

## 2010 Innovations Awards Program APPLICATION

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ID # (assigned by CSG): **10-W-09HI**

**Please provide the following information, adding space as necessary:**

State: Hawaii

Assign Program Category (applicant): Natural Resources (Use list at end of application)

1. Program Name  
Hawaii State Energy Program: The Hawaii Clean Energy Initiative (HCEI)
2. Administering Agency  
State of Hawaii, Department of Business, Economic Development, and Tourism  
Strategic Industries Division
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9. *Please provide a two-sentence description of the program.*

The State of Hawaii aims to transform Hawaii into a world model to island economies for achieving energy independence, security, and sustainability. The goal is to reduce dependence and use of

imported fossil fuel by 70% by 2030 through increased use of renewable resources and energy efficiency. HCEI is a partnership between the U.S. Department of Energy (DOE) and the State of Hawaii. The achievement of the “70% by 2030” goal requires a fundamental and sustained transformation of Hawaii’s regulatory and energy policy framework.

10. *How long has this program been operational (month and year)? Note: The program must be between 9 months and 5 years old on March 1, 2008 to be considered.*

On January 31, 2008, Hawaii Governor Linda Lingle signed a Memorandum of Understanding with the U.S. Department of Energy, thereby formally launching the Hawaii-DOE Clean Energy Initiative.

11. *Why was the program created? What problem[s] or issue[s] was it designed to address?*

Hawaii’s economic security and stability continues to remain extremely vulnerable due to Hawaii's overdependence on imported oil, its geographic isolation, and its subjectability to volatile market fluctuations in oil prices.

Hawaii is the most fossil fuel-dependent state in the nation. Presently, Hawaii depends on imported fossil fuel for 86% of the state's total energy needs. Nearly 80% of the state's electricity is generated using petroleum fuels and slightly over 97% of its transportation fuels (in Btu) are produced from foreign oil. This reliance on imported and foreign fossil fuels translates into an approximately \$7 billion annual outflow of state resources to meet Hawaii’s energy needs. Hawaii residents pay the nation’s highest prices for electricity and are paying the nation’s second highest fuel prices.

Therefore, in order to increase Hawaii’s energy security and to move Hawaii away from near-total reliance on fossil fuels, the State of Hawaii has produced an aggressive package of new legislation and regulatory policies including but not limited to the highest renewable portfolio standard (RPS) mandate in the nation of 40% by 2030 and the establishment of aggressive energy efficiency portfolio standards (EEPS). This package was developed by five working groups co-chaired by Hawaii State Department of Business, Economic Development, and Tourism (DBEDT) and U.S. Department of Energy (U.S. DOE) professionals and assisted by experts from national laboratories as well as the private sector (i.e., the utilities, renewable energy companies, and legislators). Five working groups (End-Use Efficiency, Electricity, Fuels, Transportation, and Integration) are the lifeblood of the state’s goal to achieve a 70% reduction in fossil fuel reliance by 2030, and, in total, consist of over 100 community members and national experts who, in collaboration, together meet on a quarterly basis to help Hawaii harness its clean energy potential.

12. *Describe the specific activities and operations of the program in chronological order.*

**January 2008:**

Precipitated from the efforts of the State Energy Office, Governor Lingle and U.S. Department of Energy Assistant Secretary for Energy Efficiency and Renewable Energy Alexander Karsner signed a Memorandum of Understanding establishing a long-term partnership designed to accelerate the transformation of Hawaii into one of the world’s first economies based primarily on clean energy resources. Hawaii is the only state to have such a partnership with the DOE. The goal of the partnership is to use renewable resources – such as wind, sun, ocean, geothermal, and bioenergy – to supply 70 percent or more of Hawaii’s energy needs by 2030.

**January 2008:**

Hawaii hosts the Major Economies Meeting on Global Security and Climate Change, attended by officials from the world's 16 largest economies and the United Nations and European Union.

**February 2008:**

The State of Hawaii announces the nation's first wave energy project, which will consist of floating platforms off the coast of Maui that can produce enough power for 2,700 homes.

**February 2008:**

The National Governor's Association Annual Conference is held in Washington, D.C. with the focus of "Securing a Clean Energy Future." Governor Lingle is one of eight Governors on a special task force focused on energy solutions for America.

**March 2008:**

Ted Liu, director of the DBEDT and David Rodgers, Deputy Assistant Secretary for Energy Efficiency of the U.S. Department of Energy's Office of Energy Efficiency discuss the progress that has been made thus far in Hawaii towards a clean energy future.

**March 2008:**

Governor Lingle holds a news conference with the director of the National Renewable Energy Laboratory to announce a public-private partnership as part of the Administration's ongoing efforts to increase Hawaii's energy independence.

**April 2008:**

Governor Lingle and U.S. Department of Energy (U.S. DOE) Assistant Secretary for Electricity Delivery and Energy Reliability Kevin Kolevar announced the selection of a Hawaii project as part of a nationwide demonstration to modernize the country's electricity grid system.

**June 2008:**

Operations of a new photovoltaic system commenced at the Navy's Halsey Terrace Community Center in Honolulu.

**September 2008:**

Recognizing the State's efforts to increase Hawaii's energy independence, the U.S. Department of Energy (U.S. DOE) awarded the State of Hawaii a \$500,000 grant that will be combined with \$900,000 in private funds.

**October 2008:**

A historic Energy Agreement was reached between the State of Hawaii, the State Consumer Advocate, and the Hawaiian Electric companies (HECO), which would commit the utilities to integrate 1,122 megawatts (MW) of utility-scale renewable by 2030, along with approximately 660 MW of customer-site photovoltaics and other distributed generation into its power grid.

**December 2008:**

In yet another step toward a secure economic and clean energy future, Governor Lingle and Shai Agassi, founder and CEO of Better Place, unveiled a plan to bring an electric car network to Hawaii, creating a model for the adoption of electric cars in the U.S.

**December 2008:**

Governor Lingle and Maui Mayor Charmaine Tavares announced an exciting new partnership to bring electric vehicles to the island of Maui by 2009 through an agreement with Phoenix Motorcars.

**January 2009:**

Dedication of Hawaii's largest 1.2 MW solar farm on the island of Lanai was held.

**March 2009:**

The State, along with Castle & Cooke, First Wind Hawaii and Hawaiian Electric Company, announced an agreement that could lead to large wind farms on both Lānai and Molokai providing clean energy to Oahu.

**March 2009:**

DBEDT, the Hawaii Department of Health (DOH), and the Chamber of Commerce of Hawaii formed a partnership through the Green Business Program as a coordinated effort with county agencies and professional associations to assist and recognize businesses that operate in an environmentally responsible way. The Green Business Program includes checklists and information for hotels and resorts, offices and retail, as well as for government buildings. More than 30 businesses have enrolled in the second half of 2009 and another 50 are expected to become certified in 2010. These agencies received the Governor's Innovation Award for their efforts.

**June 2009:**

Hawaii is the first state to require solar water heater systems in the country. Legislation mandates that beginning in 2010 building permits for single family structures cannot be issued without including a solar water heater system. Hawaii became the nation's recognized leader in solar water heating, accounting for over one-third of all systems installed in 2008, according to a study by the Solar Energy Industries Association.

**June 2009:**

Hawaii is one of only a few states to statutorily allocate parking spaces for electric vehicles: 1 percent of the total spaces of any parking lot with at least 100 public stalls by December 31, 2011. The passage of this Act makes Hawaii residents more comfortable investing in electric and plug-in hybrid electric vehicles (PHEVs) by fostering the development of electric-vehicle infrastructure. The requirement will increase to 2 percent when at least 5,000 electric vehicles are registered in the State. There must also be at least one recharging station in such parking lots.

**June 2009:**

The enactment of the Clean Energy Omnibus Bill set a precedent for electrical utility clean energy portfolio standards by including a separate goal for energy efficiency. The law calls for 30% reduction in energy use via efficiency by 2030 and directs the Hawaii Public Utilities Commission (PUC) to establish incentives and penalties that foster compliance. It also increases the renewable

portfolio standard to 40% by 2030. With its dual goals of 30% energy efficiency and 40% renewable energy, the Clean Energy Omnibus Bill puts Hawaii's electrical generation sector directly in line with the State's goal of 70% clean energy by 2030.

**June 2009:**

The enactment of the Renewable Energy Technologies Income Tax Credit bill amended the existing law, in effect since 1960, which provided personal and corporate income tax credits of up to 35% of the cost of installing solar electric and solar thermal equipment and up to 20 percent of the cost of installing wind turbines. As amended, the law now enables individuals and corporations to receive a tax refund when their earned tax credits under this program exceed their state income tax for the year.

**June 2009:**

The enactment of the Public Utilities Commission Renewable Energy Act allowed utilities to invest in renewable energy technologies even if a project cost more than the fossil fuel costs it aimed to avoid.

**October 2009:**

DBEDT, Department of Hawaii Home Lands, and Hawaii Department of Accounting and General Services will conduct energy efficiency and renewable projects funded by more than \$6 million in Energy Efficiency and Conservation Block Grant funds from the U.S. Department of Energy. This is part of the federal economic stimulus package known as the American Recovery and Reinvestment Act (ARRA). Hawaii has the highest penetration of Energy Savings Performance Contracts in the United States.

**October 2009:**

The U.S. Pacific Command (PACOM), in a unique partnership with the State, released its strategy for reducing dependence on fossil fuels on Oct. 23. The strategy defines PACOM's commitment to help the State towards 70 percent clean energy by 2030. U.S. Department of Defense projects include photovoltaics, wave energy, wind, ocean thermal energy conversion (OTEC) and hydrogen as well as efficiency and grid improvement.

**October 2009:**

The State issued a request for proposal from private companies and other interested organizations to conduct an environmental impact statement (EIS) for the undersea interisland cable system to transmit electricity between the islands of Oahu, Molokai, and Lanai. The EIS is expected to be completed within 18 months. Actual construction is planned to begin within three years. The cable is expected to save Hawaii taxpayers \$5.7 billion over 20 years from reduced oil imports of 2 million barrels annually.

**December 2009:**

An avant-garde project, which was awarded the Governor's Innovation Award, to cool buildings in downtown Honolulu filed its final environmental impact statement in 2009. The Honolulu Seawater Air Conditioning (SWAC) project will involve a network of pipes distributing cold water from the deep ocean to as many as 40 buildings, reducing conventional air conditioning costs. Six customers have signed non-binding contracts to participate.

**January 2010:**

In addition, the United States Department of Agriculture and the Department of the Navy signed a Memorandum of Understanding to encourage the development of advanced biofuels and other renewable energy systems on a national level.

13. *Why is this program a new and creative approach or method?*

Clean energy transformation is a top State priority, and as a result, Hawaii leads the nation on a number of energy-related fronts. Hawaii is statutorily transforming the regulatory and energy policy framework for renewable energy development in an island state and is serving as the model that other island nations and territories can follow (e.g., Guam, Northern Marianas, American Samoa, Japan, Taiwan, and the nations involved in the U.S. DOE sponsored alliance called Energy Development in Island Nations [EDIN]). With noteworthy speed and scale in clean energy transformation, Hawaii is on track towards developing, introducing, and integrating proven or new methods of renewable energy production and energy efficiency in its island communities.

14. *What were the program's start-up costs? (Provide details about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)*

Additional capital was not necessary to startup the program. The program, stemming from the Hawaii State Energy Office, is a partnership with the U.S. Department of Energy and U.S. Department of Defense, experts from national laboratories, and leaders in the private sector. The program was largely funded by the existing state budget.

15. *What are the program's annual operational costs?*

The Hawaii State Energy Office annual operational cost of \$2.06 million is composed of its existing staff resources.

16. *How is the program funded?*

The Hawaii State Energy program in FY2009 was supported by funds via the State Energy Program-Department of Energy (SEP-DOE), State Energy Program-Petroleum Violation Escrow (SEP-PVE), and State matching funds (20 percent of SEP-DOE funds).

<b>Funds</b>	<b>FY 2009</b>
SEP-DOE funds	\$ 233,000.00
SEP-PVE funds	\$ 1,785,196.00
State Match	\$ 46,600.00
<b>Total</b>	<b>\$ 2,064,796.00</b>

There is a strong commitment from the federal government, not only in policy design, but also in a willingness to invest via stimulus funds from the American Reinvestment and Recovery Act (ARRA) of 2009 and federal support of other state programs. Approximately \$25.9 M of federal ARRA funds have been secured for the Hawaii State Energy office, specifically in reference to the Hawaii Clean

Energy Initiative projects in biomass, geothermal, water, smart grid, state electricity regulators assistance, energy efficiency and conservation, and workforce development.

17. *Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number.*

This State initiative did not require the passage of legislation, executive order or regulations. It was the outcome of the Memorandum of Understanding between the State of Hawaii and the Department of Energy.

18. *What equipment, technology and software are used to operate and administer this program?*

The implementation, operation, and administration of the State's clean energy goals do not require any specialized programmatic software, technology, or equipment.

19. *To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address, telephone number and e-mail address.*

This initiative originated in the State of Hawaii and can be principally attributed to three individuals:

**The Honorable Linda Lingle**

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**William Parks**

U.S. Department of Energy  
Department of Electricity

20. *Are you aware of similar programs in other states? If YES, which ones and how does this program differ?*

While numerous states are pursuing various energy policies, we know of no other state with as comprehensive and aggressive an energy policy framework as Hawaii's for transforming a state's energy economy. Five other states (Illinois, Minnesota, Oregon, Nevada, and Ohio), have similar though less ambitious energy policy goals of a 25% renewable portfolio standard by 2025 though no other state can, at this point in time, match the scope and scale in which Hawaii is approaching a state-wide clean energy reform.

21. *Has this program been fully implemented? If NO, what actions remain to be taken?*

The State's goal of achieving 70% reliance on indigenous and clean energy by 2030 is composed of short- and long-term objectives. There is still much to do between now and 2030, in terms of continuing to implement projects and activities, and identifying additional opportunities to conserve energy, encourage renewable energy development, preserve natural resources, and increase energy security. Key actions that remain include the interisland undersea cable and the energy policy and regulatory reforms that are being considered by the PUC (e.g., the implementation of the Feed-in Tariffs System and Decoupling, and the establishment of the Clean Energy Scenario Planning Framework).

22. *Briefly evaluate (pros and cons) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.*

The State of Hawaii is leading the ambitious charge to achieve energy self-sufficiency through developing its own clean, indigenous renewable energy resources. The State's energy program and goals span over 22 years and thus continues to require more time to fully implement. Expedient and continued progress each year is the key for the State to effectively address the problem of being a fossil fuel-reliant economy. In just the past two years since the program's inception, the State has seen notable achievements. The following progressive accomplishments provide validating examples of how Hawaii is effectively leading the ambitious transformation:

- Hawaii has statutorily designated the highest goals in the nation for RPS at 40% and for EEPS at 30%. The implementation process designed for these two measures can serve as a model nationally. In addition, 17 other landmark energy bills have been enacted;
- Hawaii's progress towards a clean energy economy ranks among the highest in the nation:
  - Currently, Hawaii is at 9.3% renewable and 8.6% efficiency and displacement technologies;
  - Hawaii has the highest performance contracting per capita in the nation;
    - The State's DAGS has entered into energy savings performance contracts for 11 downtown state office buildings, including the State Capitol, public housing, the Department of Transportation, the University of Hawaii, and the Department of Education;
  - Hawaii leads the nation in solar water heater installation on all new home construction;
  - Hawaii is third in the nation for per capita photovoltaic generation;

- Hawaii residents are also becoming more energy efficient, using 8% less energy per capita in 2008 than 2007, marking the sharpest decline in recent years, given that in the same period, we spent nearly 40% more on energy costs due to record high oil prices;
- As a result of the administration's Lead by Example initiative, state executive branch consumption of electricity decreased by nearly 6% from 2008 to 2009, saving an estimated \$10 million a year in general funds;
- Hawaii has the first net-zero energy community to be opened in 2010 through the Department of Hawaiian Home Lands;
- Hawaii was picked by the Database of State Incentives for Renewables and Efficiency (DSIRE) "top 9 in '09" significant energy policies that made headlines in 2009 due to its aggressive clean energy initiative and recently passed legislation increasing renewable electrical energy generation required by utilities under the RPS;
- Six state buildings have received ENERGY STAR® labels, acknowledging that they rank in the top 25% of similar buildings nationwide. Agencies are reviewing buildings to recertify existing buildings and to identify new buildings for labels;
- Six state buildings are LEED (Leadership in Energy and Environmental Design) certified. An additional 52 LEED projects are in the process toward the goal of certification. The Hawaii Department of Education (DOE) and the University of Hawaii (UH) now design and construct all new buildings to meet LEED Silver standards;
- The State Building Code Council approved the 2006 International Energy Conservation Code (IECC) and modified the code to better suit the climate in Hawaii, resulting in an estimated 15% efficiency improvement;
- The planning efforts for the construction of an inter-island undersea cable system are underway to transfer large quantities of renewable energy between islands in the Hawaiian chain;
- Presently, 37 dockets related to clean energy development are active before the PUC, two of which include the historic and "game-changing" dockets establishing a feed-in tariffs system and decoupling for HECO. These dockets will transform the energy policy framework in Hawaii and move the State closer to an energy independent future;
- Local, national, and global partnerships accelerate system transformation for Hawaii to achieve 70% clean energy within a generation: local partnerships include the landmark Energy Agreement made on October 20, 2008 between the Governor of the State of Hawaii, DBEDT, HECO, and the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs; national partnerships include the US Department of Energy and Department of Defense; and global partnerships include Taiwan, China (Hainan province), and Japan (Okinawa prefecture).

23. *How has the program grown and/or changed since its inception.*

Two years ago, the State embarked on an initiative to become 70% reliant on clean, indigenously produced energy by 2030. Remarkable progress has led to the materialization of what is measurably a grand yet attainable objective. As the reformation of the State's current energy policy and regulatory framework continues, as new and innovative renewable energy technologies and infrastructure are introduced, as energy efficiency reforms remain active, and as various stakeholders forge and uphold historic agreements and partnerships through this collaborative initiative, the State of Hawaii's goal of 70% clean energy by 2030 has continued its focused growth towards energy independence and sustainability, both in size and in scope.

24. *What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?*

Not every state has the breadth of renewable energy opportunities that is naturally accessible in Hawaii; conversely, no other state has such a high dependence on petroleum, and thereby would not warrant as aggressive a clean energy campaign as seen in Hawaii. Moreover, being the only island state in the U.S., Hawaii faces energy policy, regulatory, and infrastructure issues that are unique to an island community (state, territory, or nation). Thus, as an "open source" learning model, which is and will be a natural byproduct of the initiative, it specifically serves as a prototypical model to support other island communities seeking to achieve similar clean energy goals. Nevertheless, the general approach of this comprehensive and reformed clean energy framework still has applicatory value to other states on the mainland.