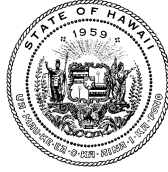


DAVID Y. IGE
GOVERNOR



CURT T. OTAGURO
COMPTROLLER
AUDREY HIDANO
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

WRITTEN TESTIMONY
OF
CURT T. OTAGURO, COMPTROLLER
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
TO THE HOUSE COMMITTEE ON
LABOR AND PUBLIC EMPLOYMENT

THURSDAY, FEBRUARY 13, 2020, 9:00 A.M.
CONFERENCE ROOM 309, STATE CAPITOL

H.B. 1846 HD1

RELATING TO ENERGY EFFICIENCY.

Chair Johanson, Vice Chair Eli, and Members of the Committee, thank you for the opportunity to submit testimony on H.B. 1846 HD1.

The Department of Accounting and General Services (DAGS) supports the intent of the bill to increase the energy efficiency of State buildings. DAGS offers the following comments for the committee's consideration:

1) SECTION 1. Replace lines 2-4 on page 2 with the following:

- (1) Require all state facilities, with the exception of smaller facilities, ~~to undergo an energy audit by January 1, 2022.~~ to begin utilization of section 36-41, if they have not since 2010; and all others to perform an energy audit and implementation of its feasible recommendations.

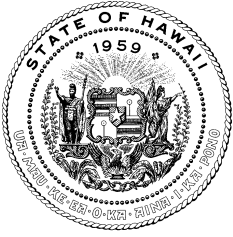
2) SECTION 2. Replace lines 5-16 on page 3 with the following:

(a) All state facilities that have not utilized section 36-41 since 2010 shall begin the process of utilizing section 36-41 by January 1, 2022; and other State facilities shall complete an energy audit and implement the feasible recommended efficiency measures by January 1, 2020. shall address the results of the energy audit conducted pursuant to Act —, Session Laws of Hawaii 2020, through the implementation of efficiency measures or enter into performance contracts for efficiency measures as follows:

(1) Beginning on January 1, 2022, for all state facilities that have not utilized section 36-41 since 2010; and

(2) Beginning on January 1, 2024, for all other state facilities; provided that the simple payback period does not exceed the performance period of the contract.

Thank you for the opportunity to submit testimony on this matter.



HAWAII STATE ENERGY OFFICE STATE OF HAWAII

235 South Beretania Street, 5TH Floor, Honolulu, HI 96813 | energy.hawaii.gov

DAVID Y. IGE
GOVERNOR

SCOTT J. GLENN
CHIEF ENERGY OFFICER

(808) 587-3807

Testimony of
SCOTT J. GLENN, Chief Energy Officer

before the
HOUSE COMMITTEE ON LABOR & PUBLIC EMPLOYMENT

Thursday, February 13, 2020
9:00 AM
State Capitol, Conference Room 309

In SUPPORT of
HB 1846, HD1
RELATING TO ENERGY EFFICIENCY.

Chair Johanson, Vice Chair Eli and Members of the Committee, the Hawaii State Energy Office (HSEO) supports HB 1846, HD1, which requires an energy audit for all state facilities 10,000 square feet and larger, by January 1, 2022; with the HSEO to have access to all utility bills and energy usage data for all state-owned facilities, and have the data in a publicly accessible format. Our office defers to the Department of Accounting and General Services and other state agencies, as the auditing process takes time and resources.

Energy efficiency is the most cost-effective way to reduce energy usage and a number of state agencies in Hawaii have been benchmarked, audited, and have participated in or are in the process of participating in energy savings performance contracts. However, there are always additional and more opportunities for additional energy savings and energy generation opportunities that may be identified via energy audits and other means.

Regarding the design of new state buildings to maximize energy generation potential; allowing building materials that reduce the carbon footprint of the project where feasible and cost-effective, and having 25% of the parking to be electric vehicle charger ready; HSEO is supportive of these measures and believes that this is all in alignment with the State's clean energy and decarbonization goals. HSEO believes public facilities have an important role in contributing not only to energy efficiency but energy generation as well.

Thank you for the opportunity to testify.



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

Date: 02/13/2020
Time: 09:00 AM
Location: 309
Committee: House Labor & Public
Employment

Department: Education

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

Title of Bill: HB 1846, HD1 RELATING TO ENERGY EFFICIENCY.

Purpose of Bill: Requires an energy audit for all state facilities with an area over 10,000 square feet by 1/1/2022, and dates for energy efficiency implementation. Beginning 7/1/2020, allow for new state building construction to utilize post-industrial carbon dioxide mineralized concrete, or other materials that reduce the carbon footprint of the project where feasible and cost-effective, have 25% of its accompanying parking lot be electric vehicle charger ready. Authorizes the Hawaii State Energy Office to access utility bills and energy usage data for state-owned buildings and make the data publicly available. Takes effect on 7/1/2050. (HD1)

Department's Position:

The Department of Education (Department) supports HB 1846, HD1 for new building construction.

The Department has 4,425 buildings, which equate to approximately 20.7 million square feet of older structures. On average, these buildings are nearly 50 years old. Energy audits would take nine months to complete at the cost of approximately \$600,000.

The costs of the energy audits as well as designs for net-zero capable structures require significant funding that is only available for new construction. As such, the Department appreciates the legislature's requiring that new building designs maximize energy generation potential in place of a net-zero requirement. This provides the Department with additional flexibility in building design and potentially reduces the associated costs.

Thank you for the opportunity to testify on HB 1846, HD1.

The Hawai'i State Department of Education is committed to delivering on our promises to

students, providing an equitable, excellent, and innovative learning environment in every school to engage and elevate our communities. 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.



ELEMENTAL EXCELERATOR

Written Statement of Elemental Excelerator before the House Committee on Labor and Public Employment

In consideration of [HB 1846 HD 1](#) RELATING TO ENERGY EFFICIENCY

February 13, 2020

Aloha Chair Johanson, Vice-Chair Eli, and Members of the House Committee on Labor and Public Employment

Elemental Excelerator respectfully **submits strong support** for HB 1846 HD 1, which:

1. Requires an energy audit for all state facilities with an area over 10,000 square feet by 1/1/2022, and dates for energy efficiency implementation.
2. Beginning 7/1/2020, allow for new state building construction to utilize post-industrial carbon dioxide mineralized concrete, or other materials that reduce the carbon footprint of the project where feasible and cost-effective, have 25% of its accompanying parking lot be electric vehicle charger ready.
3. Authorizes the Hawaii State Energy Office to access utility bills and energy usage data for state-owned buildings and make the data publicly available. Takes effect on 7/1/2050.

Elemental Excelerator is a Honolulu-based non-profit organization that supports climate positive startup companies that are helping solve Hawai'i's most urgent environmental problems. Each year, we select 15-20 companies annually that best fit our mission and fund each company up to \$1 million. To date, we have awarded \$36 million to 99 companies resulting in over fifty demonstration projects in Hawai'i & the Asia Pacific.

About twenty percent of Elemental Excelerator's portfolio companies focus on resilience in the real estate sector. We support the key points listed above, and aim to provide some additional information about the requirement *"to allow for the building to be a net zero capable structure, use post-industrial carbon dioxide mineralized concrete where cost-effective"*.

This provision aligns with the Hawaii Department of Transportation (HDOT) deployment in May 2019 of post-industrial carbon dioxide mineralized concrete as a sustainable transportation initiative.¹ The initial test involved a pour of 150 cubic yards of carbon-injected concrete next to an equivalent pour of standard concrete mix on an access road for the Kapolei Interchange Phase 2 on Oahu Island. The carbon-injected material has turned out to be stronger and more workable, with no increase in cost over traditional concrete.² It also aligns with Honolulu City Council Resolution 18-283, which was unanimously adopted in April 2019. The resolution *"requests the city administration to consider using carbon dioxide mineralization concrete for all future infrastructure projects utilizing concrete"*³ In July 2019, the United States Conference of Mayors adopted the "Honolulu Resolution" urging 400 cities to introduce legislation that prioritizes utilizing post-industrial carbon dioxide mineralized concrete for use in city-building and infrastructure projects to their city councils.⁴ It also aligns with existing policies like Act 15

and Act 32, which structures the Greenhouse Gas Sequestration Task Force⁵ and sets a target for a zero-emissions clean economy by 2045.⁶

These policies demonstrate a growing commitment in Hawai'i and across the nation to repurpose and sequester CO₂, known as CO₂ utilization or CO₂U, and signal Hawai'i's leadership in growing its economy while prioritizing sustainable new technologies.

We strongly support HB 1846 HD 1 and the requirement for new state building construction to use post-industrial carbon dioxide mineralized concrete for the following reasons:

1. **It can be implemented quickly and is economically responsible:** The 2016 *Global Roadmap for Implementing CO₂ Utilization* (GCI) study has identified several companies in the market that use post-industrial carbon dioxide [CO₂] mineralized concrete in partnership with existing concrete producers. This process can reduce operational costs and create up to \$26 billion in new production efficiencies.⁷
2. **It reduces greenhouse gas emissions:** Concrete is the most widely used construction material in the world because of its low cost, strength, and durability. However, 7% of CO₂ emissions come from cement production. In 2017, Hawai'i imported around 300,000 tons of cement from Taiwan. The importing of concrete leads to additional costs in shipping, which also leads to a larger CO₂ footprint. With CO₂ mineralization, concrete development can reduce up to 700 megatons of annual global CO₂ emissions.⁸
3. **It is a competitive and innovative technology:** The GCI study found that the emerging carbon utilization industry is expected to become a \$1 trillion industry by the year 2030.⁹

Mahalo for the opportunity to provide testimony.

Sincerely,



Aki Marceau
Managing Director- Policy & Community

¹ [HDOT Tests Sustainable Concrete Mix Designed to Reduce Carbon Footprint of Road Construction](#), May 2019

² [Hawaii's DOT tests sustainable concrete](#), May 2019

³ Honolulu City Council Resolution 18-283

⁴ 2019 United States Conference of Mayors, [Honolulu Resolution](#)

⁵ Hawai'i [Act 015 GM 1115](#)

⁶ Hawai'i [Act 32 GM 1132](#)

⁷ CarbonCure. (n.d.). Retrieved from <https://www.carboncure.com/>

⁸ Who's who in North American cement imports (October 2018). Retrieved from <https://cementdistribution.com/wp-content/uploads/2018/11/Who-is-who-in-North-American-cement-imports.pdf>

⁹ Global Roadmap for Implementing CO₂ Utilization (November 2016), p.5. Retrieved from <http://www.globalco2initiative.org/wp-content/uploads/2018/09/GlobalRoadmapCO2.pdf>

HB-1846-HD-1

Submitted on: 2/11/2020 11:05:20 AM

Testimony for LAB on 2/13/2020 9:00:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Ted Bohlen	Climate Protectors Coalition	Support	No

Comments:

Chair Johanson, Vice Chair Eli, and Labor and Public Employment Committee members:

The Climate Protectors Coalition **strongly supports** HB1846 HD1!

We are a new group inspired by the Mauna Kea Protectors but focused on reversing the climate crisis. As a tropical island State, Hawaii will be among the first places harmed by the global climate crisis, with more intense storms, loss of protective coral reefs, and rising sea levels. We must do all we can to reduce our carbon footprint and become at least carbon neutral as soon as possible. One way to achieve this is set forth in this bill- by making State facilities more energy efficient by requiring energy audits, implementing energy efficiency measures, and using building materials with a smaller carbon footprint. Please pass this bill. Mahalo!



Environmental Caucus

The Democratic Party of Hawai'i

February 12, 2020

Re: **Bill # HB1846 HD1**

Relating to Energy Efficiency, State Buildings Audit, Building Design, and Benchmarking

Position: **Strong Support**

Aloha Chair Johanson, Vice Chair Eli and members of the Committee on Labor and Public Employment,

The Environmental Caucus of the Democratic Party of Hawai'i strongly supports Bill HB1846 HD1 which would require an energy audit for all state facilities with an area over 10,000 square feet and dates for energy efficiency implementation, allow for new state building construction to utilize post-industrial carbon dioxide mineralized concrete, or other materials that reduce the carbon footprint of the project where feasible and cost-effective, have 25% of its accompanying parking lot be electric vehicle charger ready and authorizes the Hawaii State Energy Office to access utility bills and energy usage data for state-owned buildings and make the data publicly available.

The 2018 Platform of the Democratic Party of Hawai'i outlines the need for carbon emission reduction as it is incumbent on us all to mitigate the causes of climate change. The Environmental Caucus believes in and supports the State in leading this effort. This bill is also supported by the Green New Deal of Hawai'i Committee as it aims to meet the goals of carbon emission reduction, provide alternative energy infrastructure for transportation, and will result in job creation in both the near term, and in the future, once the energy efficiency implementation dates and goals are determined.

Mahalo for your consideration,

Lana Olson
Chair, Environmental Caucus of the Democratic Party of Hawai'i

Written Statement of CarbonCure Technologies before the Hawai'i State House of Representatives Committee on Labor and Public Employment

Thursday, February 13th, 2020

In Consideration of Resolution HB 1846
RELATING TO ENERGY EFFICIENCY

Dear Chair Johansen and members of the Committee on Labor and Public Employment:

CarbonCure Technologies respectfully submits this statement in strong support of HB 1846 which requires a series of actions to be taken to increase the energy efficiency of state facilities and buildings, consider energy costs and requirements in design, and to reduce the embodied carbon footprint of public buildings through the use of carbon dioxide mineralized concrete.

CarbonCure is a clean technology company that has had the honor to be a recent cohort company of the Elemental Excelsior (EEX) program based in Honolulu. Our investors include Breakthrough Energy Ventures, a \$1 billion clean energy venture fund comprising 20 global business leaders. We are the world leader in CO₂ mineralization technologies and were recently named the North American Cleantech Company of the Year by Cleantech Group¹.

Beginning in 2019 with our concrete producer partners Island Ready Mix Concrete and Hawai'i Concrete and Cement Company, we have produced post-industrial carbon dioxide mineralized concrete that meets performance criteria. This form of concrete is readily available to support future state facility construction projects at a competitive cost. For example, the Hawaii Department of Transportation successfully demonstrated the use of CO₂ mineralized concrete on the Kapolei Interchange in May 2019 and has introduced language into its concrete specifications to standardize the use of CO₂ mineralized concrete on HDOT developments.

Resolution HB 1846 supports the ambitious climate goals set by the State of Hawai'i while enhancing the local market for clean technologies. We submit our strong support for this resolution for the following reasons:

- 1. It fosters innovation in clean technologies and positions Hawai'i to lead in the future economy:** Carbon utilization technologies such as carbon dioxide mineralized concrete are expected to become a \$1T industry by the year 2030. Similarly, electric vehicles are expected to account for more than 30% of global passenger vehicles by

¹ [Cleantech Group](#)

2040². This resolution positions the State of Hawai'i to capitalize on emerging technology trends and proactively design and plan for this future reality. Successful innovation is only realized in partnership with strong leadership from elected officials and the public sector. By sending a clear market signal, this resolution will catalyze investment into the State to support implementation and improvement of the technologies that will shape our economy in the years to come.

2. **It takes an economically responsible approach to addressing greenhouse gas emissions:** Improving the energy efficiency of existing buildings is widely acknowledged to be one of the fastest and most cost-effective strategies for decarbonization^{3,4}. Reducing the energy consumption of public buildings will achieve emissions reductions while reducing the cost of utility bills. The use of carbon dioxide mineralized concrete can reduce operational costs and unlock new production efficiencies for concrete producers, providing a market-ready solution to drive down emissions in this hard to decarbonize industrial sector.
3. **It promotes transparency:** By requiring continual energy audits and reporting of energy consumption, this resolution will place data in the hands of elected officials to better inform decision-making on behalf of all Hawaiians.
4. **It will achieve emissions reductions and demonstrates the State's commitment to the Paris Climate Accord:** In June 2017, Governor David Ige signed SB 559⁵, reaffirming commitment to the principles of the Paris Accord and aligning climate mitigation efforts with achieving the goals of the Accord. This resolution outlines a suite of actions that will reduce both operational emissions and embodied carbon emissions. Concrete is the most widely used construction material in the world. However, 7% of emissions come from cement production⁶. In 2017, Hawai'i imported around 300,000 tons of cement from Taiwan⁷. The importing of cement leads to additional costs in shipping, which then leads to a larger footprint. With mineralization, concrete development can reduce up to 700 MT of annual global emissions.

Mahalo for the opportunity to testify on this resolution.

Sincerely,

Robert Niven

CEO and Founder

CarbonCure Technologies, an Elemental Excelerator cohort company

rniven@carboncure.com

² [BloombergNEF Electric Vehicle Outlook](#)

³ [Natural Resources Defense Council](#)

⁴ [International Energy Agency](#)

⁵ [SB 559](#)

⁶ [Global Roadmap for Implementing CO₂ Utilization](#)

⁷ [North American Cement Imports](#)



Email: communications@ulupono.com

HOUSE COMMITTEE ON LABOR & PUBLIC EMPLOYMENT
Thursday, February 13, 2020 — 9:00 a.m. — Room 309

Ulupono Initiative Supports HB 1846 HD 1, Relating to Energy Efficiency

Dear Chair Johanson and Members of the Committee:

My name is Amy Hennessey, and I am the Senior Vice President of Communications & External Affairs at Ulupono Initiative. We are a Hawai'i-based impact investment firm that strives to improve our community's quality of life by creating more locally produced food; increasing affordable clean renewable energy and transportation options; and better managing waste and fresh water resources.

Ulupono supports HB 1846 HD 1, which requires an energy audit for all state facilities with an area over 10,000 square feet by 1/1/2022, and dates for energy efficiency. Beginning 7/1/2020, this bill will allow for new state building construction to utilize post-industrial carbon dioxide mineralized concrete, or other materials that reduce the carbon footprint of the project where feasible and cost-effective, have 25% of its accompanying parking lot be electric vehicle charger ready. This bill authorizes the Hawai'i State Energy Office to access utility bills and energy usage data for state-owned buildings and make the data publicly available.

Ulupono supports energy efficiency measures to lower consumption across the State. As Hawai'i's energy issues become increasingly complex and challenging, we appreciate this committee's efforts to look at policies that reduce the State's overall energy demand, which in return should save the State, and taxpayers, money. Meeting the State's 100% renewable goal by 2045 will require everyone's commitment and it is important for the State government to lead the way.

Furthermore, electric vehicles (EVs) are an important avenue to address Hawai'i's pressing climate issues and align with the State's energy and environmental goals. EVs currently offer an effective option to advance clean renewable ground transportation and provide immediate benefits to Hawai'i.

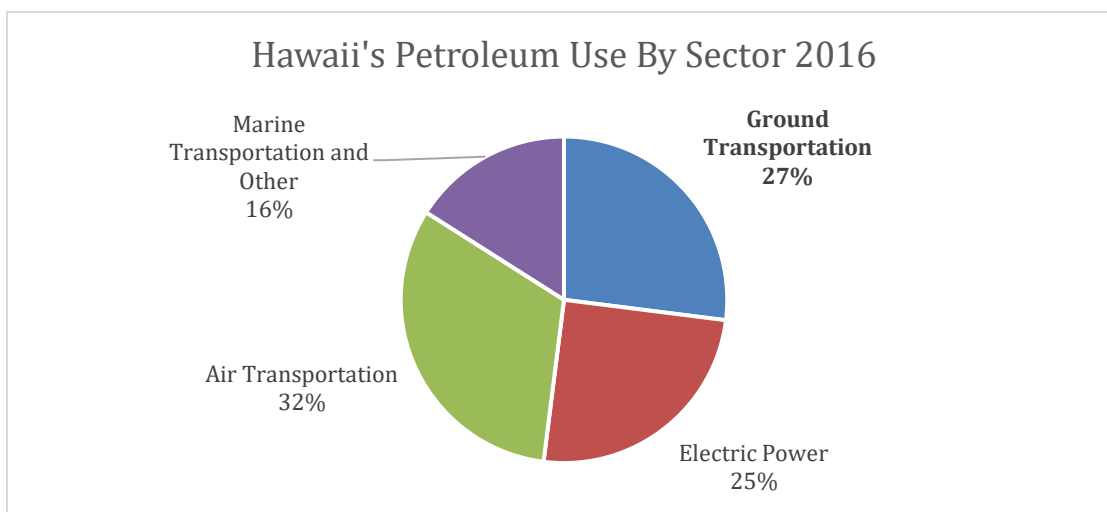
In fact, the International Code Council (ICC), recently voted to include EV-ready measures in the International Building Code. The City and County of Honolulu is also in final consideration of a measure to require EV-ready in new commercial construction. The State

Investing in a Sustainable Hawai'i

of Hawai'i should continue to lead by example and further show the world that Hawai'i is serious about the sustainability and resiliency of our community by encouraging EVs and EV infrastructure as this bill proposes.

EVs Provide Immediate Energy and Environmental Impact

Ground transportation alone utilizes more than a quarter of the state's imported petroleum. Electrifying ground transportation will reduce our demand for imported fossil fuels, keeping millions of dollars in the state and cutting harmful pollution.



Source: Hawaii State Energy Office – Hawaii Energy Facts & Figures

Converting from petroleum-based vehicles to EVs immediately reduces GHG emissions, helping combat climate change and its impacts on our islands. EVs produce zero-emissions at the tailpipe, and even when full lifecycle emissions (from manufacturing through disposal) are considered, EV emissions are approximately 50 percent lower than internal combustion engine (ICE) vehicles.

EVs can also support the integration of more renewables on the electric grid with smart charging technology and rate structures. Thus, proliferating EVs throughout Hawai'i can help accelerate progress towards the State's 100 percent RPS goal, as well as contribute to the State's Paris Agreement commitments and carbon neutral goal.

Hawai'i Should Be Doing More

EVs are the future, but they currently only represent less than one percent of all passenger vehicles in the state. Hawai'i must encourage this still nascent market and be prepared with the necessary infrastructure.

Public EV charging stations are a vital component of the EV system. They provide access to charging for drivers who may not be able to charge at home, such as residents who live in

multi-unit dwellings, and alleviate range anxiety for all EV drivers, a top-cited barrier to purchasing EVs. Similar to the benefits that community solar offers to renters and apartment residents, public chargers open up the opportunity and feasibility of owning an EV to more people, increasing equity and access.

Requiring qualifying facilities to be “EV ready” is smart and essential future proofing. Installing EV infrastructure post-construction costs three times more than at the time of new construction, and it represents approximately less than one percent of total new construction project cost. Given that building construction has a ~30-year life, this bill is a fiscally prudent way for the State to prepare for 2049 and beyond, when EVs are expected to be abundant and charging will be critical.

Other states and cities recognize the importance of EV infrastructure and already have policies that require public and private parking facilities to be built to support EV charging. Below are examples of leading state and city EV-ready requirements:

- California – 8 percent of parking stalls at nonresidential properties
- Vancouver – 100 percent of parking stalls at multi-unit residential and 10 percent of stalls at commercial properties
- New York City – 20 percent of parking stalls at parking facilities (open lots and garages)
- Atlanta – 20 percent of parking stalls at new commercial and multifamily properties
- San Francisco – 20 percent of new residential, commercial and municipal properties

This bill is an important measure for the State to lead the private market here in Hawai‘i, while continuing to show the world that Hawai‘i is a clean energy leader.

Thank you for this opportunity to testify.

Respectfully,

Amy Hennessey, APR
Senior Vice President, Communications & External Affairs

Late Testimonies



Hawai'i Energy

YOUR CONSERVATION & EFFICIENCY PROGRAM

LATE

1132 Bishop Street, Suite 1800 • Honolulu, Hawai'i 96813 • HawaiiEnergy.com • P: (808) 839-8880 • F: (808) 441-6068

Before the House Committee on Labor and Public Employment
Thursday, February 13, 9:00 AM, Conference Room 309
HB 1846 HD1: Relating to Energy Efficiency

Chair Johanson, Vice Chair Eli, and members of the committee:

The Hawai'i Energy program supports HB 1846 HD1 and offers the following comments.

Hawai'i Energy works to empower island families and businesses on behalf of the Hawai'i Public Utilities Commission (PUC) to make smart energy choices to reduce energy consumption, save money, and pursue a 100% clean energy future. Energy efficiency is the cheapest option to help us achieve our 100% clean energy goal by eliminating waste and being more efficient.

Hawai'i Energy applauds the emphasis on improving energy efficiency in State facilities. The State of Hawai'i has had a successful Energy Savings Performance Contract (ESPC) program that drove a significant level of energy savings projects between 2009 and 2015. The State of Hawai'i has benefitted substantially from ESPCs. Hawai'i Energy estimates that since 1996, Hawai'i government agencies have saved, on average, more than 5 million kilowatt hours a year, equating to over \$24 million in savings, with the majority of this coming through ESPCs. ESPC procurements have significantly dropped since 2015, due to a number of potential factors, including previously completed projects, use of standard procurement mechanisms, and state agencies not having the expertise and resources to develop, procure, and manage the construction, among others. With advances in technologies that increase efficiency coupled with the number of buildings that are still largely inefficient, opportunity remains for further improvement.

Tackling energy use by all state facilities will take time, manpower, and in some instances funding. Hawai'i Energy supports the modifications in HD1 exempting facilities under 10,000 square feet. Hawai'i Energy also supports the timeline laid out in HD1 for audits and implementation as being realistic, especially if the State ESCO process is utilized.

Thank you for the opportunity to provide comments on and our **support** of HB1846 HD1.

Brian Kealoha
Executive Director
Hawai'i Energy