



PACIFIC
BUSINESS NEWS

Leaders in **ENERGY**

May 16, 2014

How we can clean up the way we power Hawaii

TINA YUEN

Ten of Hawaii's energy leaders predict how the Islands' energy mix will change in the next five to 10 years, and then offer advice on what it will take to get us to where we need to be. Story begins on Page 22

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ENERGY

Industry leaders forecast Hawaii's energy future

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How will the way in which Hawaii produces and consumes energy change in the next five to 10 years? What will it take to get there?

PBN asked 10 leaders of Hawaii's energy industry those two questions. Here are their answers:



MARK GLICK,
Administrator,
State Energy
Office

“When Gov. Neil Abercrombie established the state's first energy policy

directives in 2013, he dedicated the state to move beyond 40 percent of the state's electricity to be generated from renewable energy by 2030.

The prime movers to get there are regulatory action, building a service-oriented 21st century utility, interconnection and innovation, and energy diversity. We call this next phase of the Hawaii Clean Energy

Initiative HCEI 2.0, and we anticipate significant progress on this agenda over the next five to 10 years.

With the state's energy policy — energy.hawaii.gov/energypolicy — in mind, the Hawaii Public Utilities Commission seems poised to adopt rules and processes to push the limits of interconnecting renewables safely and reliably.

Grid connections between population centers are an essential ingredient in going beyond 40 percent. We expect to see an undersea transmission cable unifying the Oahu and Maui grids to greatly expand renewable penetration while lowering rates, enhancing grid stability and reducing curtailment of renewable energy.

Perhaps the biggest change will likely be investments to upgrade Hawaii's grid infrastructure, including smart grids, batteries and pumped storage technologies. This requires a new utility model to support that vision and a sea change in services that utilities provide to its energy consumers.

The state Energy Office is most excited about our efforts to scale energy innovation through the state's HI Growth Initiative — dbedt.hawaii.gov/higrowth — to create a growing and thriving clean-energy sector.



To diversify our economy beyond tourism and military spending, we can expect a cluster of emerging, innovative energy companies that are engaged in solutions to grid modernization, interconnection and energy storage strategies and technologies.

What does all of this mean? In 10 years, we hope to see price parity on electricity rates between islands, with Neighbor Island rates that are closer to Oahu's rates today, and stabilized prices well into the future.

We should have a diversity of fuels with renewable energy approaching half of all energy we use to generate electricity. Fuel diversity will likely include natural gas, which shows particular promise for reducing electricity rates, improving grid resiliency and renewable penetration via flexible and quick-start, fuel-efficient, gas-fired electric generating units.

Transportation fuels will be more diverse as well, with more electric vehicles, and natural gas serving as a clean and low-cost replacement for ground fleets and marine transportation.

In late 2015, we will begin to see commercially available hydrogen fuel cell vehicles, and by the end of the decade it should be a commonplace occurrence to see biodiesel, electric, natural gas, and hydrogen fuel cell vehicles on the road.



JOHN SYLVIA,
CEO, Big Island-based
Hu Honua
Bioenergy

“I see three particular developments emerging during the next five to 10 years.

1) Transmission lines will become grids, then become networks. High retail rates will drive self-generation; existing, traditional utility assets will become stranded; energy storage will emerge as a distributed system/supply stabilizer; and utilities will become service providers by allocating kilowatts efficiently between producers and consumers without bias towards origination.

2) Transportation fuel will shift from liquid to solid; electric- or

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hydrogen-powered vehicles will emerge as newly built alternative liquid fuel plants face cost/benefit challenges, as compared to repurposing existing electric and hydrogen-capable infrastructure; localized island geography will be compatible with installation of alternative fueling stations; and fleet switching costs will be modest due to the low level of local imbedded legacy vehicle production.

3) Cooperation will emerge between electric utilities and public utility commissions; legislative, regulatory and operational factors will be largely reconciled as a more aligned energy strategy is implemented; utility incentives and penalties will be reset to encourage cleaner, newer and lower-cost sources of electricity by encouraging production and shifting utility regulation to a distribution platform, i.e. "picking the game, not the winner;" and legacy arrangements will be restructured to a one-time basis to free utility management from overhang and allow them to operate within an open market that includes generation, supply, storage and distribution and service."



NEIL "DUTCH" KUYPER,
President and
CEO, Parker
Ranch

"Our energy future in 10 years could be very different.

Most of our electricity could be derived from renewable sources and our reliance on fossil fuels could be reduced by nearly half.

Both community-level solutions and large-scale renewables should be well underway and, in some instances, already implemented. Community-level solutions and energy districts could be optimally deployed, especially for towns such as Waimea (Kamuela).

The state Public Utilities Commission recognized the compelling value of these ideas in its recent orders.

The micro-grid concept has many potential applications on Hawaii Island such as hotels, university campuses, and essential services such as hospitals.

Micro-grids would improve our survivability and recovery in cases of catastrophic events such as hurricanes or tsunamis. Our island appears particularly vulnerable to tsunamis.

Comprehensive demand-side energy management could be

incorporated into such areas as water pumping and storage, especially for the potable water supply.

We appear headed for a breakthrough in battery storage technology in the next 10 years. The question will be how quickly batteries could be deployed.

An intriguing idea is the integration of electric vehicles into the grid, given the storage capacity inherent in them.

Broader adoption on Hawaii Island would require higher-capacity battery technology because of the size of the island and distance between destinations.

For the largest-scale renewable resources, undersea cables would allow the cheapest energy to be added to the grid for optimization among the connected islands.

This transformation would need massive amounts of capital, requiring that we collaborate to attract it. Given the monies necessary to fund these investments, we should be open to the transformational capital from outside Hawaii as long as those sources respect our cultural values and share our vision.

This transformation would also require enlightened regulation and forceful regulatory oversight to ensure the interests of society and that the overall social benefits (and costs) are reconciled to the private interests of the investor-owned utility.

The recent orders issued by the PUC possess many of these breakthrough insights and indicate

that we are moving in the right direction."



DAVID BISSELL,
President and
CEO, Kauai
Island Utility
Cooperative

"It's fashionable to say utilities are in a death

spiral and are on their way out, that everyone will be off the grid in the next 10 years.

What everyone forgets is that it takes a lot of electricity to run a home or business 24 hours a day, not just when the sun's shining.

The average person doesn't really want to get into the business of generating that amount of electricity — they want to switch on a light or an air conditioner and not worry about it.

And they want a lower bill. What's really going to happen is that we'll soon start to see the benefits of our renewable-energy portfolio, as well as utility-scale energy storage and time-of-use rates, which will dramatically reduce the amount of oil we're importing and give everyone — not just the people with the money to afford a PV system — the opportunity to lower their bills."

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Hawaiiana Management Company Reports Winning 2014 1st Quarter Results

Hawaiiana Management Company, Ltd., Hawaii's largest condominium and community association management company, had a stellar first quarter 2014.

Thirteen associations on the islands of Oahu, Maui, Kauai and Hawaii awarded their managing agent contracts to the kamaaina company during the first three months of 2014.



Symphony Honolulu

New clients include East Lake Apartments (Oahu), Wailuku Heights (Maui), Emmalani Court (Kauai), Alii Villas (Island of Hawaii) plus nine more condominium, community and commercial associations. Hawaiiana

also has 42 management contracts in place for new associations under construction. New associations under contract and under construction include Ka Malanai in Kailua, Rycroft Terrace, Symphony Honolulu, The Collection, Cove Waikiki and 37 more contracts.

2014 marks Hawaiiana's 50th Anniversary. To commemorate this milestone, industry publication *Building Management Hawaii* featured Hawaiiana



For the eighth year in a row, Hawaiiana Management Company was named Hawaii's #1 Condominium Association Manager*

*According to *Pacific Business News*, based on the number of registered condo units managed

on its cover and in an eight page spread in its April/May 2014 edition.

The award-winning Hawaiiana also recently hosted over 250 resident/site managers for a half day workshop entitled "Effective Communication." In addition, for the eighth year in a row, Hawaiiana was named the #1 Condominium Association Manager by *Pacific Business News*. The ranking is especially noteworthy because of the company's local ownership, and the fact that Hawaiiana's tremendous growth has been earned one-client-at-a-time, as opposed to through mergers and acquisitions.



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RICHARD ROSENBLUM,
President and
CEO, Hawaiian
Electric Co.

“Hawaii’s energy environment will be marked by even more of a

shift to distributed generation.

Customers will expect even greater options and choices. I see our role in running the grid as being like the Amazon.com of energy.

Just like Amazon.com, we’ll handle delivery and billing for all customers, act as a facilitator in helping them buy from others for some, and for others we’ll be the full-service provider.

Like Amazon, the key to success will be great customer service, providing many choices and good prices.

The transition is already happening, but more is necessary. With all of us working together as a community we’ll get there.”



BOB JOHNSTON,
CEO, Hawaii
Pacific Solar

“The coming months may very well set the stage for the Hawaii energy landscape

for years to come. The installation of distributive generation systems (rooftop) has slowed significantly in the past year due to high circuit penetration and Hawaiian Electric Co.’s slow approval process for new net energy meters.

The Public Utilities Commission has ordered the HECO companies to come up with a definitive plan to allow more solar PV onto their circuits. HECO has initiated, and in many areas completed, representative studies to determine the impact of more renewable energy on various circuits throughout Oahu.

The analysis of these studies is ongoing and may result in significant cost to upgrade substations. These costs will most likely be passed on to those hoping to install solar on their homes and businesses and in some cases may render the systems unfeasible and unaffordable. But even higher costs will not stop the inevitable march towards more grid penetration of solar PV in Hawaii.

Technology will also improve over the next several years with new, more efficient and affordable storage technology becoming the “next big thing” in renewable energy.

As storage becomes more affordable and the utility continues to slow the addition of more renewables on their circuits, grid defection will become a reality.

This is where utility customers will reach a level of frustration that

they choose to disconnect from the electric grid and produce all their power needs independent of the utility. According to a Rocky Mountain Institute study, grid parity has already happened for larger systems in Hawaii and is near for smaller residential applications.

As evident from HECO’s recent release of financial statements, the utility has not suffered from the significant amount of solar PV that has been installed. This is no doubt due, in part, to the decoupling initiative approved by the PUC, which allows the utility to recapture any loss of revenue due to distributed generation.

However, there is an increasing concern among the public, state government and advocacy groups that the ever-decreasing number of HECO customers are, in effect, subsidizing those customers that have been able to add solar to their homes ... a smaller group of customers paying for operations, maintenance and capital costs of the electric grid. Decoupling will be an issue in the coming months, and changes to the program may put more financial pressure on the utility.

These issues, along with changes to investment tax credits, both federal and state, and the utilities’ plan to switch from imported solid fossil fuels to more affordable and cleaner domestic sources of liquefied natural gas are all challenges that Hawaii will face in the coming months and years. And all will have an impact on the future of Hawaii’s energy environment.”



WREN WESCOATT,
Director of
Development,
First Wind in
Hawaii

“In the next decade, we believe a majority of

Hawaii’s electricity will be generated from renewable sources.

New generation will come from more PV — both rooftop systems that benefit the individual owner and utility-scale projects that help lower rates for everyone. The most affordable renewable energy available today is utility-scale solar and wind, which generate clean energy less expensively than Hawaiian Electric Co.’s oil-burning facilities.

There will also be battery systems installed at the residential and grid levels to capture solar power during the sunny part of the day and discharge in the evening.

In order to make this happen, we need to take quick action.

Though HECO and the Public Utilities Commission face challenges, we believe the PUC’s recent orders will help move things in the right direction.

It is critical that HECO work expeditiously to ensure that the utility-scale solar energy projects currently in the pipeline meet the 2016 deadline

for federal tax credits. This will save Oahu ratepayers millions in electricity payments, while helping us to burn less fossil fuel.

HECO will also need to install energy storage systems and upgrade its thermal generation fleet to accommodate the natural variations in wind and solar generation, so that clean energy can become an even bigger part of our future.”



MARTIN SABARSKY,
CEO, Cellana

“In the next five to 10 years, Hawaii’s energy environment will undergo a few fundamental shifts that will

lay the foundation for a more energy secure future for the state.

First, it is likely that a significant percentage of fossil energy production will shift from diesel to natural gas, which has a lower carbon footprint and offers a potentially cheaper and less-volatile supply.

Second, with declining solar manufacturing costs and with high-value algae biomass production with crude oil as a byproduct, it is entirely conceivable that utility-scale solar and algae-based fuels will cut the state’s dependence on imported energy sources by 25 percent or even more.

The key to both, however, is being cost-competitive compared to diesel or natural gas energy sources — that is, without an ongoing subsidy or so-called “green premium.”

Then, and possibly only then, we will see the type of truly large-scale deployment and adoption capable of making a big impact on Hawaii’s energy mix.”



CHRISTIAN ADAMS,
President,
Bonterra Solar

“We are in a unique place here in Hawaii.

We have the opportunity to become a leader not just in PV but in renewable energy.

The decisions the Public Utilities Commission, Hawaiian Electric Industries and the Legislature make over the next couple of years will determine how much of a leader we become.

Do we decide to put more money into infrastructure for another fossil fuel where we are sending more money out of the state and becoming more dependent on price fluctuations that could disrupt our economy overnight?

Or, do we embrace the fact that we live on an island and sustainability is the answer?

From solar, geothermal, wind and hydropower, Hawaii has an abundant amount of natural resources to tremendously cut our dependence on

imported fossil fuels. If we do decide the latter, not only would we benefit from an environmental standpoint but Hawaii could be looked at as the leader in renewables.

Companies from all over the world would do research and development here, creating a culture of experts who in turn would create jobs and transform our beautiful state into a leader in renewable energy, similar to the way the Bay Area is the tech leader.

This is not just my vision and not an original one. A group called Kuokoa has looked into raising money to buy HEI and go 100 percent renewable in 10 years.

The problem is, renewable energy puts the money and control in the hands of the people.

Fossil fuels continue to fill the coffers of the ones who resist this change. And, unfortunately, those few have a lot of power.

Therefore, the good answer is, we have a choice.

And, it is the people’s choice. We can turn this challenge into a momentous opportunity. Change is often long and hard.

The question is, will we as citizens take the time and energy to influence such change?”



EILEEN O'ROURKE,
Chief Operating
Officer, OTEC
International LLC

“Although Hawaii is at the forefront of generating a diverse mix

of renewable-energy technologies including solar, wind, biofuel and geothermal, it has yet to tap into the abundant, indigenous resource of solar energy stored in the surrounding oceans.

In the next five to 10 years, the opportunity for generating power for Hawaii via ocean thermal energy conversion, or OTEC, should be seized.

Hawaii recognized the promise of OTEC more than 30 years ago; it would be unfortunate not to be in the lead of commercialization.

OTEC has the potential to provide baseload electricity, which means power 24/7, day and night.

This is a huge advantage for Hawaii as the technology complements existing intermittent resources like solar and wind, adding to grid stability and nicely into the state’s plans to pursue an interisland cable.

OTEC is a game-changer and can help Hawaii become more energy self-sufficient.”