012, Governor Neil Abercrombie signed into law the bill aimed to move Hawaii forward in reducing its dependence on imported oil. The measure enacted was Senate Bill 2785, now known as Act 165. Senate Bill 2785 established a regulatory structure for the installation and implementation of an interisland high-voltage electric transmission cable system and for the construction of on-island transmission infrastructure. Interconnecting the islands will provide an effective and efficient means to introduce significantly more renewable energy into a stable grid environment and is an important step in securing more uniform and predictable electricity rates throughout the State.

- Among Governor Neil Abercrombie's priority bills this past session.
- Established the regulatory structure under which interisland transmission cables can be developed, financed, and constructed on commercially reasonable terms.
- Amended other sections of the Hawaii Revised Statutes to reflect the existence of a separate and distinct entity transmitting power to and receiving revenue from an existing electric utility that is not owned or controlled by that electric utility.

Hawaii's High-Tech Cable Network



Source: Bureau of Ocean & Energy Management & National Oceanic & Atmospheric Administration

INTEGRATED RESOURCE PLANNING (IRP): ENERGY PLANNING

- The PUC approved a new framework for a broader, more dynamic IRP process that uses scenarios to develop clean energy plans with consideration for the range of possible futures we may face.
- PUC issued Order No. 30233 on March 1, 2012 to initiate HECO Companies' Integrated Resource Planning Process based on the revised IRP framework.
- A large community advisory group from across the state has convened to represent diverse community, environmental, social, political, and cultural interests consistent with the goal of the IRP.

ACT 97—RELATED TO GEOTHERMAL EXPLORATION AND DEVELOPMENT

- Removed the geothermal resource subzone designation process and allows geothermal development in all State Land Districts (all other permits apply). The Subzone designation process was viewed as an additional regulatory step that provided safeguards otherwise mandated in other required approvals and permits.
- Differentiated 'exploration' and 'development' to clarify which exploratory activities can be conducted without the same level of regulation (permits) required for development activities. The changes should facilitate geothermal exploration and development without increased environmental risk.

ACT 89—RELATED TO ELECTRIC VEHICLE PARKING ACCOMMODATIONS

- Updated Act 156, 2009 EV parking requirement to require public accommodations with over 100 stalls available to the public to set aside at least one parking stall to be designated for the exclusive use of EVs, removing the Act 156's 1% requirement.
- Allows EV parking stalls to be located anywhere in the parking structure or lot, provided that the EV parking stalls do not displace or reduce accessible stalls required by the Americans with Disabilities Act Accessibility.

**ACT 168—RELATED TO ELECTRIC VEHICLE PARKING**

- Added time restrictions to free EV parking incentive and defines EVs to federal standards.
- With the new definition of EVs, County vehicle registration agencies in Hawaii are now required to define all types of EVs as Electric. For example, the plug-in Toyota Prius Hybrid qualifies as an EV.

HAWAII'S ENERGY ASSURANCE PROGRAM

The State Energy Office leads the State government's effort to ensure a robust, secure, and resilient energy infrastructure in the contemporary energy ecosystem. DBEDT works closely with State Civil Defense and dozens of government and industry emergency management and security partners to lower vulnerabilities, deter threats, minimize the consequences of energy disruptions, and enhance recovery of Hawaii's energy systems, resources, and markets.


Hawaii's Energy Assurance Program provides organizational and planning coordination and support to facilitate the rapid restoration of Hawaii's physical, human and cyber energy infrastructure in a disruption event, as well as works to mitigate impacts of any energy shortage. On a daily basis, the Energy Assurance Program tracks natural and manmade energy disruption events and homeland security related incidents which could impact Hawaii's energy supply and delivery.

ENERGY ASSURANCE EXERCISE

The State Energy Office coordinated the State of Hawaii Energy Assurance Plan (EAP) Tabletop Exercise (TTX) in July. The TTX provided participants an opportunity to evaluate the effectiveness of energy response plans in the event of an energy disruption or emergency impacting the State. Over 80 representatives from Federal, State and County government, agencies with energy and emergency management responsibilities, the energy industry, and personnel involved in critical infrastructure protection participated. Participants demonstrated capabilities in planning, restoration of lifelines, communications, and economic and community recovery. Participants identified strengths and areas for improvement in the EAP and each agency's emergency response. During the exercise, participants discussed current EAP policies and procedures, emergency response best practices, and potential solutions. Participants identified ways to improve their agency's energy related operations. The TTX resulted in renewed commitment and focus on state level energy assurance partnerships, coordination, and planning.

INTERNATIONAL AGREEMENTS

International agreements advance Hawaii's clean energy infrastructure deployment and solidify Hawaii as the clean energy test bed of the Asia Pacific.

Clean Energy Investment and Deployment Program	Japan-U.S. Island Grid Project	Korea Smart Grid Project
		
Description Agreement with the China Council for Promotion of International Trade (CCPIT) to promote Chinese clean energy investment and deployment in Hawaii.	Description Agreement with New Energy and Industrial Technology Development Organization (NEDO) for a \$37 million research and development partnership to demonstrate advanced smart grid technologies on Maui.	Description Partnership with Korea Smart Grid Institute (KSGI) to pilot advanced energy efficiency and micro smart grid technologies in Oahu hotels, as well as explore business opportunities for EV sharing.
Objective Advance clean energy deployment in the Asia Pacific	Objective Showcase Hawaii as the clean energy test bed of the Asia Pacific	Objective Showcase Hawaii as the clean energy test bed of the Asia Pacific
Partner China Council for the Promotion of International Trade (CCPIT)	Partner New Energy and Industrial Technology Development Organization (NEDO)	Partner Korea Smart Grid Institute (KSGI)
Participating Organizations Currently identifying companies to partner	Participating Organizations Japan: <i>Hitachi, Mizuho, CyberDefense</i> Hawaii: <i>US DOE & national labs, HECO, MECO, HNEI MEDB, Maui County</i>	Potential Participating Organizations Korea: <i>LG Electronics, Nara Controls, Hyundai, Hyosung, KT</i> Hawaii: <i>Royal Hawaiian Hotel, Moana Surfrider Hotel, Sheraton Waikiki Hotel, Enterprise Car Rental, Green Car Hawaii, HECO, HNEI</i>
Status MOU completed August 12, 2012. Currently planning program activities and events.	Status MOU completed November 22, 2011. AEC Hawaii established as Hitachi's Hawaii entity. Starting volunteer recruitment activities.	Status MOU to be completed end of 2012/ beginning of 2013

2012 Asia Pacific Clean Energy Summit and Expo

2012 ASIA PACIFIC CLEAN ENERGY SUMMIT AND EXPO

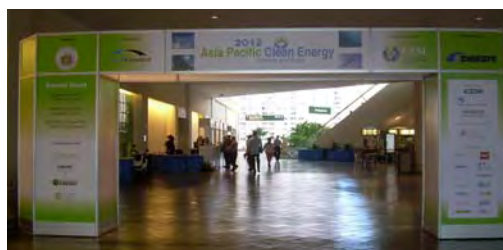
The State Energy Office held a successful Asia Pacific Clean Energy Summit and Expo (APCESE) in August 2012 to showcase the State's abilities as a model for innovative clean energy test beds. Approximately 780 attendees representing 19 countries including the United States, Japan, South Korea, China and Australia packed the Hawaii Convention Center for the three-day conference, which included informative panel discussions, an interactive expo and networking opportunities.

- APCESE provided 21 breakout panel sessions featuring 123 speakers representing a comprehensive array of clean energy topics, covering areas of Power Generation and Management, Integration and Transportation Solutions, Global and Hawaii Project Opportunities and Military Opportunities and Programs.
- The Defense Energy Technology Challenge (DETC) received more than 250 submissions of which 18 were from Hawaii. The top nine DETC projects and top seven Transformative Reduction in Operational Energy Consumption (TROPEC) projects made presentations to defense, clean industry and investment communities with real-time feedback and potential matching with test and procurement opportunities. Of the 18 Hawaii submissions, five were chosen to present.
- The Project Finance Connect Program received just over 100 submissions of which seven were from Hawaii. The program matched growth stage companies and clean energy projects with finance sources, developers and partners.
- There were also more than 130 Poster Presentation submissions of which 22 were from Hawaii.
- New to APCESE this year was a “matchmaking” service that highlighted 50 clean energy project ideas in various stages of development and provided opportunities for investors to make one-on-one appointments with them. Fifteen of the 50 projects were from Hawaii.



“This year’s Summit was tremendously successful in bringing together all the stakeholders in clean energy, not only in the State of Hawaii, but also internationally. I particularly found the Defense Energy Technology Challenge presentations useful in identifying new, refreshing, innovative and promising solutions.”

- George Kailiwai III
Director, Resources and Assessments (J8)
United State Pacific Command





FUNDING: ESSF & GRANTS

DBEDT's Strategic Industries Division has historically received funds from state and federal sources, with its programmatic budget being 90% federally funded. In 2012, the State Energy Office moved towards converting 100% of its fiscal intake from the State-allocated Act 73 Energy Security Special Fund (ESSF) and the per-barrel tax on petroleum products. At the same time, the State Energy Office reduced its staff from 43 to 34 positions. The State Energy Office has allocated these resources toward pivotal energy-related programs and energy efficiency initiatives in support of growing Hawaii's clean energy economy and achieving the Hawaii Clean Energy Initiative (HCEI) goal of 70% clean energy by 2030.

DBEDT Strategic Industries Division: Revenue and Expenses

For the 2012 fiscal year, the Strategic Industries Division's revenues and expenditures by source of funding were as follows:

DBEDT Strategic Industries Division: Revenue and Expenses			
SOURCE	REVENUES	EXPENDITURES	
		PERSONNEL	OPERATING EXPENSES (e.g., Travel, Equipment, Supplies, Contracts)
Energy Security Special Fund *	\$ 4,157,410.61	\$ 1,625,676.06	\$ 729,623.55
USDOE State Energy Program Formula Grant	\$ 154,433.52	-	-
USDOE State Energy Program Recovery Act Grant	\$ 11,741,867.31	\$ 1,179,685.71	\$ 10,539,805.31
USDOE Energy Efficiency Recovery Act Grant	\$ 1,759,613.12	\$ 152,081.31	\$ 1,609,205.30
USDOE Energy Assurance Planning Recovery Act Grant	\$ 142,682.11	\$ 4,169.96	\$ 142,720.13
ARPA-e Grant	\$ 6,357.00	-	-
USEPA Cooperative Agreement	\$ 46,610.52	-	\$ 46,610.52
NASA Grant	\$ 50,000.00	-	\$ 50,000.00
USDOE HI Renewable Energy Grid Project Grant	\$ 40,000.00	-	\$ 40,000.00
PVE - Stripper Well Funds	\$ 74.20		
PVE - Exxon Funds	\$ 41,060.25	\$ 100,504.15	\$ 137,162.49
PVE - Chevron Funds	\$ 10,859.17	\$ 57,264.65	-
US Dept of Education College Access Challenge Grant	\$ 65,304.01	-	\$ 65,304.01
USDOE State Energy Program Initiatives Grant	\$ 7,544.40	-	\$ 5,216.37
General Fund Aerospace	-	\$ 213,390.09	\$ 61,079.62
General Fund Business/Education Internship & Mentorship Program	-	-	\$ 14,281.04
TOTAL	\$ 18,223,816.22	\$ 3,332,771.93	\$ 13,441,008.34

* ESSF revenue from Environmental Response, Energy, and Food Security Tax: \$3,944,150

ACT 73 - ENERGY SECURITY SPECIAL FUND

In 2010, the Hawaii State Legislature concluded it is in the best interest of Hawaii's residents to become self-sufficient in energy and food needs and to protect the health and function of the environment. Recognizing that Hawaii is endowed with the assets needed to significantly improve its energy independence and food sustainability over the next twenty years, if appropriate personnel resources and funding are used wisely, the legislature agreed that the state must ensure both immediate and long-term strategies are well-resourced, coordinated and focused. As such, the legislature passed Act 73 – Energy Security Special Fund (ESSF) to allocate critical resources to HCEI and the State Energy Office. More specifically, Act 73 is designed to:

- Promote economic development for local food and energy businesses by providing necessary funding, guidance, and infrastructure;
- Ensure Hawaii is energy and food self-sufficient and sustainable to the maximum extent feasible;
- Help Hawaii's natural resources and population adapt and be resilient to the inevitable challenges brought on by climate change;
- Create a Hawaii economic development task force to accelerate and support public and private efforts to make Hawaii energy and food self-sufficient, consistent with the "Hawaii 2050 Sustainability Plan," the "Hawaii Clean Energy Initiative," and other government and community planning efforts (*The Hawaii Economic Development Task Force submitted its final report to the Legislature in 2012, and in accordance with the statute's provision, it has ceased to exist on June 30, 2012*);
- Establish an agricultural development and food security special fund to fund activities intended to increase agricultural production or processing that may lead to reduced importation of food, fodder or feed from outside the state;
- Establish a clean energy initiative to manage the state's transition to a clean energy economy; and
- Establish an energy system development special fund within the Hawaii Natural Energy Institute at the University of Hawaii.

The legislature also agreed that undertaking the important task of energy and food security requires a long-term commitment and the investment of substantial financial resources. To that end, Act 73 also increased the per-barrel tax on petroleum products under the environmental response, energy and food security tax, formerly known as the environmental response tax.

Energy Security Special Fund—Obligated & Planned Investments

With the reduction in American Recovery and Reinvestment Act (ARRA) funding for the 2013 fiscal year, the ESSF will cover a substantially larger portion of the State Energy Office's personnel costs and program support.

ENERGY SECURITY SPECIAL FUND - OBLIGATED & PLANNED INVESTMENTS		
INITIATIVE	2012 OBLIGATED	2013 BUDGETED
Agricultural Business Plan Competition - Kauai EDB	\$ 37,500.00	
Agricultural Web Portal Expansion - Hawaii Island EDB	\$ 35,000.00	
Biopower System Evaluation - Kauai EDB	\$ 37,500.00	
Community Engagement Meetings - Enterprise Honolulu (Oahu EDB)	\$ 75,000.00	
Energy & Economic Data and Research Website - DBEDT	\$ 15,000.00	
Energy Education / Outreach - State Energy Office	\$ 43,735.00	
Hawaii County Clean Energy E-initiative - Hawaii Island EDB	\$ 40,000.00	
Hawaii Economic Development Task Force Support	\$ 5,884.00	
Hawaii State Energy Office - Personnel Costs	\$ 1,623,156.65	\$ 2,669,697.00
Network Installation - State Energy Office	\$ 82,000.00	
Program Portfolio and Data Repository - State Energy Office	\$ 125,000.00	
Program Support - State Energy Office	\$ 189,570.54	\$ 166,046.00
PV Working Group Meeting Support - County of Hawaii	\$ 550.00	
Renewable Energy Mapping Project - State Energy Office	\$ 96,303.00	
Renewable Energy Resource Center - Maui EDB	\$ 50,000.00	
Renewable Energy Support Project (PEIS)	\$ 250,000.00	
Represent Energy Community Interests & Expand Services - C&C Honolulu	\$ 75,000.00	
Special Fund Assessments	\$ 229,000.00	\$ 215,099.00
Technical Assistance for EE Buildings - State Energy Office		\$ 22,000.00
WaterStory Outreach - Maui Economic Development	\$ 25,000.00	
TOTAL	\$ 3,035,199.19	\$ 3,072,842.00

DBEDT Strategic Industries Division - Federal Grants Portfolio

The State Energy Office's Federal Grants Portfolio is comprised of a number of competitive and non-competitive grants.

DBEDT Strategic Industries Division - Federal Grants Portfolio				
Funding Agency	Award Title	Award Amount	Grant Objective	Partners
USDOE - NETL	Recovery Act: State Energy Program for State of Hawaii	\$ 25,930,000.00	To design and carry out the Hawaii State Energy Office's energy efficiency and renewable energy programs, including administration, community outreach, high performance buildings, loan loss reserve program, renewable energy, and transportation energy transformation. Term: Apr 2009 - Dec 2012.	Various
USEPA	Hawaii Green Intern Development and Pollution Prevention Project	\$ 74,000.00	To train and deploy student interns to promote Pollution Prevention, Resource Conservation, Waste Minimization by enrolling businesses, hotels, and governmental office in the Green Business Program and Green Government Challenge and providing them with technical assistance. Term: Oct 2010 - Dec 2012.	Hawaiian Electric Company Hawaii Pacific University Chamber of Commerce of Hawaii Hawaii Dept. of Health City & County of Honolulu Rebuild Hawaii
USDOE - EERE	State Energy Program Special Projects - Hydrogen Power Park	\$ 1,650,000.00	To conduct engineering and economic validation of pre-commercial hydrogen technologies. Term: Oct 2002 - Dec 2014.	University of Hawaii - Hawaii Natural Energy Institute
USDOE - NETL	Hawaii Renewable Energy Grid Project	\$ 500,000.00	To establish a regulatory and policy framework that will enable and accelerate the integration of utility scale renewable energy using innovative demand side management, storage, smart grid, plus transmission and delivery technologies for the grid infrastructure of Hawaii. Term: Oct 2008 - Sep 2013.	University of Hawaii - Hawaii Natural Energy Institute
USDOE - NETL	Recovery Act: Energy Assurance Planning - State of Hawaii	\$ 318,195.00	To strengthen and expand State and local government energy assurance planning and resilience efforts by incorporating response actions for new energy portfolios and Smart Grid applications, to create jobs, and to build in-house State and local government energy assurance expertise. Term: Aug 2009 - Mar 2013.	Science Applications International Corp
USDOE - EERE	Recovery Act: State of Hawaii Energy Efficiency & Conservation Block Grant	\$ 9,593,500.00	To implement the Hawaii State Energy Office's Energy Efficiency & Conservation Strategy in order to reduce fossil fuel emissions; reduce total energy use of the eligible entities; and improve energy efficiency in the building sector, the transportation sector, and other appropriate sectors, along with creating jobs. Term: Sep 2009 - Sep 2013.	Various
USDOE - EERE	State Energy Program (SEP) Formula (2010, 2011, 2012)	\$ 663,829.00	To design and carry out the Hawaii State Energy Office's energy efficiency and renewable energy programs. Term: Jul 2010 - Jun 2013.	
USDOE - EERE	Hawaii's Clean Energy Transformation and Grid Connection	\$ 750,000.00	To reduce market barriers and costs of greater renewable energy penetration under HCFI by providing technical assistance on regulatory, financial, and utility solutions, particularly focused on adoption of a variety of grid reliability and interconnection standards and by developing streamlined permitting processes and online tools. Term: Sep 2011 - Aug 2013.	Duncan, Weinberg, Genger & Pembroke
USDOE (subaward)	Clean Cities Community Readiness & Planning for EVs and Charging Infrastructure	\$ 16,000.00	To create a sustainable implementation plan for EV deployment and charging infrastructure in Maui County with applications to other neighbor islands and the State of Hawaii. Term: Oct 2011 - Jun 2013.	University of Hawaii Maui College
USDA - Rural Development	Hawaii Energy Audit Program for Eligible Rural Small Businesses and Farmers in Oahu, Maui, and Hawaii	\$ 100,000.00	To prepare Investment Grade Energy Audits (IGA) for rural small businesses and farmers. Term: Feb 2012 - Feb 2014.	Hawaii Energy County of Maui County of Hawaii
USDOE - EERE	Advancing Energy Efficiency in Hawaii Public Facilities	\$ 350,000.00	To strengthen, enhance, and expand the State's existing energy efficiency program by using Energy Star Portfolio Manager (PM) to benchmark appropriate State Executive Branch facilities and use the results to encourage state agencies to bundle facilities to pursue energy efficiency through energy savings performance contracts or other financing mechanisms. Term: Sep 2012 - Sep 2015.	Hawaii Public Benefits Fee Administrator (SAIC/RW Beck) Hawaii Dept. of Accounting & General Services - Public Works Division Hawaii Energy