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Testimony of the Department of Commerce and Consumer Affairs

Before the
House Committee on Energy and Environmental Protection
Tuesday, February 5, 2019
8:45 a.m.
State Capitol, Conference Room 325

On the following measure:
H.B. 1583, RELATING TO ELECTRIC GRID RESILIENCY

Chair Ohno and Members of the Committee:

My name is Dean Nishina, and I am the Executive Director of the Department of Commerce and Consumer Affairs' (Department) Division of Consumer Advocacy. The Department offers comments on this bill.

The purpose of this bill is to require the Department of Education to establish a pilot program in which various schools are provided with renewable energy systems that are capable of providing backup power in the event of a natural disaster or other similar emergency. The measure also requires the Public Utilities Commission (Commission) to open a proceeding to incentivize the implementation of these systems.

The need for Hawaii to evaluate its existing electric grids and their ability to withstand a natural disaster or similar emergency is clear. The ability of a microgrid or distributed energy system to provide possible solutions is one reason why the Commission has opened Docket No. 2018-0164, which is investigating microgrids. The role that microgrids and distributed energy systems can play in addressing emergencies

are also being considered in planning proceedings. In addition, the appropriate pricing for services to the grid by distributed energy systems and/or microgrids will be a major focal point in the market track phase of the distributed energy systems proceeding, Docket No. 2014-0192. Thus, reliance on the public benefits fund to cover the costs of the proposed renewable energy systems may not be necessary.

The Consumer Advocate does not believe that opening a separate proceeding is necessary and respectfully suggests that the Committee consider passing a resolution that requests reports that update the Legislature on the progress of a microgrid tariff, as well as progress on tariffs for ancillary services.

The Consumer Advocate also respectfully raises a possible affordability issue—namely, a renewable energy system that provides continuous backup power for a prolonged or indefinite time would be very expensive. Accordingly, it may be reasonable for the Committee to evaluate possible systems that might be designed and the related costs.

Thank you for the opportunity to testify on this bill.

TESTIMONY OF
JAMES P. GRIFFIN, Ph.D.
CHAIR, PUBLIC UTILITIES COMMISSION
STATE OF HAWAII

TO THE
HOUSE COMMITTEE ON
ENERGY AND ENVIRONMENTAL PROTECTION

February 5, 2019
8:45 a.m.

Chair Lowen and Members of the Committee:

MEASURE: H.B. No. 1583
TITLE: RELATING TO ELECTRIC GRID RESILIENCY.

DESCRIPTION: Requires the Department of Education to establish a pilot program in which various schools are provided with renewable energy systems that are capable of providing backup power in the event of a natural disaster or other similar emergency. Requires the Public Utilities Commission to open a proceeding to incentivize the implementation of these systems.

POSITION:

The Public Utilities Commission offers the following comments for consideration.

COMMENTS:

The Public Utilities Commission ("Commission") supports the intent of this bill to increase the resilience of the state in the face of natural disasters and other emergencies. The Commission is currently working with the state's electric utilities and other key stakeholders in several related proceedings to address this issue, including the Hawaiian Electric Companies' integrated grid planning ("IGP") process (see Docket No. 2018-0165), the development of a microgrid services tariff (see Docket No. 2018-0163), and the establishment of performance-based regulatory mechanisms ("PBR") for resilience (see Docket No. 2018-0088).

The Commission is also working closely with the Public Benefits Fee Administrator ("Hawaii Energy") to design new programs and services funded by the Public Benefits Fee ("PBF"), including program offerings and incentives related to resilience (see Docket

No. 2007-0323). Hawaii Energy is currently developing a program plan covering the next three years (i.e., through 2021), which will be submitted for public review and comment in May 2019.

With respect to the requirement to open a new proceeding on incentivizing these systems, the Commission respectfully suggests a new proceeding for this purpose is not necessary at this time, and requests the flexibility to continue to develop appropriate resilience programs and incentives through currently open and active proceedings, including the IGP, microgrid, PBR, and PBF dockets identified above.

Thank you for the opportunity to testify on this measure.

DAVID Y. IGE
GOVERNOR

DR. CHRISTINA M. KISHIMOTO
SUPERINTENDENT

STATE OF HAWAI`I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI`I 96804

LATE

Date: 02/05/2019
Time: 08:45 AM
Location: 325
Committee: House Energy & Environmental Protection

Department: Education

Person Testifying: Dr. Christina M. Kishimoto, Superintendent of Education

Title of Bill: HB 1583 RELATING TO ELECTRIC GRID RESILIENCY.

Purpose of Bill: Requires the Department of Education to establish a pilot program in which various schools are provided with renewable energy systems that are capable of providing backup power in the event of a natural disaster or other similar emergency. Requires the Public Utilities Commission to open a proceeding to incentivize the implementation of these systems.

Department's Position:
The Hawaii State Department of Education (Department) provides comments on HB 1583.

The Department will complete a pilot project at 3633 Waialae Avenue by the end of March 2019. The pilot project seeks to determine the feasibility and economic viability of a combination solar renewable energy, battery backup power, and diesel fuel generator system at a DOE facility.

Following analysis and testing of this pilot project, the DOE will be able to report to the Legislature whether implementation of similar systems at designated school shelters are viable.

As a pilot project is already underway, respectfully, HB 1583 is not necessary.

Thank you for the opportunity to provide testimony on this measure.

The Hawaii State Department of Education seeks to advance the goals of the Strategic Plan which is focused on student success, staff success, and successful systems of support. This is achieved through targeted work around three impact strategies: school design, student voice, and teacher collaboration. Detailed information is available at www.hawaiipublicschools.org.

TESTIMONY BEFORE THE HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION

LATE

H.B. No. 1583

Relating to Electric Grid Resiliency

Tuesday, February 5, 2019
8:45 am, Agenda Item #2
State Capitol, Conference Room 325

Rodney Chong
Director, Grid Modernization
Hawaiian Electric Company, Inc.

Chair Lowen, Vice Chair Wildberger, and Members of the Committee:

My name is Rodney Chong and I am testifying on behalf of Hawaiian Electric Company and its subsidiary utilities Maui Electric Company and Hawai'i Electric Light Company in **opposition to the requirement in H.B. 1583 that a Public Utilities Commission ("PUC") proceeding be opened.**

We appreciate the intent of the bill, however the aspect of the bill opening a PUC docket is unnecessary due to the following reasons:

- The concept described of renewable energy systems installed at schools to provide backup power and provide grid services is one form of a microgrid. The PUC already has an active proceeding, directed by last year's legislature, to establish a microgrid tariff. That docket would be the appropriate venue to consider the scenario envisioned by the bill.
- Nothing prevents development of a microgrid today that doesn't sell services to the grid. As part of Department of Education's Ka Hei program[1], Phase I

[1] http://www.hawaiipublicschools.org/ConnectWithUs/Organization/SchoolFacilities/Pages/Ka-Hei-FAQs.aspx

includes plans on implementing microgrid solutions at three schools – one each on Maui, Hawaii Island and Oahu.

- Lastly, we believe the Homeland Security and Resilience Council proposed in H.B.436 (and companion S.B. 609) as the preferred venue to consider and develop resilience plans from a holistic perspective. Although well-intended, this bill is a parcel of what can be broadly addressed in H.B 436, which will look at all critical infrastructures (including shelters). H.B. 436 will include all necessary stakeholders to address resilience interdependencies as well as recommend sources of funding.

Accordingly, the Hawaiian Electric Companies appreciates the intent of the bill but opposes the requirement that a PUC proceeding be opened. Thank you for this opportunity to testify.

P.O. Box 37158, Honolulu, Hawai`i 96837-0158
Phone: 927-0709 henry.lifeoftheland@gmail.com

COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
Rep. Nicole E. Lowen, Chair
Rep. Tina Wildberger, Vice Chair

DATE: Tuesday, February 5, 2019
TIME: 8:45 AM
PLACE: Conference Room 325

HB 1583 RELATING TO ELECTRIC GRID RESILIENCY. Comments

Aloha Chair Lowen, Vice Chair Wildberger, and Members of the Committee

Life of the Land is Hawai`i's own energy, environmental and community action group advocating for the people and `aina for 49 years. Our mission is to preserve and protect the life of the land through sound energy and land use policies and to promote open government through research, education, advocacy and, when necessary, litigation.

Life of the Land is a strong advocate of creating stand-alone portions of the grid through utility minigrids and third-party microgrids.

The bill would establish school-based microgrids that would raise the cost of electricity to all customers. This could serve as a benefit since the schools can serve as emergency shelters during disasters. **Projects should be proposed after policies are developed**.

The bill is premature. Grid-connected microgrids will become the rage, but except for military microgrids and single-site microgrids, they are generally in the regulatory, policy, and planning phases.

The Public Utilities Commission opened a Proceeding to Investigate Establishment of a Microgrid Services Tariff, docket no. 2018-0163. The eleven entities formally participating in the Commission proceeding are Hawaiian Electric Company, Hawaii Electric Light Company, Maui Electric Company, Consumer Advocate, Renewable Energy Action Coalition of Hawaii, Distributed Energy Resources Council of Hawaii, Life of the Land, Puna Pono Alliance, Microgrid Resources Coalition, Energy Island Energy Freedom Coalition of America, and Ulupono Initiative.

Initial briefs are due on February 8, 2019. The Commission stated the parties are to file comments on "how should existing tariffs/programs (e.g.. Smart Export, Demand Response, CBRE, etc.) be coordinated and harmonized with the microgrid services tariff, if at all?"[1]

The Natural Energy Laboratory of Hawaii Authority (NELHA) held its second annual Energy Storage System (ESS) Conference on December 5, 2018. NELHA Executive Director Gregory Barbour gave a presentation that covered microgrids.[2]

A presentation on the Hawai'i-Korea Cooperative Microgrid Project was made at the UH William S. Richardson School of Law on January 31, 2019, co-hosted by the William S. Richardson Environmental Law Program (ELP) and the Seoul National University (SNU) Law Center for Energy & Environmental Law and Policy

Mahalo

Henry Curtis
Executive Director

[1] https://dms.puc.hawaii.gov/dms/DocumentViewer?pid=A1001001A19A23A83252D00035
[2] https://nelha.hawaii.gov/wp-content/uploads/2018/12/03.-Greg-Barbour_NELHA.pdf

HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
February 5, 2019, 8:45 A.M.
Room 325
(Testimony is 1 page long)

LATE

TESTIMONY IN SUPPORT OF HB 1583

Aloha Chair Lowen, Vice Chair Wildberger, and Committee members:

Blue Planet Foundation supports HB 1583, which directs the Department of Education to establish a pilot program in which various schools are provided with renewable energy systems—essentially school "microgrids"—that are capable of providing backup power in the event of a natural disaster or other emergencies.

Such a project would serve the public in multiple ways by providing an energy independent safe haven for residents during a disaster; demonstrating energy science and engineering to students; and operating as a pilot for the utility to better understand how these backup power systems can function as part of our 100% clean energy future.

RESILIENCE. A school microgrid would strengthen our resilience to disasters by providing an "islandable" shelter with its own energy supply in the event that the utility grid fails. This shelter would be more than a safe haven that provides a roof overhead—it would be able to serve those whose lives depend on reliable electricity (folks with respirators, etc.), as well as provide power for communication devices and other necessary equipment. **In times of emergency, residents need safe energy "oases" with energy storage to power critical medical equipment, provide refrigeration, and charge critical communication devices.**

ENERGY EDUCATION. Students today will be helping build our clean energy system of tomorrow. A renewable energy plus storage pilot in schools would provide a first-hand learning experience for students to better understand how energy systems function. They wouldn't have to imagine what our clean energy future looks like—they could see it in action. The system could also provide opportunities for lessons in science, math, computer science, and other fields.

TECHNOLOGY DEMONSTRATION. Faced with disruptive technologies, new business models, and clean energy requirements, electric utilities globally are experiencing the biggest transformation since their founding. They must rapidly evolve, adopt new technologies, and "learn by doing." A microgrid pilot project at a Hawaii school would provide a working model for the utility to better understand how a microgrid interacts with the larger grid and how it can be used to support integration of more renewable sources on the grid.

Thank you for the opportunity to testify.

info@blueplanetfoundation.org
55 Merchant Street 17th Floor • Honolulu, Hawai'i 96813 • 808-954-6161 • blueplanetfoundation.org

THE ALLIANCE FOR SOLAR CHOICE

LATE

HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

February 5, 2019, 8:45 a.m.
(Testimony is 2 pages long)

TESTIMONY IN SUPPORT OF HB 1583 WITH PROPOSED AMENDMENT

Aloha Chair Lowen and Members of the Committee:

The Alliance for Solar Choice (TASC) respectfully supports HB 1583, relating to electric grid resiliency. This bill would require the Department of Education, when installing renewable energy systems at public schools, to look at the capacity to offer electrical backup if the broader electrical grid were to stop functioning. Further, it would encourage the Commission to open a proceeding to incentivize the use of such systems.

Proposed Amendment. We encourage this Committee to consider striking the "pilot" language, however, and simply move towards making this a mandatory requirement for all Department of Education renewable energy systems moving forward. Adding the capacity for electrical backup should cost relatively little, and could offer tremendous public benefit.

For months after the devastating impacts of Hurricane Irma, nearly a half a million people in Puerto Rico lacked access to reliable sources of electricity. Puerto Rico's grim struggle must serve as a wake-up call for Hawaii. Over the past few years, more damage occurred as a result of natural disasters than any other time in recorded history. Experts believe the severity and frequency of natural disasters will only increase as a result of climate change. Modernizing our grid can lessen the severity of blackouts, as well as reduce the amount of dirty fossil fuels we burn, thus cutting back the emission of greenhouse gases that increase the severity and impact of monster storms.

We can look to other another island for inspiration: Cuba. Over a decade ago, Cuba made a commitment to moving away from its Soviet-style electrical grid and centralized power plants. Cuba committed to both energy efficiency and decentralized power plants. These local power plants, or microgrids, can disconnect from the electrical grid during severe storms or blackouts and continue to provide power to their customers. This way during major storms, critical areas like hospitals and emergency centers can continue to have access to electricity. Cuba's success directly contrasts with Puerto Rico. After Hurricane Irma struck, power was mostly restored within a week.

Further, we know we can move towards a more distributed and resilient grid. Over 90% of the solar panels survived superstorm Sandy in 2012. Solar power systems similarly survived the impact of Hurricane Irma, even powering street lights in Coral Springs, Florida. Distributed electrical grids -- ones with lots of small, decentralized power systems -- are inherently more reliable and resilient, ensuring power at the place where it is needed the most regardless of what happens to a wooden pole supporting an electrical power line somewhere else.

Mahalo for the opportunity to testify.

LATE

Hawaii Solar Energy Association
Serving Hawaii Since 1977

TESTIMONY OF THE HAWAII SOLAR ENERGY ASSOCIATION
IN REGARD TO HB 1583, RELATING TO ELECTRIC GRID RESILIENCY
BEFORE THE
HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION
ON
TUESDAY, FEBRUARY 5, 2018

Chair Lowen, Vice-Chair Wildberger, and members of the committee, my name is Will Giese, and I represent the Hawaii Solar Energy Association, Inc. (HSEA)

HSEA **supports HB 1583.** The measure requires the Department of Education to establish a pilot program in which various schools are provided with renewable energy systems that are capable of providing backup power in the event of a natural disaster or other similar emergency. Requires the Public Utilities Commission to open a proceeding to incentivize the implementation of these systems.

The HSEA was founded in 1977 to further solar energy and related arts, sciences and technologies with concern for the ecologic, social and economic fabric of the Hawaiian Islands. Our membership includes the vast majority of locally owned and operated solar installers, contractors, distributors, manufacturers, and inspectors across all islands.

Grid resiliency and stability before, during, and after disasters is essential to providing residents of Hawaii a sense of security and the ability to quickly recover. Now more than ever electrical systems that build resiliency and stability into island electrical grids should be seriously considered as a path to energy independence by 2045.

For more than a year, millions of Puerto Ricans were without electricity in the aftermath of Hurricane Maria.[1] **Puerto Rico and Hurricane Lane is a wakeup call for Hawaii.** In the wake of Hurricane Maria, Puerto Rico released proposed rules on microgrid development and other grid resiliency efforts to strengthen its grid against extreme weather.[2] As a state we must decide if we are going to stand by and wait until a major disaster hits our islands or be proactive with intelligent and timely energy policy.

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[1] Savransky, Rebecca. "Nearly Half a Million Customers Are Still without Power in Puerto Rico."*TheHill*, 25 Jan. 2018, thehill.com/blogs/blog-briefing-room/news/370744-nearly-half-a-million-customers-still-dont-have-power-in-puerto.

[2] Staff, PREC. *REGULATION ON MICROGRID DEVELOPMENT*. MI ed., CEPR, ser. 0001, 2018, *REGULATION ON MICROGRID DEVELOPMENT*.

The 2015 Hawaii Catastrophic Hurricane Plan published by the Hawaii Emergency Management Agency paints a stark picture of the current state of Hawaii's electrical grid.[3] The report states:

> "A catastrophic hurricane will produce statewide power outages and disrupt all energy systems, resources, and markets. Much of Hawaii's electrical systems are located in inundation zones. Failure of this infrastructure will lead to major disruptions of production, transmission, and distribution of electricity. The power generation and distribution systems in Hawaii are subject to island-wide outages before, during, and after a catastrophic hurricane."[4]

Per this report, a ***best case*** scenario estimates 50% power outage for ***at least*** 30 days post-disaster (category 4 hurricane or stronger):[5]

Table 2-6: Critical Services Impacts

	Description	Summary of Impact
Critical Services	**Days without power** *Source: Hawaiian Electric Company*	50% of power generation lost for up to 30 days
	Days without water/sewer services *Source: 2013 State of Hawaii Mass Care Council*	7 days without service post-hurricane
	Days without seaport services *Source: 2013 State of Hawaii Mass Care Council*	7 days without basic/emergency service post-hurricane
	Days without airport services[12] *Source: 2013 State of Hawaii Mass Care Council*	3-5 days with no airport availability. Initially, only emergency operations via military transport. Estimate for restoration of commercial traffic was not available.
	Days required for debris clearance *Mass Care Working Group*	7 days for major roadways

It is essential that Hawaii be prepared for a major emergency or natural disaster. Through this bill, critical services like EMS, fire, and police as well as utility line workers and healthcare professionals would be given an extra layer of security in the event of a disaster. Hospitals and emergency shelters (primarily public schools) will be hardened against the impacts of a major emergency. Utility infrastructure will be made more resilient.

The state must act to treat grid resiliency efforts like those outlined in HB 1583 proactively, rather than symptomatically. Renewable energy, energy storage, microgrids, and grid resiliency efforts inherent in this bill build the critical infrastructure needed to safeguard the state against major disaster. This bill makes our state more secure, more resilient, and cleaner in the areas that we need it most: schools and emergency shelters.

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[3] HI-EMA, Staff. *2015 Hawaii Catastrophic Hurricane Plan*. SOH-HI-EMA, 2015, *2015 Hawaii Catastrophic Hurricane Plan*.

[4] See "Report" at pp. 109.

[5] See "Report" at Impacts, 2-6.

Hawaii Solar Energy Association

Serving Hawaii Since 1977

Recommendations:

HSEA has two recommendations for tis bill:

1. We suggest amending or removing the section pertaining to establishing a proceeding at the PUC to examine backup power and grid resiliency efforts. There are currently multiple active proceedings that examine resiliency technology and backup power impacts such as the Integrated Grid Planning docket (2018-0165), the Microgrid Tariff docket, and the Performance Based Regulation docket (2018-0088). This section in this measure may be duplicative of ongoing proceedings at the PUC and could either be used to modify an existing statute to examine these specific issues (such as the microgrid tariff) or be deleted entirely.
2. We suggest expanding this pilot to other emergency service facilities as well as schools, as the resiliency impacts to the entire emergency system should be examined within a pilot. This might include one level-one trauma rated hospital and one or two police, fire, and EMS stations.

We **support** HB 1583 and we urge this committee to pass this measure.

Thank you for the opportunity to testify.

HB-1583
Submitted on: 2/1/2019 6:47:06 PM
Testimony for EEP on 2/5/2019 8:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Karen Winslow	Hawaii Farmers Union	Support	No

Comments:

LATE

HB-1583
Submitted on: 2/4/2019 3:48:00 PM
Testimony for EEP on 2/5/2019 8:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Melodie Aduja	O`ahu County Committee on Legislative Priorities of the Democratic Party of Hawai`i	Support	No

Comments:

HB-1583
Submitted on: 2/1/2019 10:39:22 PM
Testimony for EEP on 2/5/2019 8:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
James Gauer	Individual	Support	No

Comments:

HB-1583
Submitted on: 2/2/2019 10:23:38 AM
Testimony for EEP on 2/5/2019 8:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Erica Scott	Individual	Support	No

Comments: