



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

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Statement of
LUIS P. SALAVERIA
Director
Department of Business, Economic Development, and Tourism
before the
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

Thursday, February 4, 2016
8:00 am
State Capitol, Conference Room 325

in consideration of
HB 2569
RELATING TO ENERGY.

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

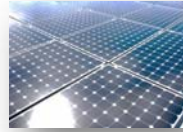
The Department of Business, Economic Development, and Tourism (DBEDT) supports the intent of HB 2569, which requires the Hawaii Department of Education (DOE) to: (1) establish a goal of becoming net-zero by January 1, 2035; (2) establish microgrid pilot projects at two public schools that are civil defense shelters; and (3) expedite the cooling of all public school classrooms to a temperature acceptable for student learning and authorizes the issuance of general obligation bonds for the implementation of cooling measures in public school classrooms.

DBEDT prefers the language in HB 2726 that utilizes the green infrastructure loan program as a financing source for energy efficiency and cooling upgrades for public school classrooms. The green infrastructure loan program money is currently available, therefore, it is able to be used to address the temperature issue and improve the energy efficiency of classrooms immediately.

With respect to other aspects of HB 2569, DBEDT supports DOE's adoption of the Net Zero goal as this is consistent with the State's clean energy objectives. We further support the deployment of microgrid projects when they are a required infrastructure investment to further our State's adoption of clean energy in a reliable, safe and cost-effective manner. Should the legislature move forward with Section 3 of this bill which requires the deployment of at least two microgrids, DBEDT notes that the financial and human resources required to fulfill the duties of this bill are not fully addressed in its current budget.

We defer to DOE on the implementation of this measure.

Thank you for the opportunity to offer these comments on HB 2569.



HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

February 4, 2016, 8 A.M.

Room 325

(Testimony is 2 pages long)

TESTIMONY IN STRONG SUPPORT OF HB 2569

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

The Blue Planet Foundation supports HB 2569 (i) implementing a sustainable schools initiative to generate and use renewable energy, (ii) creating at least two public school / civil defense microgrid projects, (iii) accelerating the cooling of classrooms, and (iv) authorizes general obligation bonds to fund the effort.

While Blue Planet strongly supports these efforts, we hope the legislature will also consider a broader plan to provide schools with air conditioning powered by 100% renewable sources that are coupled with energy storage that will enable all schools to operate as emergency shelters in case of a grid power outage. Such an initiative 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 microgrids 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 modern conveniences.

ENERGY EDUCATION. Students today will be helping build our clean energy system of tomorrow. A clean energy microgrid 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 Hawai’i 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.

Finally, Blue Planet asks that HB 2569 be amended to specify that the microgrid be powered by renewable sources of energy only—not by fossil fuel. Having a fossil-fuel powered microgrid—even in part—would diminish the educational value, raise environmental concerns (local pollution and storing fuel), and weaken the potential of the school to provide support during an extended emergency (due to the need to have an ongoing fuel supply).

Thank you for the opportunity to testify.

From: mailinglist@capitol.hawaii.gov
Sent: Wednesday, February 03, 2016 9:02 AM
To: EEPtestimony
Cc: carl@votecampagna.com
Subject: *Submitted testimony for HB2569 on Feb 4, 2016 08:00AM*

HB2569

Submitted on: 2/3/2016

Testimony for EEP on Feb 4, 2016 08:00AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Carl Campagna	Individual	Support	No

Comments:

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

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From: mailinglist@capitol.hawaii.gov
Sent: Wednesday, February 03, 2016 8:07 AM
To: EEPtestimony
Cc: dylanarm@hawaii.edu
Subject: *Submitted testimony for HB2569 on Feb 4, 2016 08:00AM*

HB2569

Submitted on: 2/3/2016

Testimony for EEP on Feb 4, 2016 08:00AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Dylan Armstrong	Individual	Support	No

Comments:

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From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 02, 2016 4:25 AM
To: EEPtestimony
Cc: starmer@hawaii.edu
Subject: *Submitted testimony for HB2569 on Feb 4, 2016 08:00AM*

HB2569

Submitted on: 2/2/2016

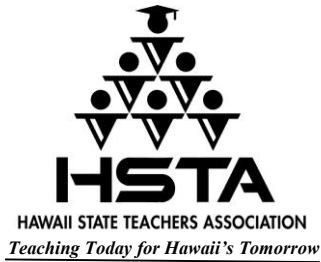
Testimony for EEP on Feb 4, 2016 08:00AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Kaelan	Individual	Support	No

Comments:

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1200 Ala Kapuna Street ♦ Honolulu, Hawaii 96819
Tel: (808) 833-2711 ♦ Fax: (808) 839-7106 ♦ Web: www.hsta.org

Corey Rosenlee
President
Justin Hughey
Vice President
Amy Perruso
Secretary-Treasurer
Wilbert Holck
Executive Director

TESTIMONY BEFORE THE HOUSE COMMITTEE ON
ENERGY

RE: HB 2569 - RELATING TO ENERGY.

THURSDAY, FEBRUARY 4, 2016

COREY ROSENLEE, PRESIDENT
HAWAII STATE TEACHERS ASSOCIATION

Chair Lee and Members of the Committee:

The Hawaii State Teachers Association **strongly supports HB 2569**, relating to energy, **with suggested amendments**.

It's getting hot in Hawai'i. According to the National Weather Service, our state set over 50 high temperature records this summer, with the heat and humidity lingering well into the start of fall. In our schools, children and teachers alike became ill from the blistering conditions. Kalaheo High School science teacher Micah Pregitzer recorded temperatures as high as 108 degrees inside his classroom last August, telling reporters, "You're dripping in sweat when you're just sitting there grading papers by yourself with no students in the room. You get the room packed with 36, 38, sometimes 40 students, and it just boosts that temperature up even higher."

A recent study conducted by University of California at Los Angeles researchers showed that the percentile gap between students learning in air conditioned and non-air-conditioned environments can reach as much as 17 percent on achievement tests, clearly evincing the impact of a comfortable classroom environment on student success. In a longitudinal analysis contained in "Effects of the Physical Environment on Student Learning," moreover, Glen I. Earthman of Virginia Polytechnic Institute and State University found that students between 4th and 9th grade at demographically similar schools showed increased gains in reading vocabulary, total math, problem solving, math procedures, pre-writing, and editing at schools with air conditioning, as compared with peers from non-cooled schools.

Corey Rosenlee
President

Justin Hughey
Vice President

Amy Perruso
Secretary-Treasurer

Wilbert Holck
Executive Director

Earthman demonstrated that the longer and more consistently students are exposed to classroom cooling, the better and more stable their performance gains tend to be. Conversely, students exposed to thermal conditioning for only short or intermittent periods of time achieved less than their peers. These findings are supported by U.S. Department of Education sponsored research, which claims that proper cooling systems lead to better attitudes toward learning, fewer disciplinary problems, and sustained achievement.

We applaud Gov. David Ige's call to cool 1,000 classrooms within the next two years. While previous department of education estimates put the cost of comprehensive air conditioning at \$1.5 billion, that figure has been fallen as investments in experiments with renewable energy technology have proven fruitful. Furthermore, in conversations with photovoltaic companies, advocates for cool schools have learned that employing off-grid DC-powered air conditioners, operated entirely from photovoltaic modules that store energy in power-saving batteries, could cost between \$15,000 to \$30,000 per classroom, a savings of approximately 70 percent from earlier departmental projections (discounting a monthly lease per-classroom payment that could be offset by the department's ongoing and all-encompassing renewable energy savings).

Yet, a number of questions remain about comprehensive classroom cooling, such as:

- What type of batteries and/or solar panels should be used for off-grid and renewable units, and how many of each? Enchanted Lakes Elementary is piloting a lead acid battery, while Kalaheo High School will be employing a salt water battery.
- How many thermal units (BTU) are needed to properly air condition classrooms of varying sizes?
- How should comprehensive heat abatement be funded, especially if the cost of a cooling system can be lowered by up to 75 percent? Administrators at Enchanted Lake Elementary believe that they can install air conditioning at a cost of \$5,000-\$6,000 per classroom, a cost at which, if scaled, could bring down the total for comprehensive statewide cooling for all 7,000 classrooms in need to approximately \$40 million.

Corey Rosenlee
President

Justin Hughey
Vice President

Amy Perruso
Secretary-Treasurer

Wilbert Holck
Executive Director

While HSTA supports the goals of this bill—including net-zero energy usage by 2035 for the DOE, microgrid pilot projects that may be scaled to other schools at a later date, and expedited classroom cooling using a variety of energy technologies and financial instruments—we feel that that this measure may be strengthened by combining it into one measure with the contents of HB 2726, which funds air conditioning, heat abatement, and related energy efficiency measures through a loan from the green infrastructure loan program. Additionally, we believe that a timeline for comprehensive classroom cooling should be placed in state law to continue the heat abatement initiatives launched by this bill. Thus, we urge your committee to add an additional section to the proposal to read: **“§302A-Classroom climate control and cooling.** (a) Beginning with the 2016-2017 school year, the department shall develop a plan to air condition public schools that

includes a mix of technologies, including off-grid technology, microgrid technology, photovoltaic technology, and split air conditioning units.

(b) Beginning with the 2017-2018 school year, the department shall develop a master plan to provide air conditioning to all public school classrooms that meet or exceed a temperature of eighty-five degrees Fahrenheit, including a list of priority schools to receive air conditioning by the 2018-2019 school year.

(c) No later than the 2019-2020 school year, the department shall provide air conditioning to at least fifty per cent of public school classrooms that meet or exceed a temperature of eighty-five degrees Fahrenheit.

(d) No later than the 2021-2022 school year, the department shall provide air conditioning to all public school classrooms that meet or exceed a temperature of eighty-five degrees Fahrenheit.”

School should be cool. To improve air conditioning facilities and, in turn, boost student learning, the Hawaii State Teachers Association asks your committee to **support and amend** this bill.

LATE

From: mailinglist@capitol.hawaii.gov
Sent: Wednesday, February 03, 2016 7:24 PM
To: EEPtestimony
Cc: lynneronderko@gmail.com
Subject: *Submitted testimony for HB2569 on Feb 4, 2016 08:00AM*

HB2569

Submitted on: 2/3/2016
Testimony for EEP on Feb 4, 2016 08:00AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Lynn Onderko	Individual	Support	No

Comments:

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From: mailinglist@capitol.hawaii.gov
Sent: Wednesday, February 03, 2016 6:04 PM
To: EEPtestimony
Cc: lady.flach@gmail.com
Subject: Submitted testimony for HB2569 on Feb 4, 2016 08:00AM

LATE

HB2569

Submitted on: 2/3/2016

Testimony for EEP on Feb 4, 2016 08:00AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Teri Heede	Individual	Support	No

Comments: WE have sun and wind and we can't power AC for our schools??? OH COME ON!!

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LATE

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

Date: 02/04/2016

Time: 08:00 AM

Location: 325

Committee: House Energy & Environmental
Protection

Department: Education

Person Testifying: Kathryn S. Matayoshi, Superintendent of Education

Title of Bill: HB 2569 RELATING TO ENERGY.

Purpose of Bill: Requires the Department of Education to: (1) establish a goal of becoming net-zero with respect to energy use by 1/1/2035; (2) establish microgrid pilot projects at two public schools that are civil defense shelters; and (3) expedite the cooling of all public school classrooms to a temperature acceptable for student learning. Authorizes the issuance of general obligation bonds for the implementation of cooling measures in public school classrooms.

Department's Position:

The Department of Education (DOE) supports HB 2569, with a suggested amendment.

The DOE supports the goal of becoming net-zero with respect to energy use by January 1, 2035. This is in line with the Board of Education Policy 6710 to utilize 90% on-site renewable energy by 2040. We recently started the Ka Hei program to install energy generation (photo voltaic) systems on 100% of our schools within the next five years. However, the recent Public Utility Commission ruling ending the net energy metering program will make the installation of any photo voltaic system, not already approved by Hawaiian Electric, a real challenge and a significant obstacle to the net-zero by 2035 goal. Without a change to the net energy metering program, it will be very difficult for the DOE to meet this goal.

The DOE fully supports maximizing microgrid inclusion at all DOE public schools if the pilot proves successful. Through the Ka Hei program, we have already identified six possible sites statewide and have begun preliminary engineering studies.

The DOE has begun the process to expedite the cooling of classrooms. However, some of the implementation measure reporting requirements to the legislature are onerous because of the level of detail required is down to the classroom level. As an example, requiring the actual operating cost for the air conditioning equipment down to the classroom level will require special meters installed in each classroom which will be at an additional cost. Some schools may be

cooled by central air conditioning units, instead of individual classroom air conditioning units.

As such, the DOE recommends reporting at a school level, where possible, rather than at the classroom level.

Thank you for the opportunity to testify on HB 2569.

TESTIMONY BY WESLEY K. MACHIDA
DIRECTOR, DEPARTMENT OF BUDGET AND FINANCE
STATE OF HAWAII
TO THE HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
ON
HOUSE BILL NO. 2569

February 4, 2016
8:00 A.M.

LATE

RELATING TO ENERGY

House Bill No. 2569 requires the Department of Education to 1) establish a goal of becoming net-zero with respect to energy use by 1/1/2035; 2) establish microgrid pilot projects at two public schools that are civil defense shelters; and 3) expedite the cooling of all public school classrooms to a temperature acceptable for student learning. The bill also authorizes the issuance of general obligation bonds for the implementation of cooling measures in public school classrooms.

The Department supports the intent of this bill. However, the Department believes that House Bill 2726 already provides the financing necessary for the implementation of the primary goal to expedite cooling measures in public school classrooms.

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

LATE

From: mailinglist@capitol.hawaii.gov
Sent: Wednesday, February 03, 2016 3:30 PM
To: EEPtestimony
Cc: patriciablair@msn.com
Subject: Submitted testimony for HB2569 on Feb 4, 2016 08:00AM

HB2569

Submitted on: 2/3/2016
Testimony for EEP on Feb 4, 2016 08:00AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Patricia Blair	Individual	Support	No

Comments: Should be earlier than 2035. 68 degrees is a good temp.

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STATE OF HAWAII
DEPARTMENT OF DEFENSE

TESTIMONY ON HOUSE BILL 2569
A BILL RELATING TO ENERGY

PRESENTATION TO
THE HOUSE COMMITTEE ON COMMITTEE ON ENERGY
& ENVIRONMENTAL PROTECTION

BY
MAJOR GENERAL ARTHUR J. LOGAN
ADJUTANT GENERAL
AND DIRECTOR OF THE HAWAII EMERGENCY MANAGEMENT AGENCY
February 4, 2016

Chair Lee, Vice Chair Lowen, and Members of the House Committee on Energy & Environmental Protection.

I am Major General Arthur J. Logan, State Adjutant General and the Director of the Hawaii Emergency Management Agency. I am testifying in support of the intent of House Bill 2569.

The measure to provide power to operate school facilities without reliance on commercial power is a good initiative. This could benefit the public as selected school facilities operate as hurricane shelters.

This measure names State Civil Defense as one of the organizations to work with the Department of Education to examine pilot projects. We recommend the reference be changed to “the administrator or director of the county emergency management agency affected.” In HRS 127A-19(c) Shelters, the counties operate the hurricane shelters. During events, the counties decide which shelters to open and staff.

Thank you for allowing me to allowing me to testify in support of the intent of House Bill 2569.

STATE OF HAWAII
DEPARTMENT OF DEFENSE



TESTIMONY ON HOUSE BILL 2569
A BILL RELATING TO ENERGY

PRESENTATION TO
THE HOUSE COMMITTEE ON COMMITTEE ON ENERGY
& ENVIRONMENTAL PROTECTION

BY
MAJOR GENERAL ARTHUR J. LOGAN
ADJUTANT GENERAL
AND DIRECTOR OF THE HAWAII EMERGENCY MANAGEMENT AGENCY
February 4, 2016

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