Charting the New Course

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The title of this summit "CHARTING THE NEW COURSE" is appropriate as all of you in the room today are important members of Hawaii's energy ecosystem and are actively engaged in charting the new course and making the necessary changes for the energy sector in Hawaii.

The various key stakeholders in this endeavor include the electric and gas utilities, independent power producers, contractors from solar, wind and energy storage areas, energy management service companies, environmental groups, policy makers from both the legislative and executive branch of government at the state and county levels, state regulatory agencies, the consumer advocate, and MOST important, utility customers themselves as they have access to tools for distributed generation and can also provide support to the grid.

We all stand at a critical juncture in our journey together as much has been accomplished since 2008 under the Hawaii Clean Energy Initiative (HCEI) but so many more opportunities as well as challenges lie ahead. A quote often cited from Robert F. Kennedy is relevant to our collective task at hand:

"THERE ARE THOSE WHO SEE THINGS AS THEY ARE AND ASK WHY. I SEE THINGS AS THEY COULD BE AND ASK WHY NOT?"

HCEI 2.0

What is HCEI 2.0? What are we seeking to accomplish? HCEI 2.0 should be focused on what I call the 4 R's: RENEWABLE ENERGY, ON A RELIABLE GRID, IN A REALISTIC TIMEFRAME AND AT REASONABLE RATES.

As for the first "R"- Hawaii leads the nation in integration of renewable energy resources onto the power grids. We are blessed with a diverse portfolio of resources including solar, wind, geothermal, hydro and biomass. The statistics for the 6 separate island grids that comprise Hawaii's electrical system are impressive as we have been able to meet the RPS goals every year since 2008.

To date we have a total of 202 MW of wind energy, 38 MW of geothermal, 16 MW of hydro, and 69 MW WTE (biomass).

Nationally we rank as number 7 for cumulative solar capacity with a total through September 2014 of 389 MW and in 2013 ranked as number 6 for distributed solar with 150.6 MW or 29,804 homes with installed PV.

This high penetration of renewables and the increase of distributed energy resources necessitates transformation of how the power delivery system is operated. The integrated grid of the future is one that requires strategic actions to realize the full value of central power and distributed energy resources. Not an easy task but one that must be undertaken with full deliberation and speed.

If we are still having this same debate a year from now, we have to add yet another R- for the regret in not seeing this opportunity for change and making it happen. If not now, then when?

As part of this urgency, the Commission issued our seminal white paper: "Commission's Inclinations on the Future of the Hawaii's Electric Utilities". I take it this morning's mid-morning panel speakers gave their respective interpretations of what the Commission intended and insights on what actions have been undertaken since we issued our seminal set of orders on April 28.

Let me reiterate that we provided the strategic road map outlining the vision, business strategies, and regulatory policy changes required to align the utilities' business model with customers' needs and expectations as well as with the state's energy policy so we can continue to move forward to achieve the 4 "R"s.

Three specific sections address the following priorities:

1) Creating a 21st century generation system

- Which includes aggressively seeking lower cost new utility scale renewable resources that maximize use of cost effective renewables
- Pursuing a balanced portfolio of new energy resources
- Modernizing the generation system to achieve greater amounts of renewable energy resources by investing in infrastructure and technology to provide grid flexibility including expeditious retirements of inefficient old generation units
- Pursuing and exhausting all means and opportunities to achieve the most efficiencies from existing power plants including greater accountability for economic dispatch of generation and unbundling of essential grid services
- Diligently and expeditiously seeking alternatives to lower fuel costs in existing power plants including cost effective renewable fuels to displace fossil fuels in firm generation

2) Creating modern transmission and distribution grids

- Which includes interconnection of large scale renewable energy projects
- Interconnection of island grids
- Development of integrated energy districts and microgrids at the community level

- Developing a state of the art distribution system to enable clean energy including harnessing DER to benefit the grid and customers, developing customer focused advanced metering infrastructure programs, adopting and using new software technologies to integrate more renewables and improve customer service
- Developing and maintaining cybersecurity requirements for new distribution system technologies

3) Policy and regulatory reforms to achieve Hawaii's clean energy future
   - Orders and directives to Hawaii's utilities to implement new business models to become world class and world leading operators of a high renewable energy resource grid
   - Regulatory policies and pricing also need to reflect new business models with new incentives to achieve Hawaii's clean energy future
   - Review and revise pricing of energy services to reflect new business and technical demands. In particular, the unbundling of rate structures which could more appropriately fit customer choices for varying levels of electricity delivery services. Under this structure DER customers would pay for the value of grid services they utilize and receive compensation for the value of grid support they provide. Unbundled

rate structure could also prevent shifting utility fixed costs from DG customers to customers without DG.

CUSTOMER CHOICE AND EMPOWERMENT

As I stated earlier the most important stakeholder in all of this is the customer. We must empower and enable customers to make choices about their energy usage and the services that the utilities and the power delivery system will provide them. Customers are active partners in the transformation of the utilities of the future. Customer side and customer sited technologies including distributed generation, distributed energy storage systems and electric vehicles can provide support to the grid of the future. Microgrids or "integrated energy districts" as we have referred to them in the Commission's white paper directly assist in the integration of more cost effective renewable energy onto the grid with distributed energy resources. They also provide the traditional benefits of reliability and resiliency for our island grids as we are required to adapt to more frequent severe weather events and the increasing impacts of climate change. Some of the key landowners and large customers in our islands, eg. Parker Ranch, Molokai Ranch and Larry Ellison have already initiated actions to examine the viability of such integrated energy districts for their respective island communities.

We have also implemented new programs to give all customers access to renewables to lower their electricity costs through innovative financing mechanisms. The Hawaii PUC will oversee and is launching the On Bill Financing program at the end of this month which will afford all customers, but in particular low income customers and renters who previously never had such opportunities, the ability to acquire energy efficiency equipment like solar water heaters or HVAC systems to installed on their homes and business buildings through financing paid for on their monthly electric bills, thereby resulting in bill savings and reduction in their electricity costs. The program has received national recognition as a first and was cited as a best practice for others to follow in the Stanford Hoover Institute Clean Energy Report called the "cookbook" of state policies and innovations.

The Green Infrastructure Financing program was also authorized by statute and will be administered by DBEDT to increase access to and affordability of clean energy and provide low income and hard to reach customers in underserved markets the ability to acquire distributed PV and other energy efficiency equipment with low cost financing made available through funding from securitized bonds.

ENERGY STORAGE: GAME CHANGER FOR THE ELECTRIC INDUSTRY

Some of you attended yesterday's Energy Storage 101 and 201 sessions so you may agree with me that ENERGY STORAGE IS A GAME CHANGER FOR THE ELECTRIC INDUSTRY. Notwithstanding the importance of what the California PUC's recent energy storage order did to create the market for energy storage on the mainland, Hawaii in fact is leading the US if not the world, in implementation and usage of energy storage.

Here are some salient points about energy storage in Hawaii today:

Its an important resource to enable high levels of renewables on grids -

- A flexible tool to meet grid operating needs
- A Non generation substitute for ancillary services vs. shifting energy
- Kauai, Lanai and Maui grids are operating today with significant levels of variable renewables supported by energy storage systems.

It's a promising tool to integrate distributed generation

- There is significant interest in customer sited storage

- Demonstrations and pilots are looking at distributed energy storage with distribution level applications

There are a broad range of applications, siting and ownership models including:

- Ancillary services, peak load management, customer demand management
- Mix of R&D, IPP, utility and customer projects
- Transmission, distribution and customer side applications

Storage is helping to integrate both wind and solar power today and has been doing so in Hawaii since as early as 2009 with battery energy storage systems in place and operating on Kauai, Maui , Lanai, Oahu and the Big Island. Most recently HECO issued its RFP for 60 to 200 MW of storage for Oahu. Proposals were submitted to HECO on 7/21/14 and are under review by the utility.

Energy storage is not just battery storage but includes the diverse array of other storage options including flywheel, hydro pump storage, compressed air, and low tech options like thermal storage including customer sited storage like grid interactive water heaters. A diverse portfolio of cost effective energy storage is part

of the generation resource toolkit as we address the next frontier: breaking through distribution system boundaries.

Current grid limits have slowed DG interconnection significantly. So active demonstrations are underway to evaluate distribution level storage applications. The utilities and stakeholders like you are drafting tariffs for customer sited storage. The commission's white paper envisions an active market for distributed storage. Aggregated distributed storage can help address current system integration constraints.

INNOVATION AND INSPIRATION

I would like to specifically acknowledge those who represent the next generation of energy leaders. Innovation companies whose technologies and solutions will be the catalysts of change as we chart the new course in the energy industry. Some of those innovators are participating in the panels today and tomorrow. I think we can recognize who they are, the bright, enthusiastic, network savvy, creative solutions oriented (and very youthful) folks amongst us. As you may know there are Energy Excelerators in other states across the US. They provide start up companies with funding and strategic relationships to help them enter into commercial markets or to increase their already existing presence in those markets.

Hawaii's Energy Excelerator has distinguished itself by being a leader amongst excelerators in investing in and providing opportunities for start ups with impressive results to date. Those innovation and new technology companies are actually deployed and successfully growing their businesses and services in the commercial marketplace.

This is another achievement and a valuable asset for Hawaii. In charting the new course, we should capitalize on the fact that Hawaii is and can be the test bed for the integrated grid and renewable energy projects for the future. Our island grids are already dealing with many of the DER issues that other jurisdictions are only starting to study. Hawaii being a test bed for energy innovation can also be the basis for new business models in the energy industry locally and globally.

One of our responsibilities as regulators is to facilitate innovation and transformation and to remove barriers to development of new utility and energy services models for the future. The commission of the future is the PUC that also facilitates collaboration and leads the dialogue with the wisdom and ability to listen to differing voices and viewpoints in order to make decisions that benefit the public interest and serve customers.

I want to conclude with what Governor Ige so articulately expressed in his inaugural address: "I ask you to find your voice and use it to not only choose your elected officials but to shape the issues that will shape our lives."

I urge you to keep this in mind as your mantra in collaborating with your fellow stakeholders to seize the many opportunities and address the corresponding challenges going forward under HCEI 2.0 and thereby ACHIEVE THE 4 R'S OF RENEWABLE ENERGY, ON A RELIABLE GRID, IN A REALISTIC TIMEFRAME AND AT REASONABLE RATES.

Mahalo.