State of Hawaii
Energy Resources Coordinator's
ANNUAL REPORT 2013

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

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Special Message from Governor Neil Abercrombie

In Recognition of the

2013 Energy Resources Coordinator's Annual Report

December 20, 2013

On behalf of the people of Hawai'i, I am pleased to extend a warm *aloha* to all those whose dedication to our state's goal of energy independence have contributed to the 2013 Energy Resources Coordinator's Annual Report.

As we focus on reaching and exceeding our clean energy targets, I would like to commend the collective efforts of public, private, nonprofit and community stakeholders who each play a significant role in our energy independence quest. Their leadership, determination and innovation have resulted in measurable gains and improvements in the areas of renewable energy, efficiency, and economic growth. Our continued collaboration will sustain our momentum toward a clean energy future.

I'd like to congratulate the State of Hawai'i Department of Business, Economic Development and Tourism, our energy partners, and all the people of Hawai'i for the accomplishments detailed in this annual report, and I reaffirm the Aloha State's commitment to further progress.

Imua Hawai'i,

Neil Abercrombie

NEIL ABERCROMBIE
Governor, State of Hawai'i

INTRODUCTION

Richard C. Lim, Director
Department of Business, Economic Development and Tourism

This edition of the Energy Resources Coordinator's (ERC) Annual Report provides an overview and summary of the State of Hawaii's clean energy agenda and accomplishments achieved in 2013. The state continues to make great progress in reaching its aggressive 70% clean energy goal by 2030. Since the establishment of these goals through the landmark Hawaii Clean Energy Initiative (HCEI) agreement, we have implemented many foundational policies and projects, which have earned Hawaii global and national recognition as a clean energy leader.

The Abercrombie Administration has focused the next phase of Hawaii's energy transformation on the following five principles:

- Diversifying our energy portfolio
- Connecting the islands through integrated, modernized grids
- Balancing technical, economic, environmental, and cultural considerations
- Leveraging our international status as a clean energy test bed
- Allowing the market to pick winners

Hawaii is poised not only to meet our clean energy goals, but we are committed to maximize our resources and partnerships to exceed our clean energy goals. As this ERC report will demonstrate, the State of Hawaii is focused on stimulating the development of clean energy projects, spurring economic growth and ensuring energy security for the people of Hawaii.

EXECUTIVE SUMMARY

TRANSFORMING THE CLEAN ENERGY FUTURE FOR HAWAII

As the ERC, it is the statutory responsibility of the director of the Department of Business, Economic Development and Tourism (DBEDT) under Hawaii Revised Statutes (HRS) 196 to review proposed state actions that the ERC finds to have significant effects on the state's energy objectives and to report to the governor their effects on the energy program. The ERC has charged the State Energy Office (SEO) with planning and carrying out the state's energy agenda and with identifying the high impact solutions that make the biggest difference on fulfilling the state's energy objectives. A critical determination is that an interconnected grid system, or interisland cable, between Oahu and Maui, and ultimately to Hawaii island has such significance. Also of significance are initiatives to remove barriers to the development of renewable energy and conservation measures through its emphasis on innovative clean energy policies and deployment of high-impact solutions, including participating in regulatory proceedings and development of self-help, publicly accessible online tools and resources.

Furthermore, through HCEI, a groundbreaking partnership between the State of Hawaii, the U.S. Department of Energy, the military and the public and private sectors, we have and will continue to transform Hawaii's economy from one that is dependent on fossil fuels to a leader in renewable energy and energy efficiency within a single generation.

By 2030, Hawaii must:

- Reduce electrical energy consumption by 30%;
- Increase electrical generation from renewable resources to 40%; and
- Reduce the use of petroleum for ground transportation by 70%.

These are not only HCEI mandates but also prescribed by law (Act 95, Session Laws of Hawaii (SLH) in 2004) under Chapter 269, HRS. The following "Energy Snapshots" will show the effect that HCEI, coupled with strong state policies and the governor's guiding energy transformation principles, have had on the realization of renewable energy and energy conservation targets.

Under the leadership of Gov. Neil Abercrombie, SEO works to make sustainability, energy security, and economic growth a reality for Hawaii by aligning policies among government agencies and the private sector. SEO also works to provide the framework and tools for energy developers and investors to pursue opportunities to further Hawaii's clean energy economy.

RENEWABLE ENERGY

Our state's abundance of diverse, natural resources and unique geography and location make for an ideal proving ground for clean energy solutions in the Asia Pacific region. During the last 18 months alone, the following projects have gone live:

- Auwahi Wind Farm
- Big Island Biodiesel
- H-POWER Expansion
- Kaheawa Wind Power 2
- Kalaeloa Solar Power II
- Kapolei Sustainable Energy Park
- Kawailoa Wind
- MP2 Solar Project
- Off-Grid Agricultural Pumping Wind Project
- Pearl City Peninsula Solar Energy Facility
- Port Allen Solar Facility
- Puna Geothermal Expansion
- UOP Integrated Bio-Refinery Pilot Project

The investment is paying off:

- In 2012, Hawaii generated more than 13% of its energy from renewable resources
- We are on track to achieving our Renewable Portfolio Standard (RPS) goal of 15% in 2015, giving us a jumpstart on reaching our 2020 RPS target of 25%
- Multiple national reports rank Hawaii as one of the leading states for solar installations in 2012

ENERGY EFFICIENCY

Hawaii is a nationally recognized leader in energy efficiency and conservation measures. We have ranked first in the nation in energy savings performance contracting (ESPC) two years in a row. Through this and our Lead by Example initiative, in which the state government is implementing efficiency measures in our own buildings, we are finding much success in the efficiency sector. As of 2012, the state achieved a 14.47% reduction in energy consumption, nearly half way to our Energy Efficiency Portfolio Standard (EEPS) goal of 30% by the year 2030. And in June 2013, SEO presented a bold efficiency plan to the prestigious Clinton Global Initiative America by committing a $300 million ESPC investment over the next two fiscal years.

ENTREPRENEURSHIP AND INNOVATION

The clean energy sector has become a significant driver in our state's economy. Entrepreneurs, driven by passion and powered by ingenuity, are helping to secure Hawaii's energy future by developing innovative technologies that can be deployed in communities statewide and beyond. This seedbed of innovation and creativity makes Hawaii a global leader in clean energy solutions for energy independence and economic growth.

Innovation is accelerating at a rapid rate, which in turn stimulates our economic growth. To help drive this energy revolution, SEO works as a catalyst by fostering bold policy solutions and providing a suite of self-help tools and roadmaps to assist energy developers and attract international investment.

SEO is also taking the lead in creating innovative programs that will help make clean energy more accessible and affordable for Hawaii's families and businesses. The groundbreaking GEMS (Green Energy Market Securitization) program, passed by the 2013 state legislature and signed by Gov. Abercrombie, will open that door to those who might otherwise be unable to benefit directly from clean energy improvements.

ENERGY PROGRAM FUNDING

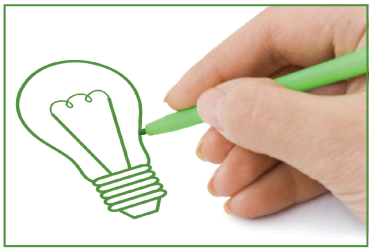
For 2013, SEO's fiscal intake was from its budgeted Energy Security Special Fund (ESSF) allocation, with the majority used to cover personnel costs for 32 staff members. SEO also led a major initiative during the 2013 Legislative Session to secure a reallocation of barrel tax funds currently going to general revenues and a repeal of the ESSF sunset date. This reallocation of funds would have resulted in increased funding for clean energy initiatives and would have been used to support SEO programs such as permitting assistance, energy efficiency and renewable energy development, and facilitating increased energy innovation activities and investment. Although this measure was unsuccessful, the SEO remains committed to identifying ways to ensure adequate long-term funding to ensure our state's clean energy transformation.

ENERGY SNAPSHOT

Hawaii is faced with many energy challenges – one of the highest electricity rates and gas prices in the nation, a heavy reliance on imported foreign oil for our electrical generation and transportation needs, and a location that makes us the most isolated populated landmass in the world.

Hawaii also has many energy possibilities. Our diverse portfolio of renewable resources is already generating nearly 14% of our state's electricity and climbing, while also creating opportunities for economic growth through development and innovation opportunities. And the state's focus on energy efficiency has gained national recognition as a leader in energy savings performance contracting.

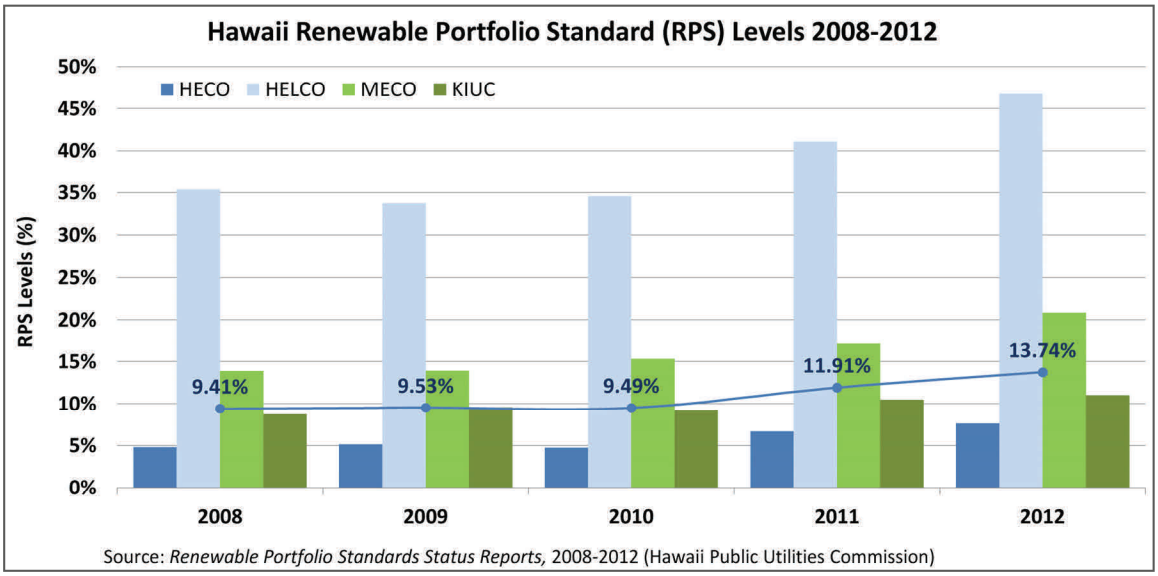
The following is a snapshot of Hawaii's current energy landscape in four key areas – Renewable Portfolio Standard, Energy Efficiency Portfolio Standard, Economic Growth, and Entrepreneurship and Innovation.



ENERGY SNAPSHOT:
RENEWABLE PORTFOLIO STANDARD (RPS)

Hawaii Renewable Portfolio Standard (RPS) Levels (2008-2012)

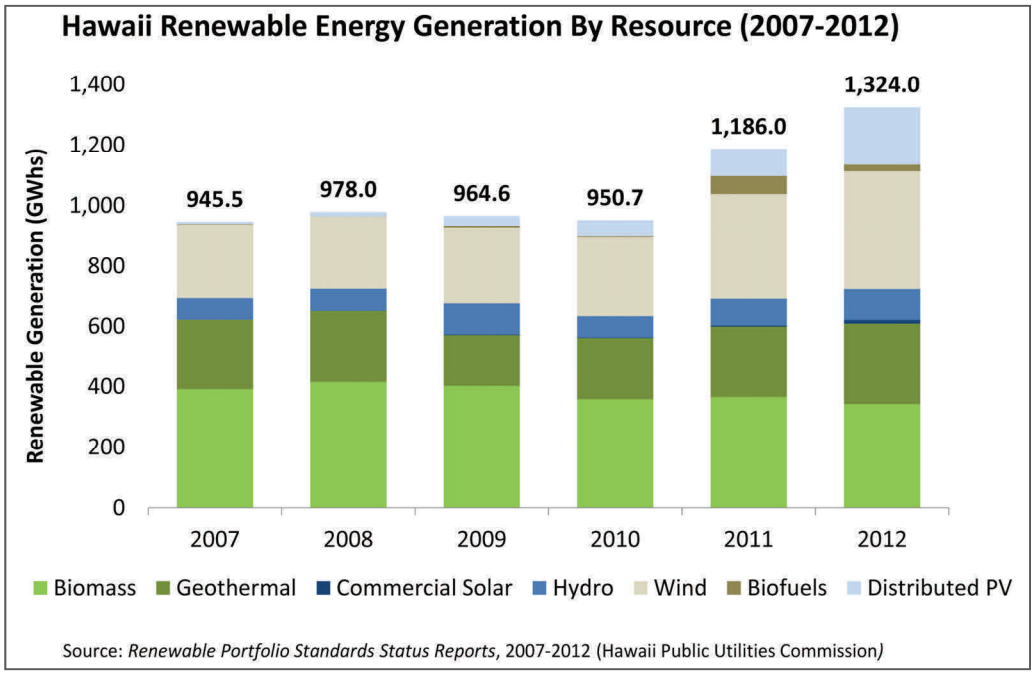
This chart shows Hawaii's Renewable Portfolio Standard (RPS) levels from 2008 (the year the Hawaii Clean Energy Initiative was established) through 2012. In 2012, the state's RPS level was 13.74%. The state is also on track to achieve its mandated 15% RPS level by the end of 2015.



Source: *Renewable Portfolio Standards Status Reports,* 2008-2012 (Hawaii Public Utilities Commission)

Hawaii Renewable Energy Generation by Resource (2007-2012)

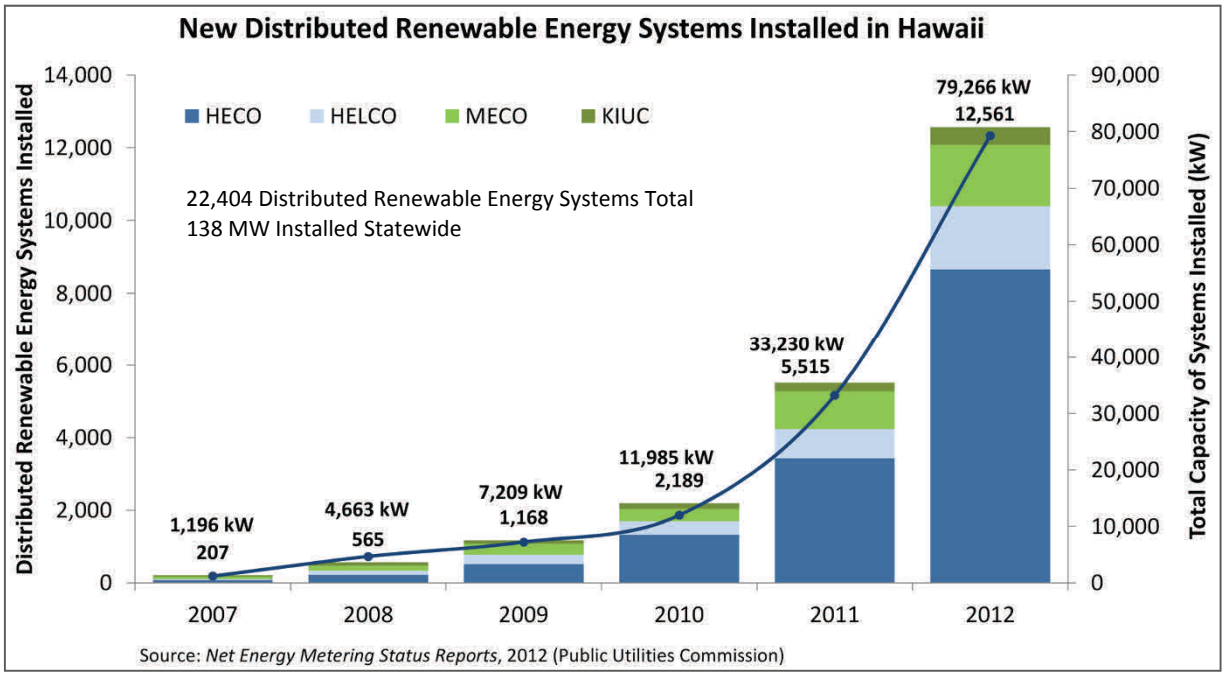
Hawaii is rich with natural resources, such as the sun, wind, ocean and geothermal resources. This chart showcases the diversity of our renewable energy portfolio, with increasing contributions from wind, geothermal, biomass and, most notably in recent years, distributed photovoltaics (PV).



Source: *Renewable Portfolio Standards Status Reports*, 2007-2012 (Hawaii Public Utilities Commission)

New Distributed Renewable Energy Systems Installed in Hawaii (2007-2012)

2012 was a banner year for distributed renewable energy systems in Hawaii with installations more than doubling from 5,515 in 2011 to 12,561 in 2012. At the end of 2012, the cumulative number of systems statewide totaled 22,404 with a total capacity of 138 MW.



RENEWABLE ENERGY PROJECT DEVELOPMENT

Since the 2012 ERC Annual Report, the following projects have come online:

- Auwahi Wind Farm (21 MW)
- Big Island Biodiesel (5 mgy)
- Kalaeloa Solar Power II (5 MW)
- Kawailoa Wind (69 MW)
- Off-Grid Agricultural Pumping Wind Project (100 kW)
- Pearl City Peninsula Solar Energy Facility (1.23 MW)
- Port Allen Solar Facility (6 MW)

NATIONAL RANKINGS

Hawaii has ranked in the top 10 on a number of national reports tracking 2012 statistics. The state's solar penetration has particularly captured the attention of multiple national reports that list Hawaii as a leader in the field. For example, an Ernst & Young index on renewable energy attractiveness notes that Hawaii jumped to #2 on its overall renewable index, stating, "Hawaii jumped from seventh to second in this edition of the all renewable index, finishing in the top seven in all individual technology indices under consideration for this study, including second in solar and third in geothermal."

Ernst & Young's United States renewable energy attractiveness indices

Hawaii ranks:

- #2 overall in the all renewable index
- #2 in long-term solar index
- #6 in long-term wind index

United State Renewable Energy Attractiveness Indices This index provides an overall score for all renewable energy technologies		
RANK	STATE	ALL RENEWABLES INDEX
1	California	75
2	**Hawaii**	**71**
3	Texas	69
3	Colorado	69
5	Nevada	68

Source: Ernst & Young LLP (USAI, August 2013)

Long-term indices: Solar		
RANK	STATE	SOLAR INDEX
1	California	79
2	**Hawaii**	**75**
3	Nevada	72
4	New Mexico	69
5	Colorado	68

Source: Ernst & Young LLP (USAI, August 2013)

Long-term indices: Wind		
RANK	STATE	WIND INDEX
1	Texas	74
2	Colorado	71
2	Illinois	71
2	Iowa	71
5	California	70
6	**Hawaii**	**67**

Source: Ernst & Young LLP (USAI, August 2013)

Solar Energy Industries Association's 2012 U.S. Solar Market Insight Report

Hawaii ranks #7 in annual PV installations

2012 Top States by Annual PV Installations	
RANK/STATE	INSTALLATIONS
1. California	1,033
2. Arizona	710
3. New Jersey	415
4. Nevada	198
5. North Carolina	132
6. Massachusetts	129
7. Hawaii	**109**
8. Maryland	74
9. Texas	64
10. New York	60

Source: U.S. Solar Market Insight Report (SEIA)

Interstate Renewable Energy Council's U.S. Solar Market Trends 2012

Hawaii ranks:

- #2 for grid-connected PV cumulative installed capacity per capita through 2012
- #7 for grid-connected PV capacity installed in 2012

Per Capita Top Ten State Ranked by Grid-Connected PV Cumulative Installed		
Rank/State	Cumulative through 2012 (W_{DC}/person)	2012 Installations (W_{DC}/person)
1. Arizona	173.1	110.9
2. Hawaii	**146.6**	**84.0**
3. Nevada	129.5	83.5
4. New Jersey	108.7	44.4
5. New Mexico	98.7	18.4
National Average	23.9	10.8

Source: IREC U.S. Solar Market Trends 2012

2012 Annual Top Ten States Ranked by Grid-Connected PV Capacity Installed in 2012		
2012 Rank by State	2012 (MW_{DC})	2011 (MW_{DC})
1. California	983	547
2. Arizona	709	228
3. New Jersey	391	305
4. Nevada	226	19
5. Massachusetts	123	42
6. North Carolina	122	45
7. Hawaii	**114**	**40**
8. Colorado	103	76
9. Maryland	80	24
10. New York	56	68

Source: IREC U.S. Solar Market Trends 2012

Environment America Research & Policy Center's Lighting the Way

Hawaii ranks:

- #2 for solar PV capacity installed 2012
- #3 for cumulative solar electricity capacity

Solar Photovoltaic Capacity Installed During 2012 per Capita	
RANK/STATE	SOLAR PV INSTALLED 2012 PER CAPITA (WATTS/PERSON)
1. Arizona	108
2. Hawaii	**78**
3. Nevada	72
4. New Jersey	47
5. Delaware	28

Source: Lighting the Way (Environment America Research & Policy Center)

Cumulative Solar Electricity Capacity per Capita	
RANK/STATE	SOLAR ELECTRICITY CAPACITY PER CAPITA (WATTS/PERSON)
1. Arizona	167
2. Nevada	146
3. Hawaii	**137**
4. New Jersey	110
5. New Mexico	91

Source: Lighting the Way (Environment America Research & Policy Center)

2013 American Council on Renewable Energy's (ACORE) Renewable Energy in the 50 States: Western Region

The American Council on Renewable Energy (ACORE) released its 2013 report ranking the renewable energy resource availability, supportive policies and supply chains in the western United States. ACORE recognized Hawaii as having "one of the most diverse renewable energy opportunities of any state" and noted that we are "a center for the deployment of distributed generation technology."

- Hawaii ranks #10 for Renewable Power (w/o hydro)
- Hawaii ranks #10 for Renewable Fuels

Western State Installed Capacity Rankings

	Renewable Power (w/hydro)	Renewable Power (w/o hydro)	Renewable Fuels
1.	**Washington***: 24,133 MW	**California***: 12,646 MW	**California**: 301 mGy
2.	**California***: 22,699 MW	**Oregon***: 3,645 MW	**Oregon**: 167 mGy
3.	**Oregon***: 11,887 MW	**Washington***: 3,231 MW	**Colorado**: 125 mGy
4.	**Arizona***: 4,107 MW	**Colorado***: 2,623 MW	**Washington**: 117 mGy
5.	**Idaho**: 3,674 MW	**Wyoming**: 1,411 MW	**Arizona**: 103 mGy
6.	**Colorado***: 3,273 MW	**Arizona***: 1,389 MW	**Idaho**: 56 mGy
7.	**Montana***: 3,250 MW	**Idaho**: 1,138 MW	**New Mexico**: 32 mGy
8.	**Nevada***: 2,139 MW	**Nevada***: 1,086 MW	**Wyoming**: 12 mGy
9.	**Wyoming**: 1,714 MW	**New Mexico***: 988 MW	**Utah**: 10 mGy
10.	**New Mexico***: 1,070 MW	**Hawaii***: 672 MW	**Hawaii**: 8 mGy
11.	**Hawaii***: 699 MW	**Montana***: 647 MW	**Nevada**: 5 mGy
12.	**Utah**: 652 MW	**Utah**: 390 MW	**Alaska**: 0.3 mGy
13.	**Alaska**: 489 MW	**Alaska**: 69 MW	**Montana**: 0.3 mGy

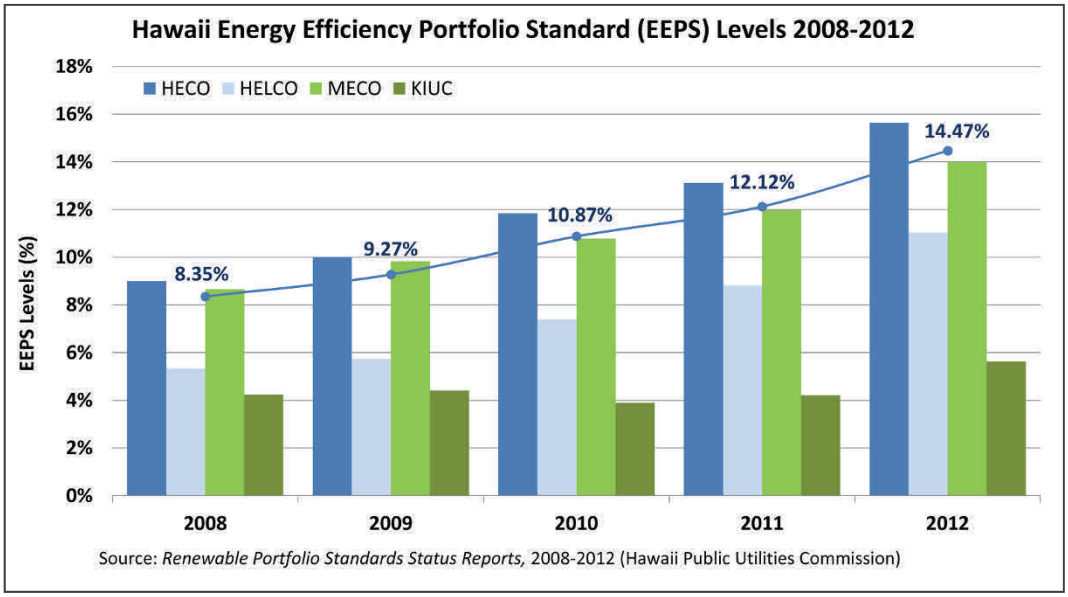
*=State has a renewable portfolio standard
MW=megawatt; mGy=million gallons per year
Sources: See User's Guide

Source: Renewable Energy in the 50 States: Western Region (ACORE)

ENERGY SNAPSHOT:
ENERGY EFFICIENCY PORTFOLIO STANDARD (EEPS)

Hawaii Energy Efficiency Portfolio Standard (EEPS) Levels (2008-2012)

This chart shows Hawaii's Energy Efficiency Portfolio Standard (EEPS) levels from 2008 (the year the Hawaii Clean Energy Initiative was established) through 2012. In 2012, the state's EEPS level was 14.47%. The state is required to reduce energy consumption through efficiency measures by 30% by the end of 2030.



Energy Savings Performance Contracting - Race to the Top

For the second year in a row, Hawaii was ranked first in energy savings performance contracting (ESPC) in the nation by the Energy Services Coalition (ESC). Hawaii's investment of $132.25 per capita earned the state a second consecutive ESC Race to the Top award in 2013. The award recognized Hawaii for its outstanding commitment to energy efficiency, environmental stewardship and economic development through ESPC.

Energy Services Coalition - Race to the Top

State	Population	Performance Contracting	Dollars per Capita	Job Years Created	Source Energy Saved	Tons Carbon Avoided
Hawaii	**1,295,178**	**$171,281,027.00**	**$132.25**	**1,862**	**1,421,290**	**24,413**
Ohio	11,536,504	$1,252,683,627.00	$108.58	13,616	10,394,769	178,551
Kansas	2,853,118	$278,951,861.00	$97.77	3,032	2,314,742	39,760
Idaho	1,567,582	$129,000,000.00	$82.29	1,402	1,070,442	18,387
Massachusetts	6,547,629	$457,696,106.00	$69.90	4,975	3,797,962	65,238

Source: Energy Services Coalition, Performance Contracting Impacts – State Comparison

State and County Performance Contracting (1996-2012)

SEO provides technical assistance to state and county agencies that are using energy savings performance contracting (ESPC). This chart illustrates the number of ESPC projects conducted by state and county agencies from 1996 through 2012.

Looking ahead, the state anticipates $300 million in investment through ESPC. SEO is working with the following agencies for additional projects:

- Department of Transportation – Airport
- University of Hawaii - Hilo
- City and County of Honolulu's wastewater treatment plants
- Department of Public Safety
- City and County of Honolulu's Board of Water Supply
- County of Kauai

These projects are expected to create 5,000 direct and indirect jobs, from engineers and building operators to equipment installers and building maintenance operators. SEO's technical assistance to these agencies is estimated to require between $300,000-$700,000, depending on the type and degree of detail.

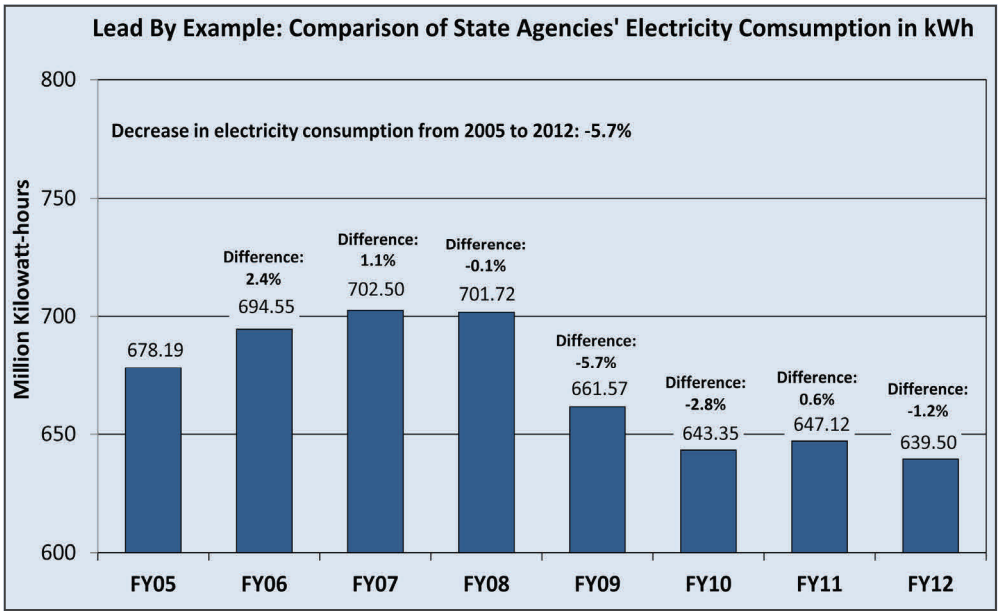
Hawaii Energy Savings Performance Contracts 1996-2012

*in 2011 dollars	$ Investment	Job Years Created	Source Energy Saved (kWh)	Tons Carbon Avoided
UH Hilo	$11,294,900	123	93,725	1,610
County of Hawaii	$2,931,756	32	24,328	418
County of Kauai	$904,102	10	7,502	129
HHSC	$32,618,201	355	270,666	4,649
City and County of Honolulu	$28,580,591	311	237,162	4,074
Hawaii State Judiciary	$2,115,702	23	17,556	302
DAGS	$34,521,672	375	286,461	4,920
PSD	$25,511,264	277	211,692	3,636
UH Community Colleges	$32,802,838	357	272,198	4,675
Totals	**$171,281,027**	**1,862**	**1,421,290**	**24,413**

Source: 1996-2012 data from the Department of Business, Economic Development, and Tourism

State Lead By Example (FY05-FY12)

This graph demonstrates the amount of electricity Hawaii state agencies have consumed from fiscal years 2005 through 2012. The state's Lead by Example (LBE) initiative began in 2006 in response to legislative and executive mandates to incorporate energy and resource efficiency and conservation in government buildings, fleets, and personal practices. With 2005 as a baseline year, electricity consumption declined in fiscal year 2008 and continued for three years. The slight increase in 2011 was attributed to new facilities coming on line. Overall, state agency electricity consumption has declined 5.7% from the baseline year.



GREENSUN HAWAII

To help Hawaii property owners (single- and multi-family, nonprofit and businesses) make energy efficiency and renewable energy retrofits to their homes, apartment complexes and facilities, the State of Hawaii created GreenSun Hawaii, a credit enhancement program funded by a $2.72 million U.S. Department of Energy grant under the American Recovery and Reinvestment Act of 2009.

Administered by the Hawaii Community Reinvestment Corporation (HCRC), the program provides local financial institutions with access to a loan loss reserve (LLR) which may cover up to 100% of actual losses, enabling participating lenders to extend loan availability to a larger pool of customers and offer more aggressive rates and terms.

GreenSun Hawaii can finance ENERGY STAR refrigerators and air conditioning systems, solar thermal hot water systems and solar electric photovoltaic (PV) systems for residential purposes. For non-residential purposes, the loan can be used to finance lighting and air conditioning retrofits and upgrades; solar thermal and PV systems; energy efficiency window, cool roof and other installations eligible for Hawaii Energy/Kauai Island Utility Corporation rebates; and loan related fees.

Since GreenSun Hawaii's inception in 2011, the program has resulted in:

- 13 Participating Lenders and 41 Authorized Contractors statewide
- 78 loans which aggregate to over $2 million
- An estimated energy savings of 556,000 kWh/year (11.1 million kWh over the life of the installations, which is equivalent to powering 1,507 homes for one year in Hawaii)
- An annual electricity bill savings of $221,000 ($4.4 million over the life of the systems)
- A $C0_2$ reduction of 837,000 lbs/year (16.7 million lbs over the life of the installations)

GREEN BUSINESS PROGRAM

The state's Hawaii Green Business Program assists and recognizes businesses that strive to operate in an environmentally, culturally and socially responsible manner. As a partnership between the state's Department of Health and the Department of Business, Economic Development and Tourism; the Board of Water Supply; and the Chamber of Commerce of Hawaii, the program recognizes businesses that are committed to going green by implementing energy and resource efficiency practices. Not only does energy efficiency keep utility costs down and create a more sustainable environment, the businesses are also collectively contributing to Hawaii's energy efficiency goal.

From 2009-2012, the program has assisted and recognized over 70 business and government entities, from the hospitality, commercial office, retail, restaurant and food services sectors, resulting in the following savings:

- 9,732 million kWh of energy (equivalent to powering 1,319 homes for one year in Hawaii)
- 45.93 million gallons of water
- $2.278 million of energy costs

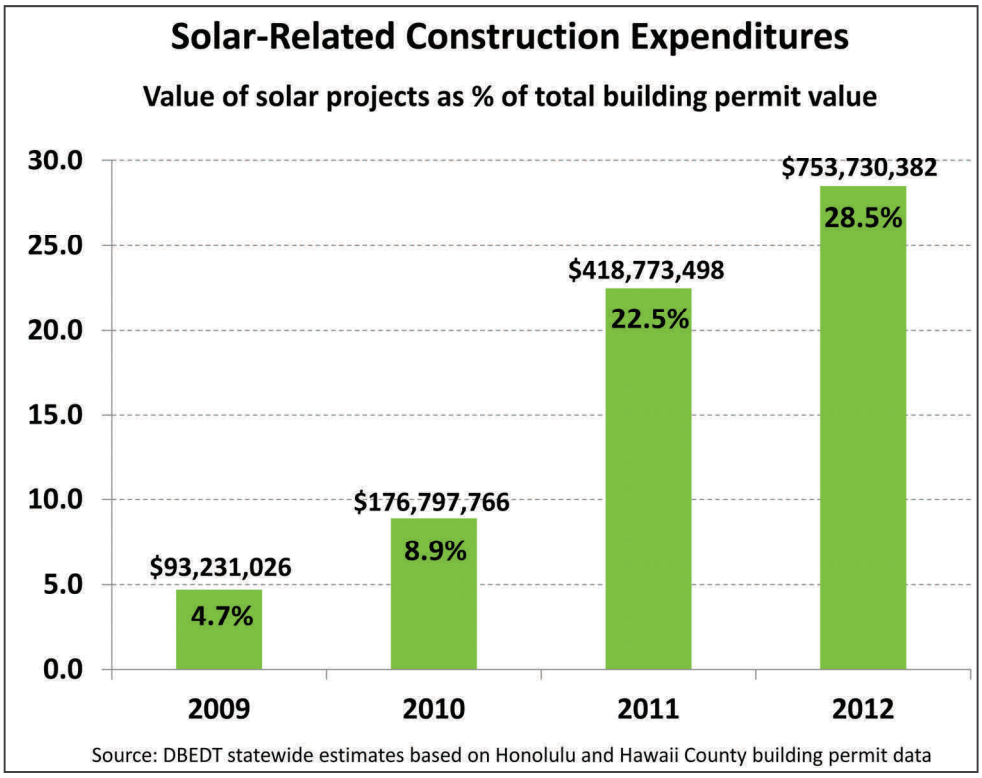
For images from the 2013 Green Business Award Ceremony, see the photo gallery at: energy.hawaii.gov/energybuzz-post1 (4/26/13 post).

ENERGY SNAPSHOT:
ECONOMIC GROWTH IN THE ENERGY SECTOR

Energy plays a significant role in spurring Hawaii's economic growth with the creation of jobs, investment opportunities and project development. The boom in the state's distributed solar sector has accounted for much of the gain.

Solar-Related Construction Expenditure (2009-2012)

Hawaii's solar industry has had a significant impact on the construction industry. As of 2012, it accounted for 28.5% of all construction expenditures in the state, providing much needed stimulus to the construction industry.



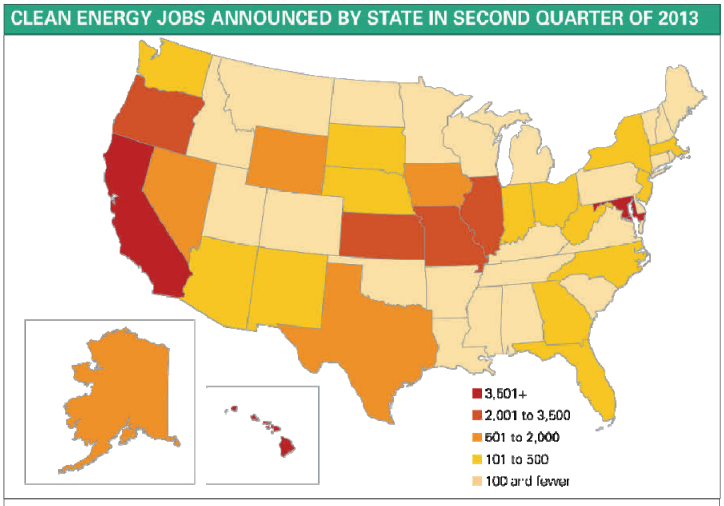
Clean Energy/Clean Transportation Jobs Report

Hawaii is ranked second in total clean energy and clean transportation jobs, according to a 2013 report by nonprofit business group Environmental Entrepreneurs (E2).

On E2's website Clean Energy Works for US (http://cleanenergyworksforus.org/), Hawaii is recognized as one of two newcomers in its list of top five states for clean energy job announcements in the second quarter, with the potential for several thousands of jobs through the state's multiple energy savings performance contracting projects over the next two years.

2013 Second Quarter Clean Energy/ Clean Transportation Jobs Report		
RANK	STATE	TOTAL CLEAN ENERGY JOBS ANNOUNCED (2ND QUARTER 2013)
1	California	9,169
2	**Hawaii**	**5,000**
3	Maryland	4,400
4	Illinois	3,400
5	Oregon	3,067

Source: Environmental Entrepreneurs



These data cover job announcements from April 2013 through June 2013 media reports, official announcements, and other sources and are not an exhaustive tally of job creation in the clean economy.
Source: Environmental Entrepreneurs

U.S. Clean Tech Market

Hawaii is named as one of the leading states in a national clean tech marketplace report. The 2013 U.S. Clean Tech Leadership Index ranks Hawaii on its 2013 State Index Top 10 list. "Led by an exceedingly strong display of technology deployment, Hawaii's 52.2 score allowed the state to break into the top 10 for the first time," the report states. "As a sunny island state, it seems logical that Hawaii leads the U.S. in solar power as a share of total peak capacity (just over seven percent) and electric vehicle charging stations per capita. With the nation's highest electricity rates, the state has been forced to focus on energy efficiency, resulting in lower electricity consumption capacity per person that any state other than California."

2013 State Index Top 10		
STATE	RANK	SCORE
California	1	91.7
Massachusetts	2	77.8
Oregon	3	72.8
New York	4	63.3
Colorado	5	63.0
Washington	6	62.3
New Mexico	7	60.8
Illinois	8	58.5
Minnesota	9	56.1
Hawaii	**10**	**52.2**

Source: Clean Edge, Inc.

ENERGY SNAPSHOT: ENTREPRENEURSHIP AND INNOVATION

2013 LEGISLATIVE MEASURES–GREEN ENERGY MARKET SECURITIZATION (GEMS)

On June 27, 2013, Gov. Neil Abercrombie signed into law Act 211, which establishes a green infrastructure financing program. Named GEMS or Green Energy Market Securitization, the innovative financing model is designed to make clean energy improvements, such as solar photovoltaic installations, affordable and accessible for Hawaii's consumers, including expanding the market to reach the underserved markets such as low- and moderate-income homeowners, renters and nonprofits. It aims to address the financial barriers of investing in and installing energy cost savings devices.

EVS ON THE MOVE

The widespread deployment of electric vehicles (EV) in Hawaii is a key approach toward the reduction of fossil fuel dependency, in particular as additional renewable electricity is added to Hawaii's grids and is used to power EVs. EVs could also be an integral component in achieving a more stable and modern electrical grid.

Already, a growing number Hawaii's drivers have adopted EVs as their mode of transportation. This chart shows the number of registered plug-in EVs in the four counties, as well as the number of publicly available charging stations statewide.

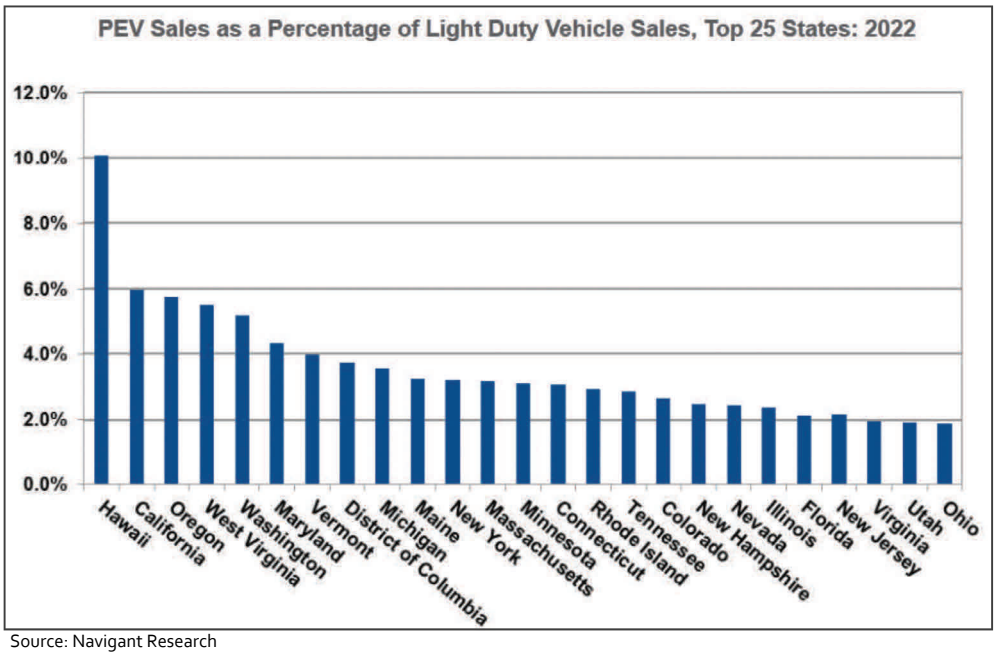
Electric Vehicles and Charging Stations in Hawaii (as of August 2013)

Island	Electric Vehicles EVs *	Charging Stations **
Oahu	1307	240
Maui	254	39
Hawaii	97	46
Kauai	49	34
Statewide	**1,707**	**359**

* Registered passenger EVs which includes Plug in Hybrid and Neighborhood Electric Vehicles

** Charging Stations reflect the number of ports or charging cords/plugs which can service one EV

As further proof of Hawaii's leadership in the EV space, a September 2013 report by Navigant Research highlighted that Hawaii has the best potential for EV sales within the next decade. In the *Electric Vehicle Geographic Forecasts* report, Navigant said that "by 2022, 10% of all new vehicle sales in Hawaii will be plug-in electric vehicles (PEVs)." The report stated that "Hawaii will be a leader in PEVs sold thanks to strong support through the state government, local EV associations, and the state's power provider, the Hawaiian Electric Company."



Source: Navigant Research

HIGH IMPACT SOLUTIONS

SEO plays a proactive role in the state's pursuit of an integrated clean energy economy. As described above, SEO's initiatives for removing barriers to the development of renewable energy are rooted in laws and policies that give SEO the authority to propose state actions that have a significant effect on the state's energy objectives. Guided by its legal authority and the Abercrombie Administration's energy transformation principles, SEO has opted to pursue the following high-impact solutions that translate into technical, economical, policy and cultural clean energy resolutions for Hawaii:

HAWAII CLEAN ENERGY PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS)

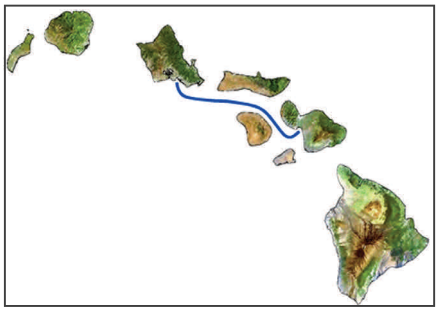
On December 14, 2010, the U.S. Department of Energy (DOE) issued a Notice of Intent (NOI) to prepare a PEIS, with the SEO as a joint lead, on the wind phase of the Hawaii Interisland Renewable Energy Program (HIREP) (75 FR 77859). That NOI referred to the PEIS as the "HIREP: Wind PEIS." HIREP narrowly considered wind and undersea transmission technologies between Oahu and Maui County. In response to public scoping comments, as well as regulatory and policy developments since the scoping meetings, the DOE and DBEDT decided to broaden the scope of the PEIS to include a wider range of clean energy activities and technologies with the potential for near -term development or application in Hawaii. Accordingly, the project was renamed as the "Hawai'i Clean Energy PEIS."

The intent of the Hawai'i Clean Energy PEIS is for the state, county, federal, and private project developers to use the PEIS as a reference document when preparing project-specific EISs. The Hawai'i Clean Energy PEIS will further serve as guidance the DOE can use in making decisions about future DOE funding and other actions to support Hawaii in achieving its HCEI objectives. In these two ways, the Hawai'i Clean Energy serves two of our Administrations principles, namely, diversifying our energy portfolio and helping to balance technical, economic, environmental and cultural considerations.

The draft PEIS is expected to be issued in 2014. At that time, a formal public comment period will commence and the public will have the opportunity to review the draft PEIS and provide comments during a series of community meetings. Those comments will then be considered for the final PEIS.

OAHU-MAUI INTERISLAND TRANSMISSION GRID TIE CABLE

Connecting the islands through integrated, modern grids is one of the state's high priority strategies. By linking us together, we will be able to utilize our best natural resources at a scale that will reduce costs and improve overall system efficiency.



In July 2013, the Hawaii Public Utilities Commission (PUC) issued a set of decisions and orders related to renewable energy generation and an interisland transmission grid-tie cable. Through these dockets, the PUC is investigating how to minimize risk, make the best use of existing infrastructure and establish the most efficient and cost effective interconnected grid in the best interest of the ratepayer.

One order, #31356 in Docket #2013-0169, opened a proceeding to investigate whether an Oahu-Maui interisland transmission system may be in the public's interest. The purpose is to investigate whether an interisland transmission system interconnecting the Oahu and Maui Island electrical grids may be in the public interest, including:

- Benefits and costs of an Oahu-Maui grid tie undersea cable
- Potential project-on-project risks that are anticipated and possible mitigations

- Operational issues of the design, construction and ownership of the cable
- Regulatory and rate making policies for a potential transmission system
- The optimal path for a solicitation, procurement and development if a transmission system is deemed beneficial to the public interest

On September 9, 2013, DBEDT submitted its initial comments to the PUC, which supports an interisland transmission cable connecting Oahu and Maui Island grids (Cable Project). DBEDT provided the following analysis into the docket record:

- The Cable Project will provide economic benefits to ratepayers on both islands, saving up to $423 million for the 2020-2050 period.
- The Cable Project's effective use of available, dispatchable capacity will increase reliability and produce ancillary services benefits for both Oahu and Maui electric systems.
- The Cable Project is projected to significantly reduce projected renewable energy curtailments, particularly on Maui.
- The development of the Cable Project will allow for lower environmental compliance costs.
- The Cable Project will help the state meet its mandated Renewable Portfolio Standard goals of 40% by 2030.
- In its comments, DBEDT urged the PUC to deem that an interisland cable connecting Oahu and Maui is in the public interest, and recommended that the PUC should proceed with commencing a competitive solicitation process in order to facilitate the development of an Oahu-Maui interisland transmission system.

INTERVENTION IN RELIABILITY STANDARDS WORKING GROUP (RSWG)

DBEDT recognizes the complexity of moving towards a modernized grid system. Hence, not only was DBEDT an active party in the Oahu-Maui interisland transmission grid tie cable PUC docket but also an intervenor in the Reliability Standards Working Group (RSWG) PUC docket. DBEDT provided the following comments in this docket:

- **Increased penetration of renewable energy in already high-penetration circuits**
  DBEDT is supportive of HECO's ProActive Approach, which will provide the Hawaiian Electric Company (HECO) with circuit penetration levels and associated potential issues. The ProActive Approach looks to address key modeling and grid integration challenges that have accompanied the exponential growth of distributed photovoltaic (PV) generation on Hawaii's island grids. Lessons learned from this initiative will be shared with other utilities in the United States encountering similar gird issues.
- **Excess energy curtailments of renewable energy**
  DBEDT is supportive of accelerated analysis and approval of the findings from the HECO Companies' consultant EPS, which revealed that measures can be taken to eliminate or substantially reduce excess energy curtailments of renewable generation.
- **Lack of standard interconnection agreement**
  Per the RSWG Independent Facilitator, the Commission should "make it clear that a standard interconnection agreement, terms and conditions, and study procedures are needed". DBEDT agrees with this and recommends a new "interconnection docket."
- **Lack of formally established electricity reliability regulatory oversight program and administrator (e.g. Hawaii Electricity Reliability Administrator, HERA)**
  DBEDT believes that the HERA should be established by the PUC as soon as possible.

INTERVENTION IN INTEGRATED RESOURCE PLANNING (IRP) DOCKET

Per HECO, "Integrated Resource Planning aims to develop comprehensive, 20-year plans for meeting energy needs under various scenarios in the Hawaiian Electric service territories, evaluating and integrating resources that supply electricity and those that reduce or better manage demand for electricity. The goal is to ensure delivery of reliable electric service for residential and business customers while striving to decrease the use of imported fossil fuel, increase efficiency and reduce electric bills." [1]

On Friday, June 28, 2013, the Hawaiian Electric Companies filed with the Hawaii Public Utilities Commission (PUC) their Integrated Resource Planning Report ("IRP Filing") covering the planning period 2014-2033 and Five-Year Action Plans detailing plans to meet future electricity needs for its service territories. Subsequently, in the September 9, 2013 Order, the Commission sought statements of position concerning IRP Filing.

As a docket intervenor, DBEDT recommended to the PUC that neither rejection nor approval is warranted with respect to the IRP Filing at this stage as it believes that the IRP Report, Action Plans, and IRP process, are not entirely compliant with the Framework. Instead, the Commission should accept the plans for filing and undertake further actions to address the major shortcomings of the process and build upon those aspects of the IRP Filing that present a sufficient starting point for further analyses to lead to reasonable roadmaps for the purpose of achieving the state's energy goals. DBEDT believes that any action taken should encourage progress rather than delay in meeting the state's clean energy goals of reducing dependence on fossil fuels and maximizing the amount of reliable renewable penetration.

DBEDT believes that specific actions should include:

- Commission should use its discretion and determine the best approach for building upon the foundation of the Action Plans, curing the deficiencies, and establishing Action Plans that constitute a concrete and reasonable roadmap for achieving energy objectives and customer energy needs in a manner that is consistent with the state's energy policies and goals. These procedures should be implemented quickly.

- DBEDT submits that it is in the best interest of the state to continue the momentum and move forward with the IRP and these other dockets and processes, such as the Oahu-Maui interisland transmission grid tie cable and RSWG dockets mentioned above. These other processes may inform the Commission on helpful modifications to the existing Action Plans and/or the next IRP.

DEVELOPER & INVESTOR CENTER

National and international developers and investors are discovering Hawaii is the ideal laboratory for the development of clean energy technologies. With an eye toward economic growth and renewable energy diversification, Hawaii has taken important steps to support high impact, clean energy solutions that remove barriers towards the development of renewable energy project development. The online Developer & Investor Center is a dynamic resource, regularly updated by SEO, to inform users of contemporary issues and potential solutions facing renewable energy development in Hawaii today.

The Center provides guidance on project permitting, local utility interconnection, Hawaii business registration, project financing and local incentives, local permitting consultants, and site acquisition in Hawaii. It hosts the *Guide to Renewable Energy Facility Permits in Hawaii* and useful information (permit packets) for over 160 federal, state, and county permits, including process steps, estimated timelines and costs, agency contacts, and relevant laws and references.

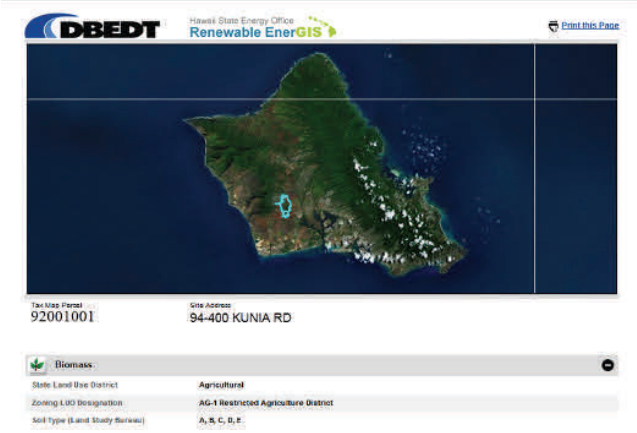
1 Reference: http://www.heco.com/heco/Clean-Energy/Integrated-Resource-Planning

The Center links to the Hawaii Department of Health (DOH) e-Permitting Portal for online processing of DOH environmental permits and approvals (air, water, ground). The Portal provides transparency into DOH permitting processes and empowers DOH to electronically manage its permitting forms and databases. e-permitting has been implemented in other states and serves as a model for other agencies considering electronic permit management.

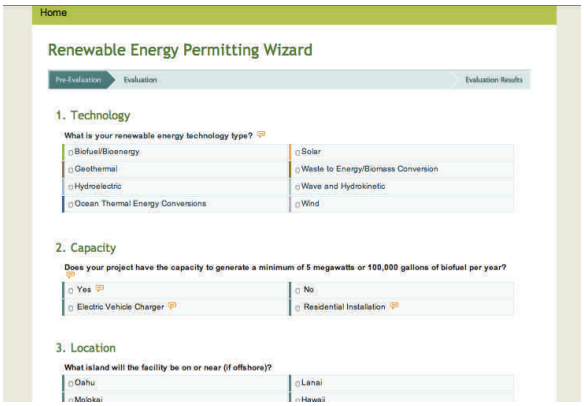
SELF-HELP ENERGY SUITE

SEO provides developers and investors with important technical assistance, permitting tools and local connections to accelerate a project's journey to the marketplace, where the rewards will be felt statewide. SEO created the Self-Help Energy Suite of tools to advance high impact, clean energy alternatives. In November 2013, SEO's Renewable EnerGIS Map and Renewable Energy Permitting Wizard programs received top honors at the 2013 Hawaii Technology Excellence Awards.

Renewable EnerGIS Map provides renewable energy resource and site information for specific Hawaii locations. It is intended to help landowners, developers, and policy makers understand the renewable energy potential of sites statewide.

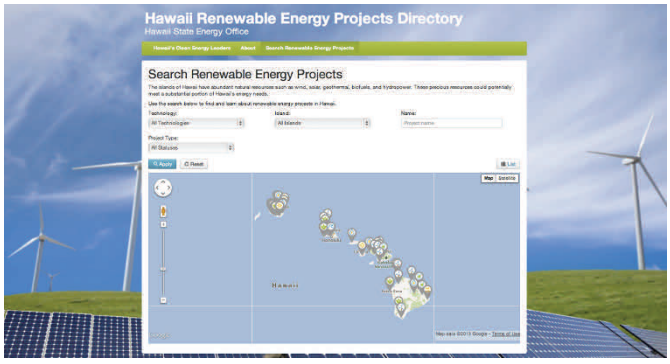


Renewable Energy Permitting Wizard was developed to help those proposing renewable energy projects understand the county, state and federal permits that may be required for their individual project. This tool works for projects ranging in size from residential solar installations to large utility-scale facilities. It is currently being upgraded to reflect current permitting requirements, improve user functions, and be available in an open source software environment.



Hawaii Renewable Energy Projects Directory is an interactive directory to find and learn about renewable energy projects in Hawaii. The directory lists projects statewide, showcasing the variety of renewable energy resources that are being harnessed to move us closer to reaching our overall clean energy goal.

The Self-Help Energy Suite of tools can be found at energy.hawaii.gov



STABILIZATION OF HAWAII'S CONVENTIONAL FUEL BASE

While the state is committed to achieving a clean energy future, it also has to stabilize the current conventional fuel base and to plan for a future fuels ecosystem that best serves Hawaii.

As promised in his 2013 State of the State address, Gov. Abercrombie established by executive order the Hawaii Refinery Task Force to assess the impacts of Tesoro's announcement to close its Hawaii refinery. Composed of 35 members from federal and state agencies as well as the nonprofit and private sectors, the task force's purpose is to identify strategies and actions that the state should consider to promote a smooth and stable transition to meet Hawaii's energy needs as our fuels market evolves.

The pending Tesoro refinery sale to Par Petroleum did not impact the task force's initial report submitted to the governor in June 2013 and Interim Report submitted in November 2013, which can be found on SEO's website. It also reinforced the task force's requirement to develop specific policies and actions to provide assured energy and fuel supply to Hawaii consumers through traditional and new energy alternatives.

To provide price and supply stability to our fuel ecosystem, the state is also accessing the feasibility of using liquefied natural gas (LNG) to replace imported foreign oil in order to provide lower cost electricity options and facilitate increased levels of renewable resources as part of a diverse portfolio of energy resources.

GREEN HOUSE GAS EMISSIONS AND CLEAN AIR ACT COMPLIANCE

Climate change caused by increasing and dangerous levels of greenhouse gases (GHGs) in the atmosphere poses a significant risk to the citizens of Hawaii due to the potential harmful effects of rising temperatures and sea levels. The SEO understand the critical importance of reducing these emissions for the health, well-being and prosperity of Hawaii's citizens, and as such, is working with the Hawaii Department of Health's Clean Air Branch (CAB), the Hawaii Public Utility Commission (PUC), and the US Environmental Protection Agency (EPA) to implement state and federal greenhouse gas emissions reduction measures.

Under Hawaii Act 234, 2007 and Section 111(d) of US Clean Air Act, the state has developed proposed GHG rules to monitor and cut emissions from existing power plants to 1990 levels or below. Through this rule-making process, and other ongoing system-wide measures under the aegis of the Hawaii Clean Energy Initiative (HCEI) such as RPS, EEPS and Demand Side Management/Demand Response (DSM/DR), the state is well on its way to reaching these emissions reduction goals. Importantly, the current and proposed measures are designed to simultaneously clean up the environment, modernize Hawaii's power sector and vitalize the Hawaiian economy through innovation and green investments.

ENERGY SAVINGS PERFORMANCE CONTRACTING (ESPC)

In 2013, Hawaii retained its top national ranking for energy savings performance contracting (ESPC) per capita with an investment of $132.25/capita, resulting in a second consecutive national Race to the Top Award from Energy Services Coalition.

ESPC is an innovative approach to implementing energy and water efficiency measures using guaranteed energy savings to pay for the projects. ESPC can provide government agencies much needed updated energy efficiency improvements as well as deferred maintenance relief. By including deferred maintenance and performance period maintenance services under a single contract with guaranteed savings measures, agencies can maximize their investments.

SEO has been leading the state's award-winning ESPC efforts since 1996. SEO provides technical assistance to state and county agencies, including analysis of energy savings measures, review of financing documents, and advice on agency-specific issues. To date, SEO has provided technical assistance to:

- University of Hawaii at Hilo
- Hawaii Health Services Corporation
- City and County of Honolulu's four city buildings and Kailua Wastewater Treatment facility
- County of Hawaii
- County of Kauai
- Department of Accounting and General Services (DAGS)-Phase I-10 large office buildings
- University of Hawaii Community Colleges
- Department of Public Safety's four large facilities
- The Judiciary

1,000 solar PV panels on the Kalanimoku Building in the downtown Honolulu Capital District.

Technical assistance for ongoing or proposed projects includes the following:

- Department of Transportation-Airports
- DAGS Phase II -33 buildings
- City and County of Honolulu – Sand Island and Honouliuli Wastewater Treatment Plants
- University of Hawaii at Hilo-Phase 2
- Hawaii Health Services Corporation-Phase 2
- Department of Defense
- Department of Public Safety-Phase 2 (prisons and jails statewide)
- County of Kauai-Phase 2
- Board of Water Supply's water pumping facilities

HAWAII'S ENERGY ASSURANCE PROGRAM

SEO leads the state's efforts to ensure a robust, secure, and resilient energy infrastructure in the contemporary energy ecosystem. SEO works closely with State Civil Defense, the U.S. Department of Energy, County Civil Defense Agencies, and dozens of government and energy industry emergency management and security partners to:

- Strengthen energy emergency preparedness and response actions and capabilities;
- Educate stakeholder groups on energy sector interdependencies and challenges prior to, during, and after any disruption;
- Facilitate effective incident communication and information sharing between key government representative, energy industry representatives, and the public; and
- Develop and maintain energy assurance plans and procedures in line with existing federal, state, and local governments' frameworks, structures, and statutes.

2013 Energy Assurance Activities and Programs

SEO successfully completed the "Enhancing State Government Energy Assurance Capabilities and Planning for Smart Grid Resiliency" project designed to help Hawaii have well-developed, standardized energy assurance and response plans which can not only be relied upon during energy emergencies and supply disruptions, but can strengthen the state's resilience to all hazards affecting Hawaii's energy systems, resources, and markets. The project also focused on building regional energy assurance capability to allow Hawaii to better coordinate and communicate statewide and with other states on energy security, reliability, and emergency response issues.

LOOKING AHEAD

The following are areas SEO is examining or will be participating in for possible future action:

Renewable Portfolio Standard

Renewable Portfolio Standard (RPS) is a primary deliverable in Hawaii's mandated clean energy goals. SEO will participate in an advisory role in a Hawaii Natural Energy Institute (HNEI) study on the effectiveness of the current RPS targets to determine if the standards remain effective and achievable and whether any modifications are needed.

ProActive Approach Feeder Cluster Study

SEO is working with the Hawaiian Electric Company (HECO) on its innovative ProActive Approach project. The purpose of the study is to enhance the utilities' functions of interconnection and transmission and distribution planning in order to anticipate and plan for higher penetration levels of Distributed Generation (DG). The results could lead to faster, more efficient and cheaper evaluation of interconnection requests from renewable energy developers. The ProActive Approach was recommended by the Hawaii Reliability Standards Working Group, which was convened to develop policy and technical recommendations to the PUC that will facilitate the increased use of renewable energy in the islands without compromising the grid reliability.

Transportation Roadmap Reevaluation

The current HCEI overall goal for the transportation sector is to reduce the consumption of petroleum in ground transportation by 70%, or approximately 385 million gallons per year, by 2030. The current roadmap would implement the following strategies:

- Improving standard vehicle efficiency of fleet
- Reducing vehicle miles traveled (VMT)
- Incorporating renewable fuels into the transportation sector
- Accelerating the deployment of electric vehicles and related infrastructure

In collaboration with the U.S. Environmental Protection Agency and the Hawaii Energy Policy Forum (HEPF), SEO is looking to reevaluate HCEI's transportation goals and possibly revise the transportation roadmap. While a timeline is still to be determined, the reevaluation would assess HCEI's strategy for transportation and fuels, while also framing actionable plans to meet Hawaii's clean transportation objectives.

HAWAII STATE ENERGY OFFICE ENERGY INNOVATION

Achieving our clean energy goal of 70% by 2030 will require innovative solutions and policies that make sense. Along with reaching our RPS and EEPS goals, Hawaii must attract groundbreaking "test bed" investments and be a pioneer in the industry.

GEMS (GREEN ENERGY MARKET SECURITIZATION)

On June 27, 2013, Gov. Neil Abercrombie signed into law Act 211, which establishes a green infrastructure financing program, named GEMS or Green Energy Market Securitization. This novel financing framework is designed to make clean energy improvements, such as photovoltaic panels, affordable and accessible for Hawaii's consumers.

GEMS levels the playing field for everyone and expands the market, especially for underserved markets including low- and moderate-income homeowners, renters and nonprofits. The program will address the financial challenges many Hawaii consumers face when making a decision to invest in energy saving devices.

GEMS will take a proven rate-reduction bond structure and use it in a way to provide low-cost financing to enable consumers to invest in clean energy installations. Payment for the devices would be made over time through one's electricity bill and paid for through the energy savings. DBEDT is creating and coordinating the development of the GEMS program and upon approval from the Hawaii Public Utilities Commission, GEMS is expected to launch in 2014.

TEST BED AND INNOVATION INITIATIVES

Hawaii's unique location and abundant resources comprise the ideal proving ground for clean energy innovation, making us an international test bed for promising clean and reliable technologies. Entrepreneurs, driven by passion and powered by ingenuity, are helping to secure Hawaii's energy future by developing innovative technologies that can be deployed in communities statewide.

Current test bed and innovation projects happening in Hawaii include:

- The **Natural Energy Laboratory of Hawaii Authority (NELHA)** is a state agency that operates a unique and innovative ocean science and technology park in Kailua-Kona on the island of Hawaii. Strategically located at Keahole Point next to the Kona International Airport and adjacent to one of the steepest bathymetric offshore slopes in the Hawaiian Islands, NELHA offers an incredible combination of assets in one location.

Natural Energy Laboratory of Hawaii Authority (NELHA) Gateway Energy Center

- The **Hawaii Strategic Development Corporation (HSDC)** is an agency of the State of Hawaii established in 1990 to promote technology based economic development and economic diversification in Hawaii through a return driven investment program in partnership with private capital.
- The **Hawaii Center for Advanced Transportation Technologies (HCATT)** has organized public/private partnerships between the federal government and private industry to develop advanced low emission and zero emission vehicles centered on electric drive technologies.
- **JUMPSmartMaui** is a collaborative demonstration project between Japan and Hawaii that will incorporate smart grid, renewable energy and EV solutions on Maui, funded through a $30 million investment by Japan's largest public research and development management organization, New Energy and Industrial Technology Development Organization (NEDO).
- The **Energy Excelerator** is a project of the Pacific International Center for High Technology Research (PICHTR) and is focused on building an infrastructure to support startups in bringing technology to market starting in Hawaii and going from here to other places like California, Japan, and islands. It supports clean energy innovation companies that contribute to Hawaii's overall energy goals and enables Hawaii to continue to lead in clean energy deployment by funding clean energy companies that are developing and demonstrating new technologies in Hawaii, and providing training and support services.

FIRST EV MOBILE APP OF ITS KIND

EV Stations Hawaii Mobile App is designed to help EV drivers locate publically available charging stations statewide, giving them the confidence that they can recharge while on the road. Launched in 2013, the free app is available for Apple and Android smartphones and mobile devices. In November of the same year, the EV Stations Hawaii app won MobileWebAwards' Best Energy Mobile Application, recognized as a premier industry based Website Award program. Best websites are selected by judging the entered websites using seven criteria - design, ease of use, copywriting, interactivity, use of technology, innovation and content.

INNOVATIVE EV RATES

In July 2013, the PUC approved two groundbreaking electric vehicle (EV) pilot time of use charging rates for the Hawaiian Electric Company (HECO) with assistance from SEO. The rates are designed to encourage ownership of plug-in EVs in Hawaii by easing "range anxiety" and making direct current (DC) fast charging more readily available.

A DC fast charging station can bring an "empty" EV battery to an 80 percent charge in about 30 minutes. The rates are a positive step in meeting the state's clean energy transportation objectives and in proving Hawaii as a leader of EV deployment in the Asia-Pacific region.

- Schedule EV-F – This rate will make it financially attractive for business customers to open new public EV DC charging facilities by eliminating demand charges which are typically associated with DC Fast Charging and assessed to commercial customers.
- Schedule EV-U – This rate allows HECO to operate up to 25 publicly accessible DC fast charging facilities across Oahu, Maui County and Hawaii County, where drivers can quickly recharge their vehicles for a per session fee. It will also allow the HECO utilities to work with the EV industry to manage EV charging more efficiently and do research on load control and demand response.

LOOKING AHEAD

This is an exciting, vital period in Hawaii's energy and economic landscape. The plans, decisions and partnerships that will be forged in the next 12 months for infrastructure, transportation and grid improvements and investments will set the course for Hawaii's economic transformation for the rest of this generation.

Clinton Global Initiative

The state is fostering a relationship with the prestigious Clinton Global Initiative (CGI), led by President Bill Clinton. In June 2013, Hawaii committed to increase the energy efficiency of state and county buildings and facilities by expanding its use of energy savings performance contracting in two years. SEO presented the state's commitment at the annual CGI America meeting in Chicago, IL, attended by President Clinton and other dignitaries. Hawaii's CGI Commitment to Action raises the state's visibility as a clean energy leader on a global scale.

ENERGY PROGRAM FUNDING

ENERGY PROGRAM FUNDING

In the fiscal biennium 2012-2013, SEO was primarily supported by federal funds; however, the State Energy Program (SEP) American Recovery and Reinvestment Act (ARRA) funding expired in September 2013. SEO is currently managing the impactful loss of $37 million in federal funding and is now primarily dependent upon the Energy Security Special Fund (ESSF) for retaining program capacity, staff resources, and project funding to continue critical initiatives. This progressive reliance on ESSF funds is documented on the comprehensive State Energy Office Budget below. The large disparity in the loss of ARRA funds and the funds received from ESSF has caused difficult choices in the budgeting of energy program initiatives and in the decision to fill vacancies.

In the 2013 Legislature, the sum of $145,000 was appropriated from the Energy Security Special Fund for an emergency appropriation for fiscal year 2012-2013 to staff and support the Hawaii Refinery Task Force. SEO was unable to secure a barrel tax reallocation that would have put 60-cents of the Environmental Response, Energy, and Food Security Tax back to its original purpose, which was to build self-sufficiency in the area of energy, food and environmental response. In the measure, an additional 27.5 cents, out of the $1.05 barrel tax, would have gone to support SEO programs, such as permitting assistance, energy efficiency and renewable energy development. The measure also called for the removal of sunset dates so the barrel tax would be able to continue funding these initiatives in the future.

STATE ENERGY OFFICE BUDGET						
	FY2013			FY2014		
	ENERGY SECURITY SPECIAL FUND	FEDERAL FUNDS	TOTAL	ENERGY SECURITY SPECIAL FUND	FEDERAL FUNDS	TOTAL
PERSONAL SERVICES	2,585,630	772,749	3,358,379	3,697,990	101,535	3,799,525
OTHER CURRENT EXPENSES	821,665	4,772,388	5,594,053	1,996,315	3,345,000	5,341,315

SEO revenue and expenses for FY2013 utilizing currently available ESSF and federal funds is outlined below:

STATE ENERGY OFFICE: REVENUE AND EXPENSES			
SOURCE	REVENUES	EXPENDITURES	
		PERSONNEL	OPERATING EXPENSES (e.g., Travel, Equipment, Supplies, Contracts)
Energy Security Special Fund *	$ 3,998,323.71	$ 2,585,630.14	$ 821,664.58
USDOE State Energy Program Formula Grant	$ 99,595.79	$ -	$ 254,667.35
USDOE State Energy Program Recovery Act Grant	$ 3,641,800.90	$ 547,365.43	$ 3,210,290.19
USDOE Energy Efficiency Recovery Act Grant	$ 204,814.58	$ 163,150.49	$ 44,593.19
USDOE Energy Assurance Planning Recovery Act Grant	$ 96,388.43	$ -	$ 96,388.43
USEPA Cooperative Agreement	$ 21,975.94	$ -	$ 21,975.94
USDOE HI Renewable Energy Grid Project Grant	$ 202,897.65	$ 62,233.17	$ 140,663.33
USDOE Hydrogen Power Park Grant	$ 770,000.00	$ -	$ 770,000.00
USDOE Hawaii's Clean Energy Transformation and Grid Connection Grant	$ 212,989.99	$ -	$ 212,989.99
USDOE Advancing Energy Efficiency in Hawaii Public Buildings Grant	$ 9,050.22	$ -	$ 9,050.22
USDOE Clean Cities Grant	$ 4,226.63	$ -	$ 4,226.63
PVE - Stripper Well Funds	$ 43.24	$ -	$ -
PVE - Exxon Funds	$ 1,310.75	$ -	$ -
PVE - Chevron Funds	$ 589.91	$ -	$ -
NGA Clean Energy States Grant	$ -	$ -	$ 1,185.91
General Fund Aerospace	$ -	$ -	$ 20,000.00
TOTAL	**$ 9,264,007.74**	**$ 3,358,379.23**	**$ 5,614,052.76**
* ESSF revenue from Environmental Response, Energy, and Food Security Tax: $3,884,268			

The current portfolio of federal grants supporting the state's energy program is detailed in the chart below:

State Energy Office - Federal Grants				
Funding Agency	**Award Title**	**Award Amount**	**Grant Objective**	**Partners**
USDOE - NETL	Recovery Act: Energy Assurance Planning - State of Hawaii	$ 318,196.00	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
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 - Jun 2013.	Hawaiian Electric Company Hawaii Pacific University Chamber of Commerce of Hawaii Hawaii Dept. of Health City & County of Honolulu Rebuild Hawaii
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
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 - Sep 2013.	Various
Ongoing				
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 infratructure of Hawaii. Term: Oct 2008 - Mar 2014.	University of Hawaii - Hawaii Natural Energy Institute
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 - Nov 2014.	Various
USDOE - EERE	State Energy Program (SEP) Formula (2010, 2011, 2012, 2013)	$ 929,849.00	To design and carry out the Hawaii State Energy Office's energy efficiency and renewable energy programs. Term: Jul 2010 - Jun 2014.	Various
USDOE - EERE	Hawaii's Clean Energy Transformation and Grid Connection	$ 705,000.00	To reduce market barriers and costs of greater renewable energy penetration under HCEI 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 2014.	Duncan, Weinberg, Genzer & Pembroke Hawaii Information Consortium Hawaiian Electric Company
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.	GDS Associates 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
USEPA	Hawaii Growing Green Intern Development and Pollution Prevention Project	$ 50,000.00	To establish an intern program that leverages the support and expertise of partners across the state with the purpose of expanding the Hawaii Green Business Program and Lead By Example Resource Efficiency Checklist Program, which focus on waste reduction, pollution prevention, and resource conservation. Term: Oct 2013 - Sep 2015.	Hawaii Dept. of Health City and County of Honolulu - Honolulu Board of Water Supply City and County of Honolulu - Refuse Division The Chamber of Commerce of Hawaii

FINAL MESSAGE

Mark Glick, State Energy Administrator
Hawaii State Energy Office

While Hawaii is faced with the nation's highest energy prices and a strong dependency on foreign oil, we also have the most to gain by being energy independent. That's why these are exciting times.

As the State Energy Administrator, I am fortunate to be on the front lines of Hawaii's clean energy transformation. I have the privilege of working closely with the industry's movers and shakers, both outside and within the State Energy Office. It is my role to recognize both the challenges we face and secure potential solutions.

Hawaii is doing a lot of things now that will take us to the next level. As outlined in this 2013 Energy Resources Coordinator's Annual Report, Hawaii is on track to meet our next set of 2015 benchmarks, which puts us on a good track to reach our 2020 goals. All of this is aligned with the Abercrombie Administration's committed focus on reducing our dependence on imported oil and stabilizing energy costs, both of which are essential to establishing a sustainable economy for the people of Hawaii.

While there's still a lot of work to do, Hawaii has enormous potential for achieving and exceeding the state's 2030 clean energy goals.

STATE OF HAWAII ENERGY POLICY DIRECTIVES

Our state energy policy is rooted in one principle: a commitment to maximize the deployment of cost effective investments in clean energy production and management for the purpose of promoting Hawaii's energy security.

1. **Diversifying our energy portfolio:** Diversity has always been one of Hawaii's greatest assets. Our energy resources are no exception; we are blessed with diverse resources such as solar, wind, hydro, bioenergy, geothermal, and energy efficiency. Among these resources, geothermal holds particular promise as a clean and firm energy source that is also low-cost. Biofuels, another important resource, should be targeted primarily for jet fuel, and used in electric generation only as a transitional use. Liquefied natural gas holds promise as a transitional fuel on a limited scale, if it can be deployed at a true cost savings.

2. **Connecting the islands through integrated, modernized grids:** Hawaii is connected in many ways that make us stronger. Linking the islands enables us to utilize our islands' best resources, at a scale that will reduce costs. Levelizing electricity rates across connected islands will not only lower rates on neighbor islands, but may also improve overall system efficiency. Since existing technical analyses show that Oahu lacks resources and sites to economically move beyond 25-30% renewable energy on its own, investing in undersea cable infrastructure is the pathway to an energy future that breaks our addiction to fossil fuels. Our RPS and EEPS standards of 40% renewable energy and 30% energy efficiency by 2030 are important benchmarks, but we should not stop there. Maximizing affordable clean energy is a core strategic goal, and provides the most secure foundation for our economy and way of life.

3. **Balancing technical, economic, environmental, and cultural considerations:** Most renewable energy sources are less expensive than oil, but to integrate these resources we often need to blaze new pathways both in technology and policy. Not all clean energy projects are created equal. In order to find the most beneficial long-term solutions, we must focus on projects that make the best use of land and resources. We are collaborating with partners in the public and private sectors to focus on the most beneficial projects, ensuring that challenges are met with a spirit of collaborative problem solving, not inaction.

4. **Leveraging our position as a test bed to launch an energy innovation cluster:** Hawaii should not only demonstrate the future of clean energy, but should also help invent it. Our isolated, islanded grids, high energy costs, and connections to the Asia Pacific region make Hawaii an ideal test bed for new energy solutions. We're working to create an environment where our communities support innovative companies that are solving the world's toughest energy challenges – and creating new jobs and opportunities for investment for a knowledge-based economy right here in Hawaii. Innovation is the cornerstone of our economic diversification strategy.

5. **Allowing the market to pick winners:** The private sector must make the investments needed to transition us away from oil. At the same time, solutions must be inclusive, lifting all of us. For this reason we have been developing programs and financing mechanisms that allow everyone to participate in our clean energy future.