HAWAII STATE Energy Office

THE CURRENT

Hawaii State Energy Office Clean Energy Update

FALL 2016

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 stimulates smart economic growth for future generations of Hawaii.

EVOLUTION, INNOVATION AND VISUALIZATION MOVING HAWAII FORWARD

Mark Glick, Energy Administrator

In our fall newsletter, we highlight two key areas of focus at the Hawaii State Energy Office – how we are fostering innovation and engaging stakeholders to work collaboratively on making the state's clean energy goals a reality. This issue of The Current shows how the Hawaii Clean Energy Initiative (HCEI) has embraced innovation and stakeholder engagement in Hawaii's emergence as a leader in the global clean energy movement.

Our first featured story takes a look at how stakeholder engagement -- a hallmark of HCEI since its inception in 2008 -- continues to strengthen and grow under HCEI MAX, the newest phase of the initiative. Our second story provides details of an innovative data visualization tool being developed by the Hawaii State Energy Office (HSEO) that will help make sense of large amounts of energy system data in order to improve the planning process.

The new HCEI MAX moniker recognizes a number of recent steps in the evolution of the initiative, including an increase in Hawaii's renewable portfolio standard to 100 percent by 2045 and a renewed emphasis on reducing petroleum use in the transportation sector. We are counting on HCEI MAX and its underlying principles to drive Hawaii's clean energy transformation for years to come.

Finally, we address the value of data visualization and provide an update on the development of HSEO's HAVEN project. Data visualization is gaining recognition as a powerful tool that can help improve understanding and communication through visual representation of information in an interactive setting. Because of the way the human brain processes information, using visual images to represent large amounts of complex data is easier than poring over spreadsheets or reports. Through visualization, HAVEN will allow energy planners and other stakeholders to more easily grasp difficult concepts, identify new patterns and more efficiently take away key messages.

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 HCEI MAX 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 serve 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

Five Years on Top

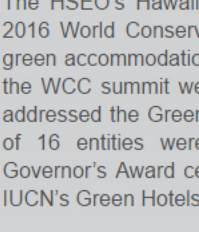
For the fifth year in a row, the Energy Services Coalition ranked Hawaii first in the nation in government energy performance contracting for 2016. Hawaii's $325.25 per capita investment beat out second place Kentucky with $172.84 and third place Delaware with $154.47. The national average is $53.93 per capita investment.

Conservation Congress Greens Rooms

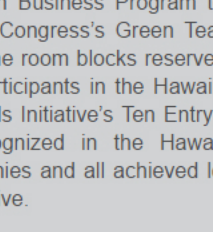
The HSEO's Hawaii Green Business Program team worked with the IUCN's 2016 World Conservation Congress's Green Team to ensure visitors enjoyed green accommodations. The room blocks reserved at the lodging properties for the WCC summit were participants in the Hawaii Green Business Program or addressed the Green Hotels Initiative's Ten Entry Level Green Actions. A total of 16 entities were recognized in the Hawaii Green Business Program Governor's Award ceremonies and all achieved levels one, two or three of the IUCN's Green Hotels Initiative.

Mark Glick on the VERGE: VR Tools

Energy Administrator Mark Glick was a keynote speaker at VERGE 16 in Santa Clara, California. Mark spoke on Hawaii's plan to build a state-of-the-art 3D visual computing environment. The virtual reality tool will support the state's course towards 100 percent renewable energy by turning massive streams of data into imagery for utility planners, engineers and other energy stakeholders.



Five Years on Top



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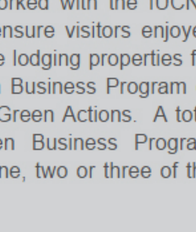
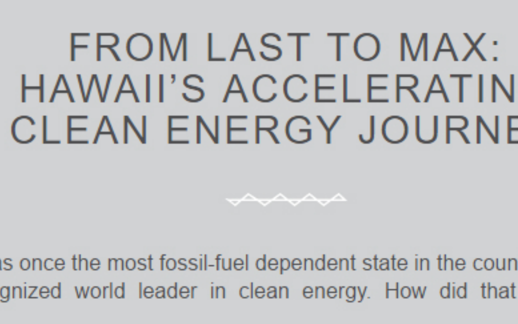


Mark Glick on the VERGE: VR Tools



FROM LAST TO MAX: HAWAII'S ACCELERATING CLEAN ENERGY JOURNEY

Hawaii was once the most fossil-fuel dependent state in the country. Now Hawaii is a recognized world leader in clean energy. How did that transformation happen?

It's taken years of hard work, collaboration and innovation by an incredible number of individuals and organizations, but it all started with a commitment known as the Hawaii Clean Energy Initiative (HCEI). HCEI is a collection of statutes and regulations that laid the foundation for an array of efforts in three broad areas: energy efficiency deployment, renewable energy deployment, and transportation solutions. First established in 2008 as a groundbreaking Memorandum of Understanding between the U.S. Department of Energy and the State of Hawaii, HCEI has continued to grow stronger and more ambitious over the course of three gubernatorial administrations.

Since HCEI was established, Hawaii has significantly increased both its renewable energy portfolio standard (RPS) levels and its energy efficiency portfolio standard (EEPS) levels.

- Under the RPS, renewable energy accounted for 23.4 percent of utility electricity sales in 2015, up from 9.4 percent in 2008.
- Over the same period, the amount of electricity saved from efficiency measures under the EEPS increased to 1,575 gigawatt-hours, from 870 gigawatt-hours.

The latest recommitment, in 2014, came with an updated name, HCEI MAX, and a matching emphasis on Hawaii's leadership in setting bold clean energy goals. That includes a bigger focus on HCEI's third area of concern, transportation. HCEI MAX aims to reduce petroleum use in Hawaii's transportation sector, an important focus given that transportation accounts for two-thirds of the state's overall energy mix. Other goals include the nation's first-ever 100 percent renewable energy portfolio standard by the year 2045 and a reduction in electricity consumption by 4,300 gigawatt-hours (GWh) by 2030 – enough energy to power 7,962,963 refrigerators for an entire year.

HSEO will continue to collaborate with a growing body of influential stakeholders in many industries to lead the state toward HCEI MAX goals. HCEI MAX is enormously important to the state and its mission to achieve energy self-sufficiency and security. It promises to keep Hawaii at the forefront of the emerging global clean energy industry and secure massive economic, environmental and social benefits for generations to come.

To learn more about HCEI MAX, please visit hawaiicleanenergyinitiative.org.

COMPLEX DATA HEAVEN: THE HAVEN PROJECT

When United Airlines managers wanted to find out why motorized jet bridges were inexplicably damaging arriving aircraft at some gates and not others, they turned to data visualization. They also employed data visualization to identify a cause of costly rotator cuff injuries that were affecting a significant number of baggage handlers globally.

United has long collected valuable data on maintenance, employee injuries, airport operations and more. United managers received spreadsheets packed with information on the airline's 4,500 daily flights to 342 airports worldwide. But they were rarely able to discern trends due to the sheer volume of data.

With the implementation of the airline's new visualization program, United analysts found patterns that revealed answers to many of their questions. The new knowledge has helped United make changes that have reduced damage to aircraft and injuries to workers.

The same innovative process can be used tackle the complexities of energy system planning. Toward that end HSEO is creating a data visualization tool that will let stakeholders better understand the complex policy choices involved in meeting the state's aggressive clean energy goals.

HSEO was selected in August to receive a $225,000 competitive grant from the U.S. Department of Energy to develop the Hawaii Advanced Visualization Energy Nexus, or HAVEN, in partnership with the University of Hawaii at Manoa's Laboratory for Advanced Visualization & Applications (LAVA) and the Hawaiian Electric Companies. HAVEN will use high-resolution imagery and large-scale simulation to illustrate complex energy data sets and create a clearer picture of the tradeoffs needed to meet Hawaii's 100 percent renewable portfolio standard (RPS).

Planning to achieve 100 percent RPS is a complex and iterative process. Increasingly, advancements in the energy sector are complicated, interdependent across energy consuming sectors and impactful to customers. It is critical that stakeholders are engaged and informed about the ramifications of significant decisions that must be made to transform the energy sector. Understanding the economic, environmental and energy security implications of key decision points in various planning scenarios is essential for decision makers to have a complete picture of proposed energy landscapes. LAVA's CyberCANOE provides a large, high-resolution platform to display HAVEN visualizations and bring the complete picture into focus.

DID YOU KNOW?

A report from WalletHub ranks Honolulu as the second-greenest city in the U.S. Analysts compared the 100 largest cities across four key dimensions: Environment, Transportation, Energy Sources, and Lifestyle and Policy. Honolulu ranked first in "lowest greenhouse-gas emissions per capita" and tied for first in "highest percentage of green space."

ENLIGHTENING NEWS & ARTICLES

Hawaiian Electric unveils rates for new time-of-use program
(Pacific Business News, 10/19/16)

Hawaii moving ahead with effort to look into electric utility ownership models
(Pacific Business News, 10/03/16)

First wave-produced electricity in U.S. goes online in Hawaii
(Honolulu Star-Advertiser, 9/18/16)

DBEDT director sees role as "the champion for what's possible in … Hawaii"
(Honolulu Star-Advertiser, 9/09/16)

We can't rely on old utility models to enable future energy solutions
(Honolulu Star-Advertiser, 9/04/16)

Ige pushes to expand solar power to renters
(Honolulu Star-Advertiser, 8/17/16)

Smart sharing: Sun-saturated Hawaii debates first TOU community solar proposal
(Utility Dive, 8/11/16)

NOW ACCEPTING APPLICATIONS FOR CLEAN ENERGY EVENT SPONSORSHIPS

HSEO is now accepting applications for public event sponsorships – up to $10,000 per organization – that promote the state's clean energy goals. The types of clean energy events that may be sponsored include but are not limited to the following:

- Conferences/summits
- Energy workshops
- Seminars
- Educational events
- Energy trade fairs
- Workforce development events

Apply today! Deadline is February 1, 2017.

For details and to download an application, please visit: http://spo3.hawaii.gov/notices/notices/rfp-17-019-sid

Department of Business, Economic Development & Tourism
235 S. Beretania Street, 5th Floor | Honolulu, Hawaii 96813

phone (808) 587-3807
email energyoffice@dbedt.hawaii.gov

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