

DAVID Y. IGE
GOVERNOR



Testimony by:

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

March 13, 2018
8:30 a.m.
State Capitol, Room 325

S.B. 2910, S.D. 2
RELATING TO ELECTRIC GRID RESILIENCY.

House Committee on Energy and Environmental Protection

The Department of Transportation (DOT) agrees that Hawaii must have infrastructures in place that can withstand natural disasters and emergencies.

The DOT **supports** this bill as a member of the homeland security and resiliency council to identify electric grid and other critical infrastructure needs and provide recommendations for enhancing grid and critical infrastructure resiliency throughout the State.

Thank you for the opportunity to provide testimony.

STATE OF HAWAII
DEPARTMENT OF DEFENSE
HAWAII EMERGENCY MANAGEMENT AGENCY



TESTIMONY ON
SB 2910 SD2, RELATING TO ELECTRIC GRID RESILIENCY

Before the House Committee on
ENERGY AND ENVIRONMENTAL PROTECTION
by

BRIGADIER GENERAL MOSES KAOIWI
Interim Administrator, Hawaii Emergency Management Agency (HI-EMA)

Chair Lee, Vice Chair Lowen, and the members of the Committee:

The Hawaii Emergency Management Agency (HI-EMA) provides the following testimony *in support* of Senate Bill 2910 SD2, as long as it does not take away from the Governor's priorities specified in his executive budget.

Senate Bill 2910 SD2 establishes a homeland security and resiliency council to assess the resilience of the State's electrical grid and other critical infrastructure to withstand and recover from natural disasters and other emergencies and to make recommendations based on its assessments.

Energy resilience is a critical factor in the preparation for, response to, and recovery from any major disaster striking the state of Hawaii. Responding to energy shortfalls after a major disaster in Hawaii is greatly handicapped by our remote location in the Pacific. Restoring and sustaining energy requirements post disaster is a key to response and recovery. This was the case in our responses to Hurricane Iniki in 1992 and more recently Tropical Storm Iselle in 2014. Once sustained power was finally restored and distributed, the emergency was significantly reduced.

There is also an opportunity to coordinate and collaborate with the Critical Energy Infrastructure Interdependencies (CEII) Program which includes the Department of Energy, Department of Homeland Security, U. S. Pacific Command, and the State of Hawaii. The CEII Program is tasked to identify comprehensive and integrated critical risk assessment and mitigation approaches toward enhancing grid and critical infrastructure resilience throughout the State.

Thank you for the opportunity to SUPPORT Senate Bill 2910 SD1.

Moses Kaiwi; moses.kaoiwi@hawaii.gov; 808-733-4300

SB-2910-SD-2

Submitted on: 3/12/2018 12:35:41 AM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Melodie Aduja	OCC Legislative Priorities Committee, Democratic Party of Hawai'i	Support	No

Comments:

PRESENTATION OF THE
OAHU COUNTY COMMITTEE ON LEGISLATIVE PRIORITIES
DEMOCRATIC PARTY OF HAWAII
TO THE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
THE HOUSE OF REPRESENTATIVES
TWENTY-NINTH LEGISLATURE
REGULAR SESSION OF 2018

Tuesday, March 13, 2018

8:30 p.m.

Hawaii State Capitol, Conference Room 325

RE: Testimony in Support of **SB2910 SD2**, RELATING TO ELECTRIC GRID RESILIENCE

To the Honorable Chris Lee, Chair; the Honorable Nicole E. Lowen, Vice-Chair and Members of the Committee on Energy & Environmental Protection:

Good morning. My name is Melodie Aduja. I serve as Chair of the Oahu County Committee ("OCC") Legislative Priorities Committee of the Democratic Party of Hawaii. Thank you for the opportunity to provide written testimony on **SB2910 SD2**, regarding Homeland Security and Resiliency Council; and an appropriation.

The OCC Legislative Priorities Committee is in favor of **SB2910 SD2** and supports its passage as it provides that the State is prepared to withstand natural disasters and other emergencies and protect the State's critical infrastructure and its citizens by making investments in grid resiliency. The goals are to: (1) Prevent or reduce the severity of damage to the electric grid from a natural disaster or state of emergency; (2) Enable faster recovery of normal grid operations after a grid outage due to a natural disaster or state of emergency; and (3) Maintain critical loads at critical infrastructure, such as hospitals, fire stations, police stations, airports, and seaports during a grid outage due to a natural disaster or state of emergency.

SB2910 SD2 is in accord with the Platform of the Democratic Party of Hawai'i ("DPH"), 2016, as it establishes a homeland security and resiliency council to assess the resilience of the State's electric grid and other critical infrastructure to natural

disasters and other emergencies and make recommendations for enhancing grid and critical infrastructure resiliency throughout the State.

Specifically, the DPH Platform provides that “[w]e support energy independence, self-sufficiency, affordability and reliability for Hawai’i through the development of renewable alternative energy sources. Specifically, we need to support policies that foster the development of energy production methods that de-emphasize carbon based fuels and promote renewable sources such as wind, solar, wave, geothermal and Ocean Thermal Energy Conversion (OTEC).

Electric utility companies and cooperatives must open the grid to alternative power sources including solar panels and geothermal energy. We support the effort of our government officials to require utilities to provide for the maximum, comprehensive, integrated use of renewable energy and associated technologies such as storage and smart grid technologies. (Platform of the DPH, P. 7, Lines 452-456, 459-462 (2016)).

Given that **SB2910 SD2** establishes a homeland security and resiliency council to assess the resilience of the State's electric grid and other critical infrastructure to natural disasters and other emergencies and make recommendations to the Legislature, it is the position of the OCC Legislative Priorities Committee to support this measure.

Thank you very much for your kind consideration.

Sincerely yours,

/s/ Melodie Aduja

Melodie Aduja, Chair, OCC Legislative Priorities Committee

Email: legislativepriorities@gmail.com, Text/Tel.: (808) 258-8889



SIERRA CLUB OF HAWAII
MĀLAMA I KA HONUA. *Cherish the Earth.*

HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION

Tuesday, March 13, 2018 8:30AM Conference Room 325

In SUPPORT of SB 2910 SD2 Relating to electric grid resiliency

Aloha Chair Lee, Vice Chair Lowen and members of the Committee,

On behalf of our 20,000 members and supporters, the Sierra Club of Hawai'i, a member of the Common Good Coalition, **strongly supports SB 2910 SD2**, to establish a homeland security and resiliency council to assess the resilience of the State's electric grid and other critical infrastructure to natural disasters and other emergencies and make recommendations

The electrical infrastructure of Hawai'i is severely vulnerable to major disaster. Currently, all of Hawai'i's major utility scale power generators sit within inundation zones across all islands. In the event of a major natural disaster, such as a category 4 hurricane or a tsunami, the majority of these generators would be rendered inoperable. This and other major vulnerabilities also extend to transformers, transmission systems, and distribution networks. The people of Hawai'i would be without power for days or weeks post disaster, and recovery would be slow and expensive.

SB 2910 SD2 creates a structure by which this system can be updated. By allowing the use of the Public Benefits Fee to create resiliency in the electric grid, our emergency shelters and hospitals, and residential homes, this measure seeks to safeguard the people of Hawai'i against major disaster. Additionally, many of these updates will utilize renewable energy which is in line with Hawaii's 2045 RPS goals, the power supply improvement plan, and grid modernization efforts. SB 2910 SD2 simultaneously creates reliability, grid stability, and clean power infrastructure.

Last year, Hurricane Irma and Maria devastated the country of Puerto Rico and its people, leaving thousands without power and creating massive environmental devastation. A similar fate awaits Hawai'i, unless this bill is passed. Major flooding in even one of our fuel oil burning power

plants could irreversibly destroy the vulnerable ecosystems surrounding them. A renewable power generator on a similar geographic footprint, such as wind turbines or ground-mounted solar, would have not even 1/100 of the environmental impact of an inundated traditional fossil fuel plant. Solar panels do not generate oil slicks or leak dangerous hydrocarbons into the water supply.

Hawai'i, its people, and the environment need smart energy policies like SB 2910 SD2. The alternative to not passing this measure is terrifying and unacceptable.

We **strongly support SB 2910 SD2** and urge the committee to pass this measure.



Before the House Committee on Energy & Environmental Protection
Tuesday, March 13, 2018, 8:30 a.m., Room 325
SB 2910 SD 2: Relating to Electric Grid Resiliency

Aloha Chair Lee, Vice Chair Lowen, and members of the Committee,

On behalf of the Distributed Energy Resources Council of Hawaii (“DER Council”), I would like to testify in support of SB 2910 SD 2 which establishes a homeland security and resiliency council to assess the resilience of the State’s electric grid and other critical infrastructure to natural disasters and other emergencies and make recommendations.

The DER Council is a nonprofit trade organization formed to assist with the development of distributed energy resources and smart grid technologies which will support an affordable, reliable, and sustainable energy supply for Hawaii.

The investment in grid resiliency is seen as a crucial next step towards the development of an electrical grid which can respond to and withstand any emergency that may come our way. Even though Hawaii has made significant progress in the development of renewable energy, that renewable energy will not necessarily be enough to help Hawaii should we face a natural disaster or some other kind of emergency.

This bill would begin the process of assessing our state’s resiliency and provide guidance on next steps. Hawaii is the most isolated island in the world, and we need to ensure that we can stand strong should we face a natural disaster or other emergency.

Thank you for the opportunity to testify.

Best regards,
Leslie Cole-Brooks
Executive Director
Distributed Energy Council of Hawaii



COLLEGE OF SOCIAL SCIENCES
HAWAII ENERGY POLICY FORUM
UNIVERSITY OF HAWAI'I AT MĀNOA

Hawaii Energy Policy Forum

Jeanne Schultz Afuvai, Hawaii Inst. for Public Affairs
David Bissell, Kauai Island Utility Cooperative
Michael Brittain, IBEW, Local Union 1260
Jade Butay, Hawaii Dept of Transportation
Caroline Carl, Hawaii Energy
Albert Chee, Island Energy Services
Elizabeth Cole, The Kohala Center
Kyle Datta, Ulupono Initiative
Richard DeGarmo, Hawaii Gas
Mitch Ewan, UH Hawaii Natural Energy Institute
Jay Fidell, ThinkTech Hawaii
Carl Freedman, Haiku Design & Analysis
Matthias Fripp, REIS at University of Hawaii
Ford Fuchigami, Ofc of Hawaii State Governor
Will Giese, Inter-Island Solar Supply
Dale Hahn, Ofc of US Senator Brian Schatz
Michael Hamnett, SSRI at University of Hawaii
Senator Lorraine Inouye, Hawaii State Legislature
Randy Iwase, Public Utilities Commission
Darren Kimura, Energy Industries
Representative Chris Lee, Hawaii State Legislature
Gladys Marrone, Building Industry Assn of Hawaii
Stephen Meder, UH Facilities and Planning
Sharon Moriwaki, UH Public Policy Center
Rocky Mould, Ofc of Climate Change
Aina Naniolo, Ofc of US Congresswoman Colleen Hanabusa
Ron Nelson, Defense Logistics Energy Agency
Dean Nishina, Division of Consumer Advocacy
Denise Oda, US Department of Agriculture
Stan Osserman, HCATT
Melissa Pavlicek, Hawaii Public Policy Advocates
Randy Perreira, Hawaii Government Employees Assn
Fredrick Redell, Maui County Energy Office
Rick Rocheleau, UH Hawaii Natural Energy Institute
Ross Roley, PACOM
Will Rolston, Hawaii County, Research & Development
Peter Rosegg, Hawaiian Electric Companies
Scott Seu, Hawaiian Electric Companies
Carilyn Shon, Hawaii State Energy Office, DBEDT
Joelle Simonpietri, Simonpietri LLC
Ben Sullivan, Kauai County
Lance Tanaka, Par Hawaii
Maria Tome, Public Utilities Commission
Kirsten Turner, Ofc of US Representative Tulsi Gabbard
Alan Yamamoto, Ofc of US Senator Mazie Hirono

Testimony of John Cole
Chair, Electricity Working Group
Hawaii Energy Policy Forum

To the
House Committee on Energy & Environmental Protection

March 13, 2018 at 8:30 am in Conference Room 325

**IN SUPPORT OF SB 2910, Senate Draft 2 Relating to
Electric Grid Resiliency**

Chair Lee, Vice-Chair Lowen, and Members of the Committee,

I am John Cole, Chair of the Electricity Working Group of the Hawaii Energy Policy Forum (Forum). The Forum, created in 2002, is comprised of over 40 representatives from Hawaii's electric utilities, oil and natural gas suppliers, environmental and community groups, renewable energy industry, and federal, state and local government, including representatives from the neighbor islands. Our vision and mission, and comprehensive "10 Point Action Plan" serves as a guide to move Hawaii toward its preferred energy goals and our support for this bill.

SB 2910 SD2 establishes a homeland security and resiliency council to assess the resilience of the State's electric grid and other critical infrastructure to natural disasters and other emergencies and make recommendations. Requires the council to report to legislature. Appropriates funds. Effective July 1, 2050.

The Forum supports this bill and would like to offer the following comments:

Much of the State's critical infrastructure is vulnerable to major hurricanes or other natural disasters, which could leave residents without power, water, communications, and other necessary services for an extended period of time. Proper planning and implementation to ensure we are as prepared as possible for such events is crucial

The coordination of the operators and major stakeholders of the various categories of critical infrastructure on the council will significantly increase the utility of the assessment of the State's resilience and the strategies, goals and recommendations that come out of the council's work. The committee may want to consider including representation of food, in addition to fuel, distribution on the council.

Thank you for the opportunity to testify.

This testimony reflects the position of the Forum as a whole and not necessarily of the individual Forum members or their companies

**TESTIMONY BEFORE THE HOUSE COMMITTEE ON
ENERGY & ENVIRONMENTAL PROTECTION**

S.B. No. 2910, SD 2

Relating to Electric Grid Resiliency

Tuesday, March 13, 2018

8:30 am

State Capitol, Conference Room 325

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

Chair Lee, Vice Chair Lowen, 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 support** of S.B. 2910, S.D. 2.

In its current form, this bill appropriately focuses on the need to assess and prioritize the security and resiliency needs of our state's electric grid and critical infrastructure, and then to develop recommendations to best serve those needs. Furthermore, the makeup of the proposed Homeland Security and Resiliency Council, involving not only state and county emergency planning agencies but also owners and operators of various critical infrastructure sectors in addition to electricity, reflects a systems thinking approach which recognizes there are critical interdependencies between sectors. Leadership of the Council under the State Office of Homeland Security and the Office of Planning should help connect the dots between long range strategy and tactical plans for action. Also, the structure of the Council will allow the participation or input of members of the public; experts in the field; county, state, or federal officials; or others as necessary; which will facilitate a fully vetted solution that considers all options.

Finally, we believe that the work product of the Council can help guide our Integrated Grid Planning Process (IGP), with respect to making our electric grid more resilient.

Accordingly, the Hawaiian Electric Companies support S.B. 2910, S.D. 2.

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. Chris Lee, Chair

Rep. Nicole E. Lowen, Vice Chair

DATE: Tuesday, March 13, 2018

TIME: 8:30 a.m.

PLACE: Conference Room 325

SB 2910 ELECTRIC GRID RESILIENCY

Comments

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

The latest version of SB 2910 is an improvement, but still is a work in progress

The definition of resiliency mixes together reliability (maintain current system) and resilience (bounce back from a disturbance).

The contents go beyond the title: the council shall address non-electric sectors and new revenue sources.

The membership of the council is unclear. It includes at least 20 people including large telecom companies, fuel importers, and fuel refiners. Does that mean a representative of every biofuel operation in the State?

The Council would examine open PUC dockets with the PUC Executive Officer on the Council but without the presence of parties to those dockets. Is this legal ex parte discussions?

The gas, water, wastewater and telecom grids are equally important to the electric grid in any recovery. The bill focuses only on electric grid operations.



TESTIMONY REGARDING SB 2910, SD2

**being heard by the House Committee on Energy & Environmental Protection
on Tuesday, March 13, 2018 at 8:30 a.m.
Room 325**

Aloha Chair Lee, Vice Chair Lowen and Members of the Committees:

Thank you for the opportunity to provide testimony regarding SB 2910, SD2, which would advance efforts to improve the resiliency of Hawaii's critical infrastructure facilities by integrating resiliency considerations into planning activities and by providing support for the deployment of energy solutions that reduce the risk of electrical service interruptions during crisis events. Tesla supports this bill with one friendly amendment as described below.

In the wake of the large scale natural disasters that impacted numerous parts of the United States and its territories last year, it is appropriate that localities like Hawaii, which are uniquely vulnerable to such disasters, take steps to ensure that critical infrastructure facilities continue to be operational in times of crisis. Access to electricity is a fundamental need, the absence of which can effectively render many critical infrastructure facilities inoperative, deepening the challenges such episodes invariably pose and slowing the pace of recovery in their aftermath.

The distributed solar and energy storage technologies that Tesla deploys provide system planners and facilities managers a new set of tools that can play an important part in improving facility and system resiliency. For example, battery systems paired with solar represent a relatively new form of energy back-up. Because such systems are not dependent on an onsite conventional fuel supply they represent a robust and environmentally sound approach as compared to conventional gas or diesel generators.

While the resiliency "use case" is intuitively appealing, the ability of those entities that manage critical infrastructure facilities to deploy clean energy solutions may be limited, owing to constraints these entities face. At the same time, given the public nature of the benefits of ensuring these facilities remain operational, there is a strong policy rationale for programmatic support to facilitate the deployment of such systems.

While Tesla supports SB 2910, SD2 we request a friendly amendment. To ensure that the Council's recommendations are well-vetted and practical, it should be explicitly directed to convene stakeholder meetings to solicit input from the broader stakeholder community.

We appreciate the opportunity to provide this testimony.



LATE

HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

March 13, 2018, 8:30 A.M.
(*Testimony is 2 pages long*)

TESTIMONY IN OPPOSITION TO SB 2910 SD2 WITH A PROPOSED AMENDMENT

Aloha Chair Lee and Members of the Committee:

The Alliance for Solar Choice (TASC) supported an earlier version SB 2910 relating to electric grid resiliency, but believes too many critical components have been stripped from this version of the measure. TASC supports returning to the early version of SB 2910 or, in the alternative, replacing with the language of HB 2249 HD2.

As originally proposed, this bill:

- (1) expressly directed regulated utilities to incorporate a grid resiliency plan into routine planning;
- (2) required the Commission to approve reasonable resiliency efforts;
- (3) required grid modernization to incorporate grid resiliency;
- (4) created a grid resiliency task force with fairly specific requirements: to identify critical infrastructure and provide recommendations on how to make these centers more resilient; and
- (5) appropriated both general fund and public benefit fund resources.

The current measure, on the other hand, solely creates a task force heavily dominated by representatives of the regulated utilities and provides little in the way of direction.

Puerto Rico must be a wakeup call for Hawaii. We cannot allow politics as usual to guide what should be reasonable and thoughtful planning effort, followed by actual investment in more resilient infrastructure. 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.

Finally — noting the objections of the Green Infrastructure Authority, the debate between a “loan” program versus a “rebate” program is flawed. Instead, we should judge the relative success of various programs over time and the market demand. Plainly, Hawaii’s energy efficiency program has successfully leveraged rebates — and private capital - to rapidly deploy energy efficiency measures. Hawaii’s energy demand has radically decreased, leading to lower costs for all electrical ratepayers. Similarly, other rebate programs — such as California’s SGIP program — have made significant steps towards a more distributed and more resilient electrical grid. To avoid the fate of Puerto Rico, these successful programs should be emulated, not called into question.

Mahalo for the opportunity to submit these comments.



Hawaii Solar Energy Association
Serving Hawaii Since 1977

**TESTIMONY OF THE HAWAII SOLAR ENERGY ASSOCIATION
IN REGARD TO SB 2910 SD2, RELATING TO ELECTRIC GRID RESILIENCY
BEFORE THE
HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION
ON
TUESDAY, MARCH 13, 2018**

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

HSEA **supports, with amendments**, SB 2910 SD2. The measure amends establishes the grid resiliency capital investment program and the grid resiliency rebate program as well as a grid resiliency task force to prepare Hawaii's electrical grid for natural disasters and other emergencies.

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.

As of last month, more than 30% of Puerto Ricans are without electricity.¹ **Puerto Rico 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.

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:

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*.

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



Hawaii Solar Energy Association
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“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 <i>Source: Hawaiian Electric Company</i>	50% of power generation lost for up to 30 days
	Days without water/sewer services <i>Source: 2013 State of Hawaii Mass Care Council</i>	7 days without service post-hurricane
	Days without seaport services <i>Source: 2013 State of Hawaii Mass Care Council</i>	7 days without basic/emergency service post-hurricane
	Days without airport services¹² <i>Source: 2013 State of Hawaii Mass Care Council</i>	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 <i>Mass Care Working Group</i>	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.

SUGGESTED AMENDMENTS

SB 2910 was amended in the Senate to remove any type of capital investment into resiliency infrastructure and instead establish a multidisciplinary task force to report on the state of Hawaii’s resiliency in the case of a major emergency to the 2019 Hawaii state legislature. While a task force in some cases is a correct course of action, the HSEA firmly believes that in this case it is absolutely not. Capital investment in grid resiliency infrastructure is needed *immediately*, as the types of disasters most likely to tax these impact these systems will not wait for a report to be filed and another round of legislative sessions to be completed. We recommend instead adopting the original language of the

⁴ See “Report” at pp. 109.

⁵ See “Report” at Impacts, 2-6.



Hawaii Solar Energy Association

Serving Hawaii Since 1977

bill (SB 2910), focusing on utilizing funds from existing sources like the Public Benefits Fund and the Green Energy Market Securitization fund to implement these updates.

The state must act to treat grid resiliency efforts like those outlined in SB 2910 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.

Put simply, this bill will save lives.

We **support, with amendments** SB 2910 SD2 and we urge this committee to pass this measure.

Thank you for the opportunity to testify.

SB-2910-SD-2

Submitted on: 3/9/2018 5:32:56 PM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Benton Kealii Pang, Ph.D.	Individual	Support	No

Comments:

SB-2910-SD-2

Submitted on: 3/9/2018 10:26:39 PM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
janice palma-glennie	Individual	Support	No

Comments:

SB-2910-SD-2

Submitted on: 3/10/2018 12:42:47 PM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Rene Umberger	Individual	Support	No

Comments:

SB-2910-SD-2

Submitted on: 3/11/2018 5:20:11 AM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Mio Chee	Individual	Support	No

Comments:

SB-2910-SD-2

Submitted on: 3/10/2018 4:27:34 PM

Testimony for EEP on 3/13/2018 8:30:00 AM

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

Comments:

SB-2910-SD-2

Submitted on: 3/11/2018 5:24:10 AM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Dyson Chee	Individual	Support	No

Comments:

SB-2910-SD-2

Submitted on: 3/11/2018 5:30:32 AM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Micah Chee	Individual	Support	No

Comments:

SB-2910-SD-2

Submitted on: 3/11/2018 5:38:40 AM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
David Chee	Individual	Support	No

Comments:

SB-2910-SD-2

Submitted on: 3/11/2018 5:15:22 PM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Joan Gannon	Individual	Support	No

Comments:

SB-2910-SD-2

Submitted on: 3/11/2018 6:31:15 PM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Randy Ching	Individual	Support	No

Comments:

SB-2910-SD-2

Submitted on: 3/11/2018 11:16:09 PM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Philipp LaHaela Walter	Individual	Support	No

Comments:

SB-2910-SD-2

Submitted on: 3/12/2018 10:41:44 AM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
R. Kinslow	Individual	Support	No

Comments:

I support the intent and outcomes of this bill. However, we need transformational actions like this to become policy NOW, not 2050. We are behind the curve of responding to climate change and our islands should be taking actions, not incremental actions but transformational actions, NOW, in my opinion as a community climate change communicator.

LATE

SB-2910-SD-2

Submitted on: 3/12/2018 5:19:25 PM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Barbara Best	Individual	Support	No

Comments:

LATE

SB-2910-SD-2

Submitted on: 3/13/2018 12:56:11 AM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Janet Pappas	Individual	Support	No

Comments:

LATE

SB-2910-SD-2

Submitted on: 3/13/2018 8:28:03 AM

Testimony for EEP on 3/13/2018 8:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
David Z. Arakawa	Land Use Research Foundation of Hawaii	Comments	No

Comments:

The Land Use Research Foundation of Hawaii (LURF) provides the following COMMENTS IN SUPPORT of SB 2910, SD2, relating to Electric Grid Resiliency, which will establish a Homeland Security and Resiliency Council to assess the resilience of the State's electric grid and other critical infrastructure to natural disasters and other emergencies and make recommendations; requires the Council to report to legislature; and appropriates funds. LURF would respectfully recommend that this measure clearly designate the inclusion of representatives of Hawaii's major industries that will be affected as members of the Council, including among others, tourism, military, agriculture, business, construction, and also a representative of the major landowners in each county.

Thank you for the opportunity to provide comments in support of SB 2910, SB2. Please feel free to contact executive Director, David Arakawa, if there are any questions.