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**STATE OF HAWAII
OFFICE OF THE DIRECTOR
DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS**

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Testimony of the Department of Commerce and Consumer Affairs

**Before the
Senate Committee on Energy, Economic Development, and Tourism
and
Senate Committee on Higher Education
Monday, February 3, 2020
2:45 p.m.
State Capitol, Conference Room 414**

**On the following measure:
S.B. 2547, RELATING TO RENEWABLE ENERGY**

Chairs Wakai and Kim and Members of the Committees:

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 purposes of this bill are to: (1) require the Hawaii Natural Energy Institute (HNEI) to conduct a feasibility study on the State's ability to achieve its renewable energy goals by 2045; and (2) appropriate monies from the general fund for the HNEI's study.

Significant progress has been made since the adoption of the Renewable Portfolio Standards (RPS). In 2018, reported compliance with the RPS was 26.7% by the Hawaiian Electric Companies and 43.5% by Kauai Island Utility Cooperative. The Department and the Public Utilities Commission (PUC or Commission) continue to seek to achieve the State's goal of achieving 100% renewable energy by 2045. As part of its

work with the Commission and utility companies, the Department evaluates the progress being made and the potential to achieve the 100% goal, while helping to ensure that bills remain affordable for consumers. The Department notes that, consistent with the statutory requirements of Hawaii Revised Statutes section 269-95, the Commission regularly engages the HNEI to provide findings and recommendations on numerous items, including: (1) the ability of the utility companies to achieve the RPS in a cost-effective manner; and (2) projected standards that should be set five to ten years into the future. In that study, which is funded by the PUC special fund, the Commission must also report on factors such as: (1) the impact on customer rates; (2) utility system reliability and stability; (3) effects on the economy; (4) climate change policies; and (5) cost of fossil fuel volatility.

Given that the Commission is already required to produce the study described above once every five years,¹ it appears that the need for the HNEI to conduct a similar study using general funds may be duplicative.

Thank you for the opportunity to testify on this bill.

¹ The last study was filed with the Legislature in December 2018. Reports filed by the Commission with the Legislature is available at: <http://puc.hawaii.gov/reports/legislature/>.



UNIVERSITY OF HAWAII SYSTEM

Legislative Testimony

Testimony Presented to the
Senate Committees on Energy, Economic Development and Tourism,
and Higher Education

Monday, February 3, 2020 at 2:45 p.m.

By

Richard Rocheleau, Director
Hawai'i Natural Energy Institute

And

Michael Bruno, PhD
Vice Chancellor for Research
University of Hawai'i at Mānoa

SB 2547 – RELATING TO REWEWABLE ENERGY

Chairs Wakai and Kim, Vice Chairs Taniguchi and Kidani, and members of the committees:

The Hawai'i Natural Energy Institute (HNEI) supports the intent of this bill, provided its passage does not impact the priorities as identified by our Board of Regents' Approved Budget. As such, HNEI's offers the following comments.

SB 2547 would require HNEI to conduct a feasibility study on the State's ability to achieve its renewable energy goals by 2045, and would appropriate funds for the study.

HNEI has a history of supporting the Hawai'i PUC, conducting independent analysis to provide perspective and insight into some of the decisions the PUC must make. As part of that support, HNEI has conducted analyses and assessments to inform the PUC's evaluation of the renewable portfolio standards, most recently in supporting the report that was submitted by the PUC to the 2019 Legislature. This report, required every five years under HRS Section 269-95, includes assessments of the effectiveness and achievability of the RPS targets. The 2019 report found that achieving the 2020 target was very likely, and the 2030 target likely based on current utility plans. The report also stated that it was not possible to determine the achievability of the 2040 and 2045 targets due to several uncertainties (See report excerpt on the following page of this testimony).

It has been approximately 15 months since the latest PUC RPS report. While there has been substantial development by the utility toward the 2030 goals, HNEI believes that many of the uncertainties described in the report have not become certain. Should this more forward looking study be requested by the legislature, it is important that key uncertainties whose resolution could significantly impact the achievability of meeting the RPS targets be fully evaluated and potential steps for resolution identified.

If this study is performed by HNEI, funding for the study could be accommodated through HNEI's barrel tax allocation and may not require an additional appropriation.

Again, thank you for the opportunity to comment on SB 2547.

- From PUC Report to the 2019 Legislature on Hawaii's Renewable Portfolio Standards (p. 11):

The achievability of the 2020 and 2030 RPS is dependent on several utility-scale renewable energy projects at identified sites that have been approved or are under construction. While uncertainty remains regarding whether many of the proposed projects will ultimately reach commercial operations, each being subject to several contingencies, including obtaining necessary permits, approvals by the Commission, and successful financing and project implementation.

Achievability of the 2040 and 2045 RPS is not possible to determine with certainty at this time for several reasons including:

- The long timeframe presents uncertainties regarding the amount of growth in electricity demand. Since the RPS requirements are expressed in terms of percentages of electricity sales, the amount of required renewable resources depends on uncertain future economic trends.
- Since the RPS percentage requirements are significantly higher for 2040 (70%) and 2045 (100%), the ability of the utility systems to accommodate increasing proportions of variable utility-scale generation and distributed generation becomes an increasingly important consideration.
- Achievement of the longer-term RPS depends, in part, upon development of renewable resources that are not currently proposed, known, or sited.
- Community acceptance regarding the siting of renewable energy resources and the potential impacts of unforeseen technological advancements are also key uncertainties in determining 2040 and 2045 RPS achievability.

An effort is made in this Report to make reasonable considerations regarding incorporation of renewable generation on each utility system. This Report does not, however, attempt to resolve these uncertainties. Several significant challenges in achieving the longer-term RPS requirements are discussed in a later section of this Report.



**Hawaiian
Electric**

**TESTIMONY BEFORE SENATE COMMITTEES ON
ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM
&
HIGHER EDUCATION**

S.B. 2547

Relating to Renewable Energy

Monday, February 3, 2020
2:45pm, Agenda Item #1
State Capitol, Conference Room 414

Chris Lau
Manager, Corporate Energy Planning
Hawaiian Electric Company, Inc.

Dear Chair Wakai and Chair Kim, Vice Chair Taniguchi and Vice Chair Kidani, and Members of the Committees,

My name is Chris Lau and I am testifying on behalf of Hawaiian Electric Company, Inc. (Hawaiian Electric) in **support of S.B. 2547**, Relating to Renewable Energy. The bill requires the Hawai'i Natural Energy Institute (HNEI) to conduct a feasibility study on the State's ability to achieve the 100 percent renewable energy goal by 2045.

Hawaiian Electric supports a study to raise awareness of the energy policy issues that need to be addressed in order to meet the State's renewable portfolio standards (RPS). Although HNEI reports on the RPS every five years¹, pursuant to Hawai'i Revised Statutes § 269-95, the study proposed by S.B. 2547 can address additional issues outside of the scope of HNEI's current reporting. The study can

¹ https://puc.hawaii.gov/wp-content/uploads/2018/12/RPS-2018-Legislative-Report_FINAL.pdf

identify potential hurdles that may hinder achievement of the RPS as well as define the required actions by specific stakeholders and the timeliness needed to overcome these hurdles. Key policies that need to be revised or enacted to support RPS achievement as well as the costs and consequences of doing so can be examined so that all stakeholders that are impacted by the RPS can be informed. The study can also examine whether adopting alternative goals to 100 percent RPS such as a statewide decarbonization goal is preferable.

Hawaiian Electric remains committed to achieving the RPS goals of 100 percent by 2045 and getting off fossil fuels, but recognizes that achievement of this goal will require the collaborative efforts of many stakeholders. The entire state of Hawai'i, including policy makers, agencies, the judiciary, utilities, landowners, and communities must be aligned and work together to ensure this goal is achieved.

Accordingly, the Hawaiian Electric Companies support S.B. 2547 in its current form. Thank you for this opportunity to testify.



HAWAII

AMERICANS FOR DEMOCRATIC ACTION

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MAILING ADDRESS

P.O. Box 23404
Honolulu
Hawai'i 96823

January 30 , 2020

TO: Honorable Chairs Wakai and Kim and Members of the EET/HRE Committee

RE: SB 2547 Relating to Renewable Energy

Support for hearing on February 3

Americans for Democratic Action is an organization founded in the 1950s by leading supporters of the New Deal and led by Patsy Mink in the 1970s. We are devoted to the promotion of progressive public policies.

We support SB 2547 as it would fund the Hawaii Natural Energy Institute to conduct a feasibility study on the State's ability to achieve its renewable energy goals by 2045. The State has set important goals and now needs to navigate our way to achieve them.

Thank you for your favorable consideration.

Sincerely,

John Bickel President



SB-2547

Submitted on: 1/30/2020 3:44:42 PM

Testimony for EET on 2/3/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Megan Blazak	Individual	Support	No

Comments:



John Uekawa, President
Dave Rolf, Executive Director



LATE

HADA Testimony in SUPPORT of SB2547
RELATING TO RENEWABLE ENERGY

Presented to the Senate Committee On Energy Economic Development and Tourism
and the Senate Committee on Higher Education

at the Public Hearing 2:45 p.m., Monday, February 3, 2020
in Room 414 Hawaii State Capitol

by David H. Rolf for the members of the Hawaii Automobile Dealers Association,
*Hawaii's franchised new car dealers, who provide sales, warranty work and other factory-certified
maintenance service for Hawaii's privately-owned and fleet-owned cars and light trucks*

Chairs Wakai and Kim, Vice Chairs Taniguchi and Kidani and members of the committees:

HADA members are in support of SB2547 which requires and appropriates funds for the Hawaii Natural Energy Institute to conduct a feasibility study on the State's ability to achieve its renewable energy goals by 2045.

The intersection of energy, jobs, quantum computing, driverless cars, homes, education, and the well-being of a society, is the focus of HADA's work on Hawaii's future.

HADA has followed through on Governor Ige's Executive Order 17-07, which announced to the world that "Hawaii is open for business of the testing and deploying the new driverless vehicle technology."

Interestingly, a professor of Landscape Architecture (a city planning course) at Penn State University, picked up on the EO and his class involved HADA in the scoping process for their idea to create Autonomous Vehicle (development) pockets around the coming Honolulu Rail stations.

Toyota announced a similar idea of "weaving" autonomous vehicles, hydrogen fuel cell power, artificial intelligence, housing, a renewable energy grid, and more.

<https://www.youtube.com/watch?v=ng3X39lenvg>

The AV-pockets development, alluded to during HADA's presentation at the Capitol January 10, 2020, as part of the Hawaii Energy Policy Forum's discussion on "Bending the Curves," mentioned the work of Professor Goldberg's class.

In HADA's presentation, there were 2 slides provided by students of Professor David Goldberg's landscape architecture class.

The Toyota "Woven City" is a beautiful example expanded to a small-city scale. Toyota, by the way, started as a textile company. Hence the name "Woven City."

The Woven City interweaves AI, broadband expansion, autonomous vehicles, and renewable energy power — with the basis of the power being hydrogen for vehicles, offices and retail establishments, and housing.

Hawaii’s former U.S. Senator Spark Matsunaga would have been pleased. He was known in the 70s for creating 3 big things: America’s poet laureate position, America’s Peace Institute, and America’s Hydrogen Fund.

All somewhat related.

Here are excerpts from HADA’s presentation at the legislature (relating to energy and reaching Hawaii’s goals)....

The Woven City's masterplan includes three types of street usage: vehicles-only, low speed personal mobility and pedestrians, and park-like promenades for pedestrians only. These three types serve as fertile testing ground for numerous types of autonomous technology.

It is interesting that the HADA-proposed “AV-development pockets around the Honolulu Rail stations have similar features. Here’s my 5-min. presentation provided at the Hawaii Energy Policy Forum’s discussion on “Bending the Curves” with regard to EV-uptake and the question “Revolution or Evolution?”



How do we achieve that Hawaii sense of place in a fossil fuel free environment?

A concept we learned while working with grad students on the task of interweaving autonomous vehicles with the coming the Honolulu Rail is something we call AV pockets—since many autonomous vehicles in the future will run on renewable fuels...we saw the “pockets as the way of arriving at the goal.”

The previous slide shows a Waipahu pocket for AVs and advance technology was provided by these students (Professor David Goldberg’s Landscape Architecture class at Penn State). These graphics were provided with his permission.

The HADA AV-pocket concept, built around a Honolulu Rail station, like the one shown in Waipahu, is similar to the “Woven City” which was announced just two weeks ago by a major Japanese auto manufacturer. That small city showcasing new technology, will be built, beginning next year, at the base of Japan's Mount Fuji to study the interactions of a number of cutting-edge technologies, including autonomous transportation, robotics and artificial intelligence and renewable energy through hydrogen power. The huge project is being personally championed by Toyota Motor Corp. CEO Akio Toyoda.

The HADA AV-pockets concept provides private vehicle “vertical” parking personal vehicles outside the pocket.



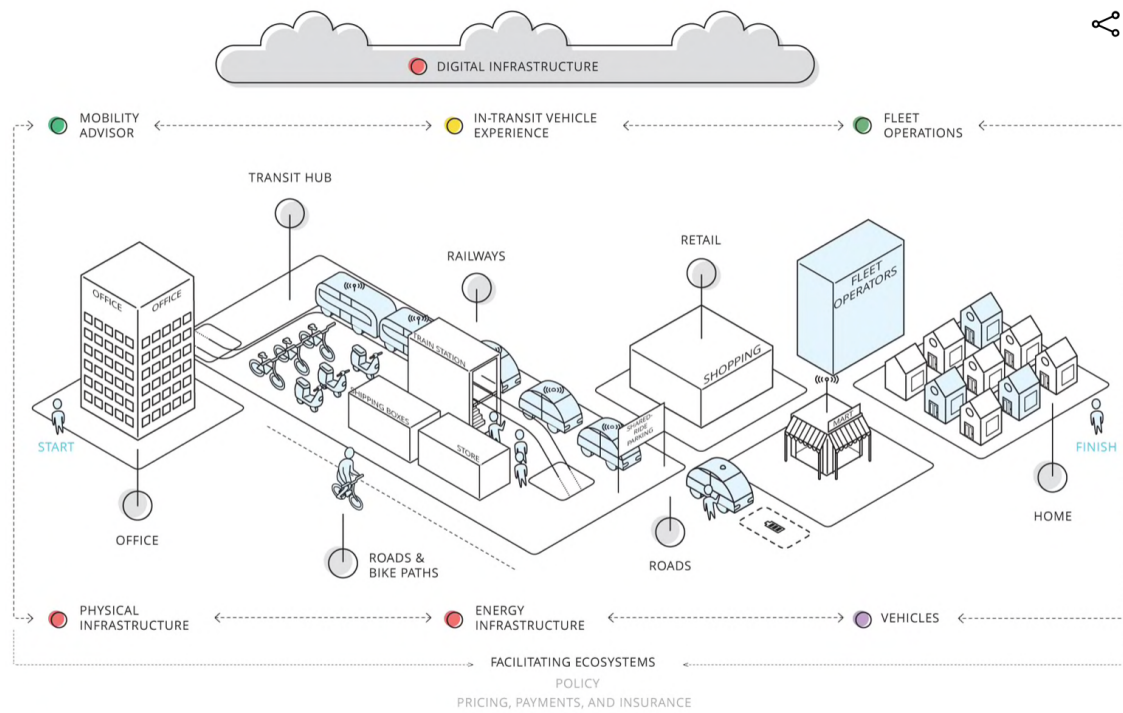
The idea is summed by the following graphic provided by Deloitte’s Scott Corwin, (with the company's permission).

Forces of change: The future of mobility

By Scott Corwin, Derek M. Pankratz



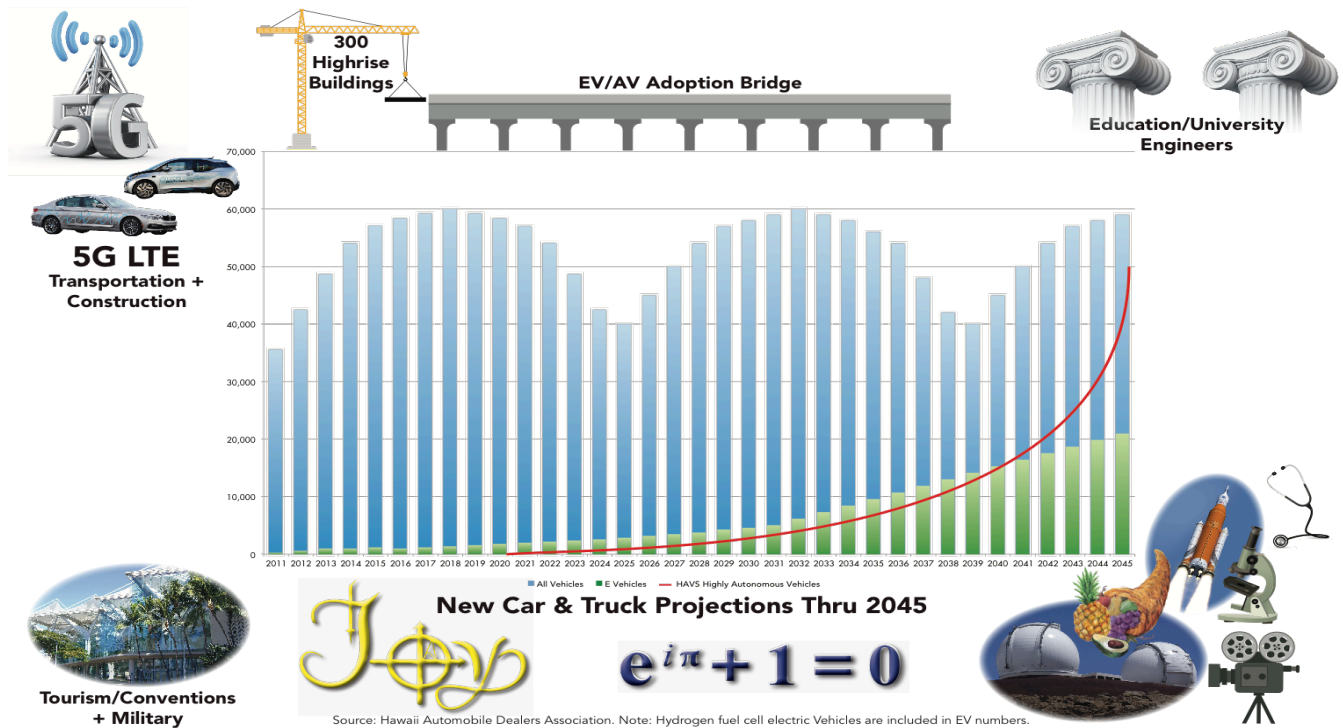
Figure 3. The future mobility ecosystem



Source: Deloitte analysis.

Deloitte Insights | deloitte.com/insights

So, where are we now?



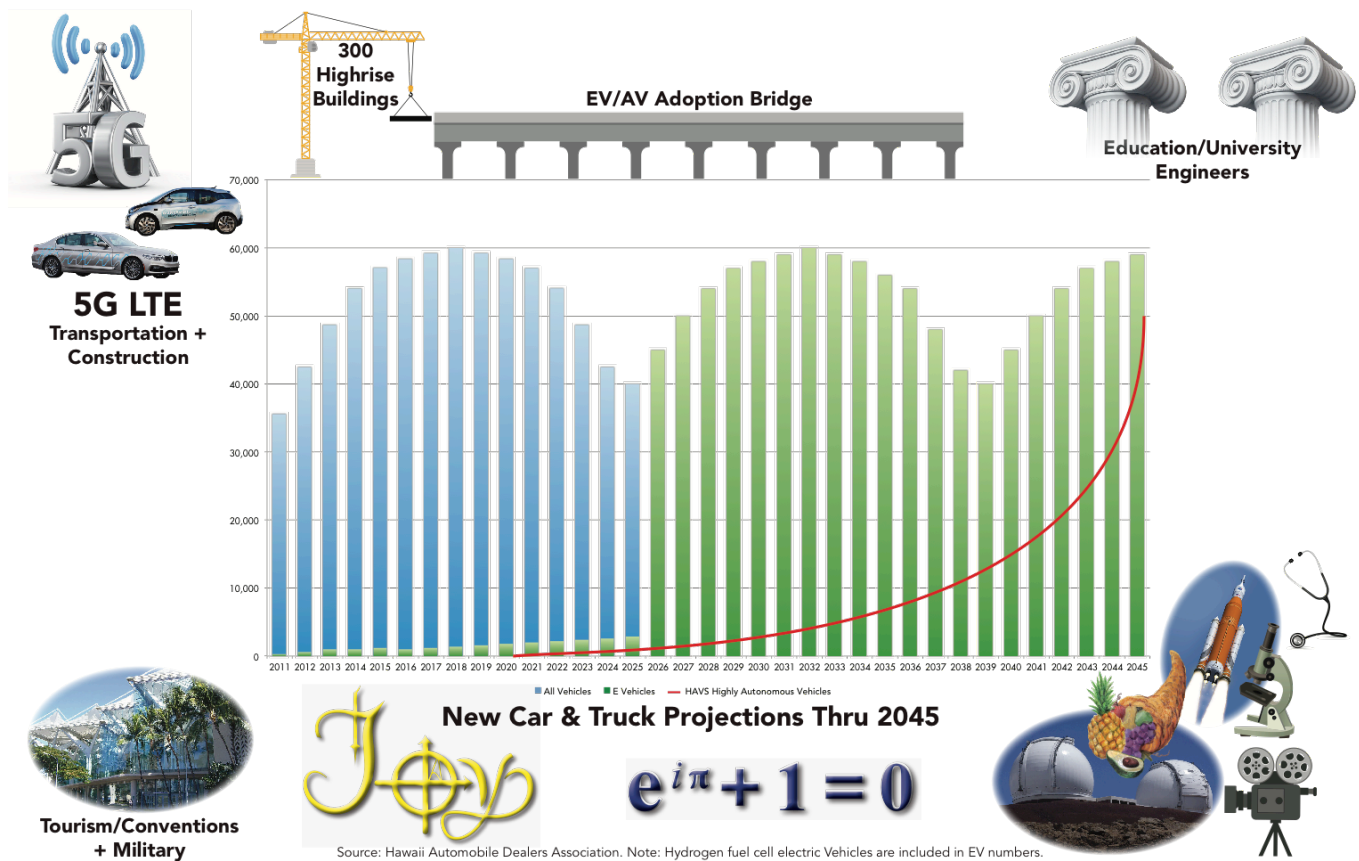
The HADA Rosetta Stone graphic shows our association’s predictions of EV / HFCEV uptake by customers through 2045....29%. Which corresponds to independent uptake percentage projections by major auto manufactures. (Note we use Euler’s Identity, as a mathematical proof of “JOY” because the process of transition to renewable fuels is going to be hard so we thought it might as well be joyful.)

There at 10,000 EVs on Hawaii roadways now. Less than 1%.

HADA notes, that if the (light duty cars and trucks...referred to in the industry as units in operation, UIO, remain the same at approximately 1 million units....and

Hawaiian Electric Company predicts, in their “Roadmap” that, not 100%, but 55% of the vehicles on the roadways in 2045 would be electric. And that their grid by that time could handle that many.

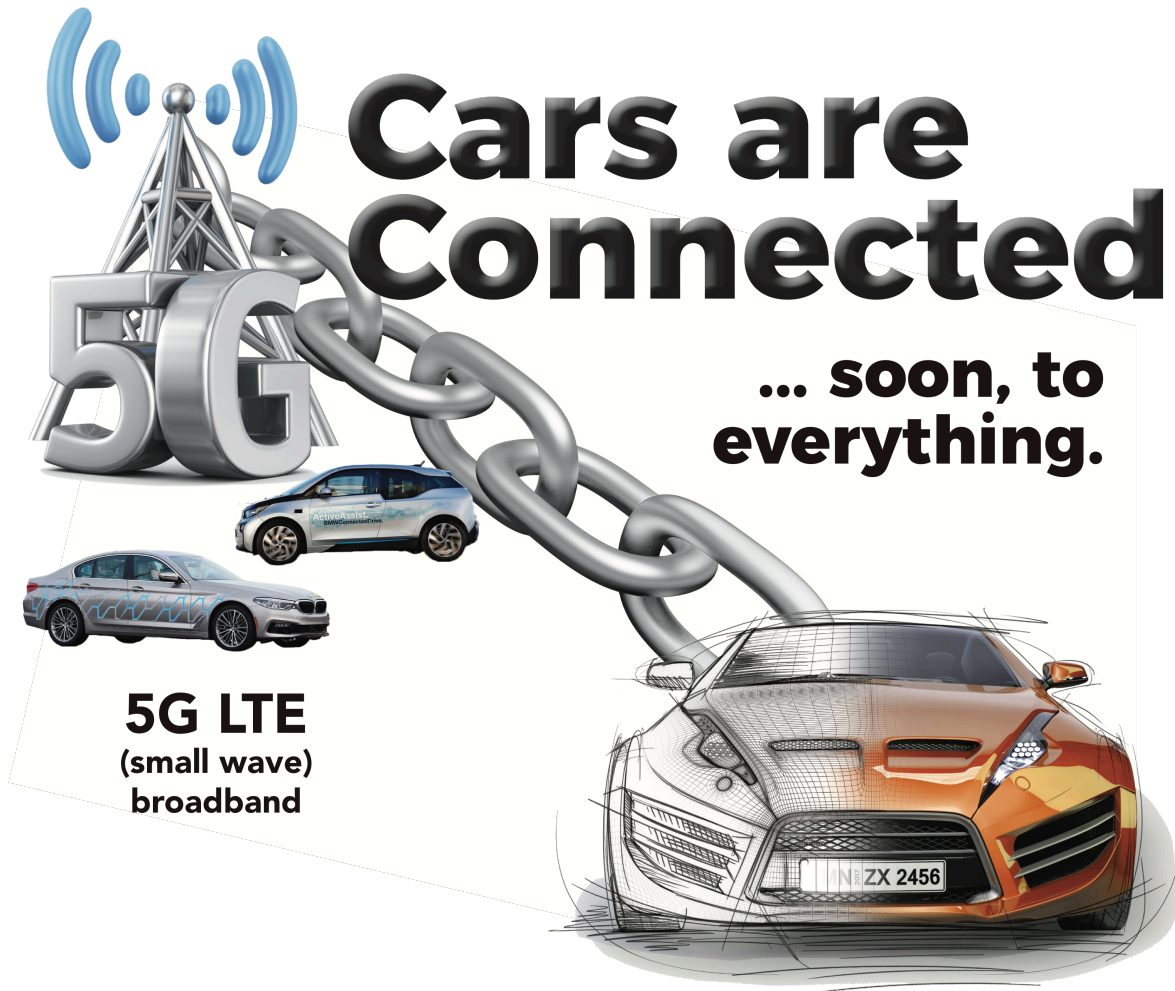
Reaching 100% EV/HFCEV vehicles by 2045 would require 100% of all new vehicles sold after 2025 to be EVs/ or HFCEVs. And the graph would look like this, if Units in Operation (UIOs) remained at current private vehicle levels.



This scenario, jumping from 8% of EV sales in 2025 to 100% overnight so to speak, remains unlikely because HECO could not likely provide the infrastructure for 100% EVs, and certainly it would be difficult to put in that much hydrogen fuel cell infrastructure almost overnight to meet this scenario, and a 100% goal.

Soon, however, with the introduction of 5G technology, “Cars will be Connected to Almost Everything.”

That’s why HADA has proposed working with so many sectors (The Energy Sector, The Broadband Sector, The Transportation Sector, The Housing Sector, The Artificial Intelligence Sector, the Higher Education Community and more)

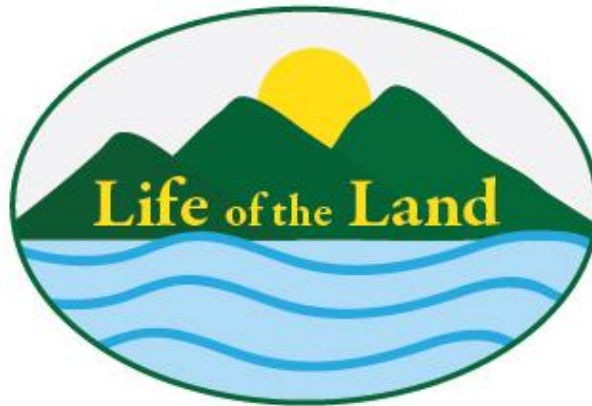


And that’s why HADA has proposed the movement to the renewable energy goal through private enterprise and the "AV-pockets concept" around the coming rail stations. It all ties in with the Hawaii Executive Order 17-07 announcing that “Hawaii is open for business for the testing and development of autonomous vehicles.” (Many of which, will be EVs and HFCEVs in the future...helping Hawaii to reach its renewable energy goals while boosting the Hawaii economy)

HADA respectfully asks that the committees pass SB2547 on to the next committee for favorable consideration.

Respectfully submitted,
David H. Rolf, for the members of the Hawaii Automobile Dealers Association

LATE



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

COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM

Senator Glenn Wakai, Chair

Senator Brian T. Taniguchi, Vice Chair

COMMITTEE ON HIGHER EDUCATION

Senator Donna Mercado Kim, Chair

Senator Michelle N. Kidani, Vice Chair

DATE: Monday, February 3, 2020

TIME: 2:45pm

PLACE: Conference Room 414

SB 2547 Relating to Renewable Energy

Concerns

Aloha Chairs Wakai and Kim, Vice Chairs Taniguchi and Kidani, and Members of the Committees

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.

The telecom revolution started 25 years ago and changed everything.

Now we have initiated the beginning of the digitalized, smart-telecom. Energy Revolution

The Shale Revolution of 2011 is passe. Solar and wind are the cheapest forms of energy. Storage is taking off. The HECO Power Supply Improvement Plans of Dec. 2016 are out-dated. The new HECO Companies Integrated Grid Planning process envisions the short-run planning shrinking from 5 years to 2 years, and long-range planning shrinking from 30-years to 5-years.

This bill proposes that crystal ball readers make a prediction for 25 years from now, as if someone in 1995 could have predicted the telecom, cell-phone, broadband, and internet transformations. What is important is how fast we run towards a decarbonized future.



LATE

Email: communications@ulupono.com

SENATE COMMITTEES ON ENERGY, ECONOMIC DEVELOPMENT, & TOURISM AND
TRANSPORTATION

Monday, February 3, 2020 — 1:16 p.m. — Room 225

Ulupono Initiative supports SB 2547, Relating Renewable Energy.

Dear Chair Wakai, Chair Kim, and Members of the Committees:

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 the intent of SB 2547, which requires the Hawai'i Natural Energy Institute to conduct a feasibility study on the State's ability to achieve its renewable energy goals by 2045.

Ulupono supports this bill as it attempts to identify the way in which the State will achieve its renewable energy goals by 2045. We would like to note that the State should consider having the Hawai'i State Energy Office oversee HNEI's work on the study to ensure the expected connection between the research entity and the agency responsible for that sector.

Thank you for this opportunity to testify.

Respectfully,

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

Investing in a Sustainable Hawai'i



LATE

183 Pinana St., Kailua, HI 96734 • 808-262-1285 • info@350Hawaii.org

To: The Committee on Energy, Economic Development, and Tourism;
and Higher Education
From: Brodie Lockard, Founder, 350Hawaii.org
Date: Monday, February 3, 2020, 2:45 pm

In strong support of SB 2547

Dear Chairs Wakai and Kim, and members:

350Hawaii.org strongly supports SB 2547.

We certainly need a feasibility study on the State's ability to achieve its renewable energy goals by 2045. Five years passing before anyone noticed that *we have no plan* demonstrates clearly how low a priority the RPS has been for the lege.

The study will surely find how much needs to be done and how far behind we are in planning and reaching 100% clean energy.

We can certainly reach a goal of 2045 *if legislators have the political will to do so.*

But the goal should be 100% by 2030. *And we can reach that if we take immediate action.* It is abundantly clear that 2045 is far, far too late to address the climate chaos that gets worse every day. And we are extremely short on time.

Unprecedented wildfires, floods, hurricanes, heat, rain bombs and other monthly catastrophes make it clear that every level of government, everywhere, needs to act like the climate is an emergency. Because it is. And we have a decade before it's too late.

Last year, for example, towns and cities in Hawaii set or tied 270 record hot days. 270 in one year.

We can still avoid some of the Climate Crisis's most cataclysmic effects. But only if we act immediately, and with enormous resolve.

Pass this. Watch the reports and disasters get worse. Then next year, pass laws that will get us to 100% by 2030. That will leave us eight years to take real action.

Brodie Lockard
Founder, 350Hawaii.org