



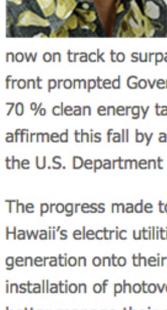
THE CURRENT

Hawaii State Energy Office Clean Energy Update



The Current serves Hawaii's businesses and policy makers in making informed decisions about clean energy investments and policy. Hawaii's clean energy sector is a significant catalyst for economic development to replace fossil fuel expenditures with home-grown industries that generate revenue and create high-paying jobs for local residents.

ILLUMINATING THOUGHTS
MARK GLICK, ENERGY ADMINISTRATOR



In 2008, the Hawaii Clean Energy Initiative (HCEI) set forth the most aggressive clean energy goals in the nation to increase our state's electrical generation from renewable sources to 40% and reduce our energy consumption by 30%, for a total clean energy target of 70% by 2030.

Having achieved a renewable portfolio standard (RPS) of 17.9% and an energy efficiency portfolio standard (EEPS) of 15.7% in 2013, Hawaii has made significant progress and is now on track to surpass its clean energy goals. Our success on the clean energy front prompted Governor Neil Abercrombie to commit Hawaii to going beyond the 70 % clean energy target by 2030. The renewed effort, called HCEI 2.0, was affirmed this fall by a Memorandum of Understanding (MOU) between Hawaii and the U.S. Department of Energy.

The progress made to date in renewable energy points to new challenges for Hawaii's electric utilities as they work to integrate high levels of distributed solar generation onto their grids. Clearing the backlog in the interconnection queue for installation of photovoltaic systems, as well as empowering energy consumers to better manage their energy use, remain top priorities. The Hawaii State Energy Office (HSEO) is committed to collaborating with Hawaii's electric utilities in their efforts to achieve grid modernization, which is imperative to accomplishing our state's clean energy goals.

OUR CLEAN ENERGY VISION

The Hawaii State Energy Office (HSEO) will transform Hawaii's economy by growing the clean energy sector. To this end, HSEO works to stimulate the deployment of clean energy infrastructure and serve as a catalyst for energy innovation and test bed investments. In doing so, HSEO will lead the charge in exceeding the goal to achieve 70% clean energy by 2030, with 30% from efficiency measures and 40% from locally generated renewable sources. [Read more...](#)

LEADING THE CHARGE

Renewable energy generated by solar, wind, biomass, geothermal, and hydro is integral to reducing Hawaii's dependency on imported fossil fuels. Under HCEI 2.0, Hawaii is committed to exceeding the original target of 40% renewable energy by 2030. Progress toward this goal is measured against renewable portfolio standards (RPS), required annual renewable energy production benchmarks. With an abundance of rooftop solar and more than 50 active large-scale renewable energy projects across the state, we are laying the foundation to exceed our renewable energy goal.

- At the end of 2013, the state's RPS level reached of 17.9%, effectively surpassing its 2015 interim goal two years early.
- From 2012 to 2013, Hawaii's renewable generation across all sources, including wind, geothermal, biomass, and most notably in recent years, distributed photovoltaics (PV), has increased by 29%.
- In 2013, distributed renewable energy system installations increased from 12,560 in 2012 to 18,316 in 2013. At the end of 2013, the cumulative number of renewable energy systems statewide totaled 40,717 with a total capacity of 253.5 MW.

While Hawaii's renewable energy goal is achievable based on the abundance of renewable sources, the viability of many projects depends on grid infrastructure. The rapid growth of distributed solar is also placing significant stress on the grid due to its volatility and intermittency. A modernized grid is essential to keeping pace with the growth of renewables and realizing the renewable energy potential.

Based on a century-old model, Hawaii's electrical grids were designed to carry power from a few central generators in one direction to a large number of customers. The limitations of this model have resulted in a slowing of rooftop PV installations as Hawaii's electric utilities endeavor to manage the intermittency of distributed solar generation in highly saturated areas. In contrast, the electrical grid of the future, as envisioned under HCEI 2.0, will incorporate smart technology, allowing for the two-way flows of electricity and information to create an advanced energy delivery network that increases renewable capacity, improves stability and performance, and ultimately stabilizes or reduces electricity rates.

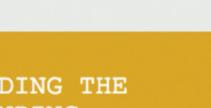
The advent of an intelligent grid will also empower energy consumers by giving them better tools to manage their energy use. Most ratepayers today do not know how much energy they consume and at what cost until the end of the month when they get their bill. Advanced metering infrastructure will lay the groundwork for in-home energy management systems that enable ratepayers to keep track of how much energy they are using and for what purpose. Smart meters also provide utilities with the ability to charge variable rates, which can be used to incentivize consumers to shift their heavy use of electricity to times of the day when demand is low.



RENEWABLE PORTFOLIO STANDARDS



50 RENEWABLE ENERGY PROJECTS



GRID MODERNIZATION

FEATURED STORY: UNDERSTANDING THE MEMORANDUM OF UNDERSTANDING



In September, at the 2014 Asia Pacific Clean Energy Summit & Expo, Governor Neil Abercrombie and U.S. Department of Energy Secretary Ernest Moniz signed a Memorandum of Understanding (MOU), reaffirming their commitment to the Hawaii Clean Energy Initiative, a long-term partnership to increase energy efficiencies and maximize the use of Hawaii's abundant renewable energy resources.

The MOU formally recognized the evolution of the Hawaii Clean Energy Initiative (HCEI) into its next phase. HCEI 2.0 will give stakeholders an opportunity to reexamine Hawaii's clean energy potential and develop new low-cost strategies to tap that potential. Consensus is emerging that a 60% RPS could be achievable. HCEI 2.0 will foster stakeholder engagement to build long term plans that stand the test of time through focused and critical analysis. The first stakeholders meeting, also held at the Asia Pacific Clean Energy Summit, was very well-attended, with diverse participation from both government and private organizations.

[Read more...](#)

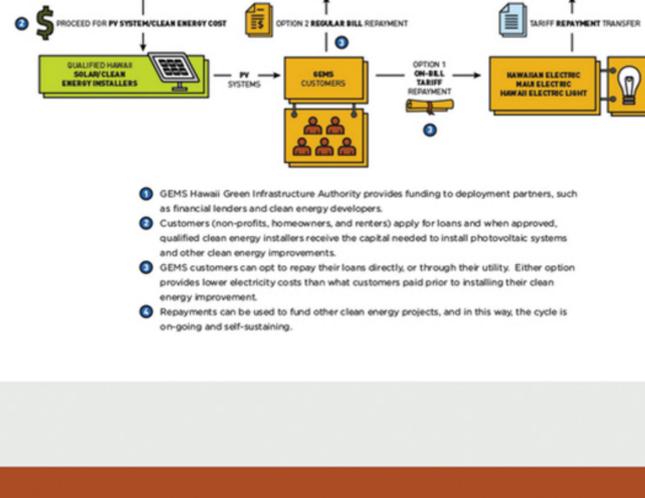
FEATURED STORY: HIDDEN GEMS

The Green Energy Market Securitization (GEMS) Program is an innovative green infrastructure financing program designed to make clean energy improvements affordable and accessible for Hawaii consumers who can't afford the upfront costs. In particular, DBEDT has identified a group of underserved consumers that includes renters, non-profits, and homeowners who have been locked out of traditional financing for clean energy installations. GEMS was created to bridge that market gap and bring financing for clean energy into reach for a wider audience.

GEMS uses a market-based financing mechanism to make low-cost capital available for clean energy loans that might not otherwise be provided by traditional lenders. The ability of GEMS to tap a huge pool of institutional bond investors allows the program to reduce financing costs for clean energy installations by minimizing overhead expenses and taking advantage of economies of scale. Consumers who borrow from GEMS to make clean energy investments will see electricity bill savings on day one, with no money down.

Initially, GEMS will provide financing for distributed solar and other technologies that support PV interconnection, such as energy storage, advanced inverters and monitoring devices. Because GEMS supports grid-enabling technologies it has the potential to help mitigate some of the interconnection issues that have slowed new PV installations. GEMS could eventually be used to support other proposed clean energy technologies such as utility grid modernization, utility renewable generation commercial energy efficiency, technologies that incorporate a water-energy nexus, including sewage and waste water treatment, heating, ventilating, and air conditioning ("HVAC") and related systems, and LED systems.

The state sold \$150 million of bonds in November to support the GEMS program. The bonds were rated Triple-A rating by the major debt rating agencies. The cost of capital associated with the bonds is less than 3%, which will translate into favorable interest rates for GEMS loans. The Hawaii Green Infrastructure Authority, through its deployment partners, is on track to begin making clean energy loans by the end of 2014. GEMS has already been recognized for its innovative financing structure, by the Council of Development Finance Agencies, receiving the Excellence in Energy Finance Award. [Read more...](#)



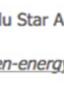
1. GEMS Hawaii Green Infrastructure Authority provides funding to deployment partners, such as financial lenders and clean energy developers.
2. Customers (non-profits, homeowners, and renters) apply for loans and when approved, qualified clean energy installers receive the capital needed to install photovoltaic systems and other clean energy improvements.
3. GEMS customers can opt to repay their loans directly, or through their utility. Either option provides lower electricity costs than what customers paid prior to installing their clean energy improvement.
4. Repayments can be used to fund other clean energy projects, and in this way, the cycle is on-going and self-sustaining.

DID YOU KNOW?



Hawaii leads the nation in photovoltaic (PV) installations. We are ranked #1 for grid-connected PV cumulative installed capacity per capita. (Source: Interstate Renewable Energy Council's U.S. Solar Market Trends 2013)

ENLIGHTENING NEWS AND ARTICLES



- [Financing Program Helps Consumers Get Solar](#) (Honolulu Star Advertiser 11/16/14)
- [Hawaii Needs To Be Realistic About Energy Security, Expert Says](#) (Pacific Business News 10/17/14)
- [DBEDT Comments On HECO Plans](#) (Honolulu Star Advertiser 10/10/14)
- [Core changes needed at HEI](#) (Honolulu Star Advertiser 10/13/14)
- [Hawaii paves the way with first green-energy ABS](#) (IFR Asia 11/19/14)

