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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 driver for economic development to replace fossil fuel expenditures with home-grown industries that stimulate smart economic growth for future generations of Hawaii.

ENERGY EFFICIENCY BOOSTS HAWAII'S CLEAN ENERGY EFFORTS

Carilyn O. Shon, Energy Program Administrator

Building construction and operations can have significant impacts on the environment, on society, and the economy. That's why we have such a strong local commitment to sustainable design concepts both in new construction and in retrofitting existing buildings. Our first featured story in this issue of The Current explores the extensive work done by the Hawaii Convention Center to earn a prestigious honor for its sustainability efforts. New recycling and water conservation measures along with energy retrofits allowed the 20-year-old building to achieve one of the highest certifications offered by the non-profit U.S. Green Building Program in its Leadership in Energy and Environmental Design green building rating system.

Our second feature story also deals with improving efficiency -- in this case the efficiency of a government program. The Hawaii State Energy Office is accepting electronic applications from people applying for a variance from state law requiring all new single-family homes to be built with solar water heaters, which can reduce monthly electric bills by 20 to 30 percent or more depending on how much hot water is used in the household. Solar water heating also contributes to Hawaii's renewable energy and energy efficiency goals. Previously variance requests were submitted through the mail, via e-mail or fax, or hand delivered. The new electronic filing option has been well-received since it expedites the filing process for applicants and allows the state to process the applications more quickly and efficiently.

FEATURED STAFF: BROWNFIELDS TO RENEWABLE ENERGY

Gordon Li, Intern, Renewable Energy Branch

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What images come to mind when you think of the word "brownfields"? Contaminated sites are often thought of as barren, unproductive, and an eye-sore. However, these sites hold tremendous potential to be transformed into assets that could help propel Hawaii into a clean energy future. With an already finite amount of land competing for multiple uses – agriculture, housing, and recreation to list a few – contaminated sites offer an attractive alternative for renewable energy development.

I first learned of Hawaii's ambitious energy goals at a conference. After a shot-in-the-dark email, and a subsequent series of calls with the passionate staff at the Hawaii State Energy Office (HSEO), I started work on a project which considers solar PV development in Hawaii's portfolio of contaminated sites. And oh boy, are there a lot of them - some of which are large enough for utility-scale development. As a master's student interested in the relationship of land-use and renewable energy generation, this was exactly the type of work I wanted to be involved in. The GIS (geographic information system) nerd in me was not-so-secretly rejoicing.

My summer fellowship at HSEO was nothing short of amazing. I hit the ground running and never really stopped. Through my marathon, I became acquainted with many like-minded public and private sector folks from who share my passion to leave Hawaii a better place for the next generation to thrive

Much like the lifegiving ohia trees that are among the first plant life to emerge from the inhospitable volcanic landscape, I have high hopes that this continued interest in and investigation of contaminated sites and other creative resources will create a solid foundation that will snowball into greater appreciation of these sites as a viable sustainable alternative for energy generation in Hawaii and beyond.

Gordon Li is a graduate student studying renewable energy and sustainable development at the Duke University Nicholas School of the Environment.

CLEAN ENERGY VISION

The Hawaii State Energy Office's (HSEO) mission is to maximize Hawaii's energy self-sufficiency and security by developing and utilizing local energy resources in a balanced way.

In doing so, HSEO will guide our state toward the Hawaii Clean Energy Initiative goals to achieve 100 percent renewable energy in the electricity sector by 2045, reduce electricity consumption by 4,300 gigawatt-hours by 2030, and reduce petroleum use in transportation. To this end, HSEO works toward the deployment of clean energy infrastructure and serves as a catalyst for energy innovation and test bed investments. By achieving these goals, HSEO will grow the clean energy sector and transform Hawaii's economy.

LEADING THE CHARGE

National Recognition in Energy Efficiency

A national network of energy efficiency experts recently honored Hawaii with its *Race to the Top* award for the pioneering work being done by state and county agencies to boost investment in energy efficiency projects that are helping the state meet its clean energy goals. The Energy Services Coalition for the seventh consecutive year recognized Hawaii as the nation's per capita leader in energy performance contracting, a form of innovative financing for capital improvements that allows government agencies to pay for energy efficiency upgrades with the savings on their utility bills. Hawaii also received a second *Race to the Top* award from the Energy Services Coalition for having the most EPC investment per capita for 2017.

Hawaii PV Brightfields Project

On July 24, 2018 HSEO's Renewable Energy Branch and the Hawaii Department of Health's Hazard Evaluation and Emergency Response Office hosted a workshop on a new initiative to support the development of solar photovoltaic (PV) projects on contaminated lands in Hawaii. Contaminated and underutilized sites have characteristics that can make them attractive for PV, and encouraging the redevelopment of previously used land can help preserve untouched areas and reserve land for other needs. The Hawaii PV Brightfields Contaminated Lands Workshop offered stakeholders the opportunity to provide valuable input to help the state identify priority needs and shape the ultimate outcomes for this initiative. In addition to supporting site assessments and redevelopment through existing state and federal programs, the state plans to publish a site database and online map of contaminated sites in Hawaii with relevant solar development data to inform siting due diligence and help identify sites better suited for PV.

Community Discussion on Electric Utility Regulatory Models

HSEO is undertaking a study on the future of electric utility ownership and regulatory models in Hawaii. As a part of this study meetings are being held November 13-16, 2018 for community input on the future of electric utility ownership and regulatory models including the role of performance-based regulation in achieving state energy goals, including achieving 100 percent renewable energy and minimizing rate increases. Meeting material will be available on the Utility Model Study Community Meetings and Working Sessions site.



National Recognition in Energy Efficiency

From left: HSEO's Merissa Sakuda, Energy Services Coalition's Board of Directors Robert Georgeoff, HSEO's Alan Okimoto.



<u>Hawaii PV</u> Brightfields Project



<u>Community</u> <u>Discussion on</u> <u>Electric Utility</u> Regulatory Models



HAWAII CONVENTION CENTER

EARNS LEED GOLD STATUS

Achieving LEED Gold certification was no small feat for the Hawaii Convention Center, a massive building with more than 1 million square feet of floor space.

A host of sustainability initiatives, including an aggressive recycling program, water conservation measures, and the installation of high-efficiency lighting and chillers helped the Honolulu facility become the nation's first convention center to earn LEED v4 O&M Gold Certification.

The Hawaii State Energy Office (HSEO), a division of the Department of Business, Economic Development, and Tourism, assisted the Convention Center in its quest to achieve LEED Gold status by conducting a LEED assessment in 2012. The work was done using American Reinvestment and Recovery Act funds administered by DBEDT.

LEED, or Leadership in Energy and Environmental Design, is the most widely used green building rating system in the world. The LEED program is run by the U.S. Green Building Council (USGBC), a membership-based non-profit organization that promotes sustainability in building design, construction, and operation. There have been several different versions of LEED since its launch in 1993, with v4 being the most recent. O&M (operations & maintenance) is a LEED category reserved for existing buildings and recognizes efficiencies in their operation and maintenance.

Conservation and efficiency measures implemented in new construction, as well as retrofits of existing buildings such as the Convention Center, can have a significant impact on the environment since buildings are some of the largest consumers of natural resources and largest generators of carbon emissions.

According to the USGBC, each year buildings account for 39 percent of the Co2 emissions in the U.S. and consume 70 percent of the country's electricity. LEED-certified buildings use 25 percent less energy and 11 percent less water and have diverted more than 80 million tons of waste from landfills.

"We commend the Convention Center for doing the hard work necessary to achieve LEED Gold certification. Projects like this will go a long way toward helping Hawaii achieve its clean energy goals," said Carilyn Shon, HSEO administrator. "Because buildings have such a major impact on the environment, they can also be a big part of the solution," Shon added.

The Convention Center, now in its 20th year of operations, celebrated its LEED Gold certification with the launch of its Hoomaluo Program, a comprehensive approach to environmental sustainability. "At the Hawaii Convention Center, our guests, planners, staff, and communities have come together for more than two decades to preserve, protect, and enhance the natural beauty of the Hawaiian Islands," said Teri Orton, general manager of the Convention Center. "This LEED certification nationally recognizes the dedicated work of our staff to make our Hoomaluo Program a reality."

Hawaii has frequently been among the Green Building Council's top states for LEED-certified buildings. In 2017 Hawaii buildings had 4.5 million LEED-certified square feet of space, or 3.32 square feet per capita, ranking the state No. 4 behind No.1 Massachusetts, No. 2 New York and No. 3 Illinois.



ONLINE OPTION FOR FILING SOLAR WATER HEATER VARIANCES TAKES OFF

Nearly half of those applying for solar water heater variances are choosing a new option that allows them to file applications electronically.

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Data compiled by the Hawaii State Energy Office (HSEO) show that 48 percent of the applicants have opted to submit their paperwork online since the new application process went into effect September 4. The other 52 percent submitted their applications through the mail, via e-mail or fax, or hand delivered them.

The electronic filing option was authorized under a Hawaii Administrative Rule signed by Governor David Ige. The new online feature expedites the filing process for applicants. It also allows HSEO, a division of the Department of Business, Economic Development, and Tourism, to process the applications more quickly and track them more easily. In addition, the rule permits the state to collect a \$25 processing fee for each application payable by credit card or e-check. Applications may be submitted electronically at swhv.ehawaii.gov. Applications sent through mail, e-mail, fax, or hand delivery pay the fee via check.

"The new electronic filing option for solar water heater variance requests is aligned with the ongoing effort to move state government toward a more efficient, paperless environment," said Carilyn Shon, HSEO administrator. "I applaud the work of my staff on this project, which will enhance our operating efficiency and help state government transition to a more sustainable working environment," Shon added.

State law requires all new single-family dwellings in Hawaii to be built with a solar water heating system unless a variance is granted under limited circumstances.

Under Section 196-6.5 of the Hawaii Revised Statutes, solar water heater variances can be accepted only if submitted by a licensed architect or mechanical engineer that can attest the application meets one of the four following conditions:

- Installation is impracticable due to poor solar resource.
- Installation is cost-prohibitive based upon a life cycle cost-benefit analysis that incorporates the average residential utility bill and the cost of the new solar water heater system with a life cycle that does not exceed 15 years.
- A renewable energy technology system, as defined in HRS Section 235-12.5, is substituted for use as the primary energy source for heating water.
- A gas demand water heater device is installed, provided that at least one other gas appliance is installed in the dwelling. For the purposes of this condition, "demand water heater" means a gas -tankless instantaneous water heater that provides hot water only as it is needed.

More information about the mandatory solar water heater law and variances can be found at <u>energy.hawaii.gov/resources/solar-water-heater-variance.</u>





UPCOMING EVENTS

HSEO is a proud sponsor of the 2nd NELHA Energy Storage Conference, December 5-6, 2018 in Kailua-Kona, Hawaii. This event will focus on energy storage and microgrid initiatives, issues, and projects in the Hawaiian Islands and specifically on the Island of Hawaii.

Register today for the NELHA Energy Storage Conference at <u>nelha.hawaii.gov</u>.



