

August 1, 2024

MEMO TO: David M. Raatz, Director of Council Services

F R O M: Ellen McKinley, Legislative Analyst *EBM*

SUBJECT: **HAWAI'I ENERGY CONFERENCE** (PAF 23-021(33))

I attended the Hawai'i State Energy Conference on May 22 and 23, 2024, at the Maui Arts and Cultural Center. The conference theme was "Reimagining Resilience."

Leslie Wilkins, President and CEO of Maui Economic Development Board, Inc., stressed that resilience will depend on the future workforce providing skilled labor for increasing energy demands.

Josiah Nishita, Managing Director, gave a message from the Mayor's Office of Recovery. He said the conference is important to bring people together for discussions, collaborate on innovative solutions, and work toward safety and resiliency while exploring advances in sustainable energy.

### **Power Grid Disasters**

The keynote by Katherine Blunt, a Wall Street Journal reporter and author of *California Burning: The Fall of Pacific Gas and Electric and What it Means for America's Power Grid*, shared the history of PG&E and the Paradise, California, fire on November 8, 2018.

Burying power lines underground costs millions of dollars per mile and requires raising electricity rates. Power shutoffs during windy and high-risk conditions avert ignition risks but come with significant issues to consider.

A panel discussed comments made by Warren Buffet of Berkshire Hathaway that the investor-owned utility model is no longer viable and future investment in utilities is questionable. Risk must be minimized, but improvements will not happen quickly. Removing the profit motive by moving to energy co-ops may be a solution, but the consequence of infrastructure failure is the same no matter who owns it.

## **Fueling the Future Panel**

Bob King, President of Pacific Biodiesel, shared opportunities and challenges related to biofuel. Utilities, boats, and trucks on Hawai'i Island use six million gallons of biodiesel made from waste feedstock and used cooking oil per year. One challenge is that the biodiesel tax credit is expiring.

Island Energy Services' President and CEO Jon Mauer said his firm imports, stores, and distributes fuel to Hawai'i. To decarbonize, Hawai'i will need a combination of wind, solar, hydrogen, geothermal, and bioenergy.

President Eric Wright explained that Par Hawaii imports crude oil worldwide to produce fuels at its Kapolei refinery, the only Hawai'i petroleum refinery. The company produces two-thirds of Hawaiian Electric Company's fuel. It is building a renewable-fuels power plant, with plans for future solar, offshore wind, and sustainable aviation fuel through its Pono Pacific partnership. He said diversification is the key to resilience and sustainability, and tax incentive legislation is needed to make renewables affordable because they cost twice as much as petroleum to produce.

## **Resilience for Vulnerable Populations Panel**

Maria Tome, Managing Director, Energy Efficiency and Renewable Energy, Hawai'i State Energy Office, shared that Hawai'i pays the highest energy prices in the nation. Kaua'i now has the highest percentage of renewable energy and the lowest-priced energy.

Michael Angelo, Executive Director, Consumer Affairs Division, Hawai'i Department of Commerce and Consumer Affairs, spoke about setting up resilience hubs and implementing microgrids during disasters because public safety power shutoffs put people at risk.

Beth Amaro, Member Services and Communications Manager, Kaua'i Island Utility Cooperative, said wildfire preparedness should include communication about likely power shutoffs, inspecting utility poles by drones, using weather stations to predict when to de-energize lines, and managing vegetation. Using microgrids as resiliency hubs to power critical facilities (such as radio transmission) can reduce dependence on diesel generation during a disaster.

## **Powering Progress: What's Needed for a Resilient and Dynamic Energy Future**

Governor Josh Green, M.D., said he would like the public to weigh in on an energy policy for the State which results in decarbonization and having a secure, but affordable, energy system.

He said keeping HECO from financial collapse is important. If a Mainland company enters the market, it will not have Hawai'i interests at heart.

He feels the State attaining sixty percent renewable power by 2030 is achievable. Aging power plants will not survive and investment capital will be needed to decrease carbon and costs. Liquid natural gas should be included in the energy mix with solar, biofuels, and geothermal.

Efficiency and conservation are also important. Hawai'i energy consumption is limited: if there is no air conditioning, water heating is the largest load. Benchmarking buildings is also useful.

It will cost \$6 million per mile to relocate Hawai'i's utilities underground. Infrastructure needs to move from the coastline, and neighborhoods need improved ingress and egress.

Other necessary measures include:

- Forward-looking securitization (e.g., acquire 20-year bonds to provide energy-efficient and sustainable systems);
- Green fees to contribute to Hawai'i sustainability goals;
- Incorporating efficiency and promote affordability and sustainability through changes in building codes;
- Streamlining permitting and reducing barriers to solutions;
- Creating a new energy docket to incentivize government to build energy facilities on government property; and

- Dedicating capital for investments to increase the pace for renewable energy.

### **A Fire Safety Professional's View on Battery Fires**

Products with lithium batteries without internal cooling systems can overheat and cause thermal runaway (e.g., e-bikes, golf carts, e-cigarettes, laptops, and chargers). Charging cycle mechanical damage can start seven days later and cause a fire. Home storage systems and power walls can also cause fires, creating a chemical chain reaction and possible reignition after a fire is extinguished.

### **Resilient Solar and Using Virtual Power Plants to Support Resilience**

Ideas for making resiliency goals easier to achieve include:

- Self-certifying for permitting and reusing PV panels for ADUs and tiny homes; and
- Accelerating the adoption of virtual power plants (consisting of a collection of small scale energy resources).

### **Centering Equity in Resilience Planning**

Leilani Chow said Sust'ainable Molokai is using community organization to facilitate, design, and implement an energy decision-making process to meet the community's needs and goals for equitable projects.

The Molokai Community Energy Resilience Action Plan is the emerging roadmap for a community-resilient energy system, including alternate energy and modalities in transportation. The process recognizes that the community is their area's expert for conducting vulnerability and needs assessments; participating in the planning process; and co-designing, obtaining funding for, and implementing solutions.

## **Workforce Development and Energy Resilience**

The panel was composed of representatives of the U.S. Green Building Council, International Brotherhood of Electrical Workers, and Maui Economic Development Board. They discussed opportunities for resilient energy careers through:

- LEEDs certification credentialing;
- MEDB Education to Workforce Programs, building a pipeline of skilled workers from kindergarten through careers;
- UHMC Good Jobs Challenge grant that gives employers \$2,000 to host a student as an intern or employee in the green energy sector;
- IBEW apprenticeships leading to licensing and certification; and
- Green Building Council provides resources for Lahaina rebuilding opportunities in the energy sector.

## **Resilient Housing & Energy**

The panel acknowledged the International Building Code's requirement for new homes of 5,000 square feet or larger to be PV (photovoltaic panel) ready. More should be done to make renewable energy accessible to vulnerable communities. The systems are financially beneficial because sellers can amortize the renewable energy system cost over 20 years, with net savings through reduced energy bills. Massive federal funding opportunities are also available.

## **Pathways for Geothermal Energy**

All types of energy production have benefits and drawbacks, but all must be part of the solution to reach net-zero carbon emissions by 2045. The upfront costs of geothermal are high, but geothermal makes the operational costs of running the grid lower.

## **HECO and Wildfire Safety Partnerships**

Hawai'i is a fire-prone state. To address threats and thwart fire, property owners are highly encouraged to clear underbrush, restore native plants, foster communication and use shared information, institute public safety power shutoffs, and create resilience hubs.

## **Resilient Transportation**

A panel discussed resilient transportation strategies, including:

- Vehicle-to-grid applications (V2X technology);
- A bidirectional charging system and energy solution leveraging electric vehicles to provide backup power when needed;
- Electrifying school buses;
- Reducing utilities' use during peak hours;
- Fuel-cell electric vehicles, (which emit only water vapor; and
- Shared-use mobility.

Thank you for the opportunity to attend this conference. If you have any questions or require more information, please contact me at ext. 7661.

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cc: Deputy Director of Council Services