

DAVID Y. IGE
GOVERNOR



TESTIMONY BY:

JADE T. BUTAY
DIRECTOR

Deputy Directors
LYNN A.S. ARAKI-REGAN
DEREK J. CHOW
ROSS M. HIGASHI
EDWIN H. SNIFFEN

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

February 4, 2020
11:05 a.m.
State Capitol, Room 325

LATE

LATE

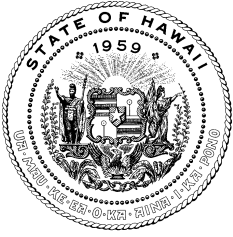
H.B. 2699
RELATING TO THE ENVIRONMENT.

House Committee(s) on Energy & Environmental Protection and Transportation

The Department of Transportation **supports** this bill which establishes clean ground transportation goals for state agencies on a staggered basis until achieving a 100 per cent light-duty vehicle clean fleet by 12/31/2035, and for all light-duty vehicles in the State by 12/31/2045.

The DOT continues to work and collaborate with the Hawaii State Energy Office on strategies towards the electrification on transportation in order to meet timelines of the State's clean transportation goals.

Thank you for the opportunity to provide testimony.



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 COMMITTEES ON ENERGY & ENVIRONMENTAL PROTECTION
AND
TRANSPORTATION**

Tuesday, February 4, 2020
11:05 AM
State Capitol, Conference Room 325

In SUPPORT of
HB 2699
RELATING TO THE ENVIRONMENT.

Chairs Lowen and Aquino, Vice Chairs Wildberger and Hashimoto, and members of the Committees. The Hawaii State Energy Office (HSEO) supports and offers comments on HB 2699 which establishes clean ground transportation goals for state agencies on a staggered basis until one-hundred percent of light-duty vehicles of each fleet are powered by renewable sources by December 31, 2035, and for all light-duty vehicles in the State to be one hundred percent powered by renewable sources by December 31, 2045. Hawaii Revised Statutes (HRS) §225P-5 establishes a statewide target to sequester more atmospheric carbon and greenhouse gases (GHG) than emitted within the State as quickly as practicable, but no later than 2045. In 2016, emissions from transportation activities in Hawaii were 8.69 million metric tons CO2 equivalent accounting for 51 percent of Energy sector emissions. Ground transportation accounted for 47 percent of those transportation emissions. The objective of transitioning all light-duty vehicles to be powered by renewable resources will aid in eliminating a significant portion of Hawaii's GHG emissions from the ground transportation sector.

HRS §196-71 (b)(2) directs the HSEO to lead efforts to incorporate energy efficiency, renewable energy, energy resiliency, and clean transportation to reduce costs and achieve clean energy goals across all public facilities. Consistent with HRS §196-71 (b)(2) the HSEO will support agencies in their efforts to fulfill the direction of HB 2699 to convert all light duty ground transportation vehicles to be powered by renewable sources by 2035, as well as transitioning medium- and heavy-duty vehicles to renewable sources as alternatives become feasible and cost-effective.

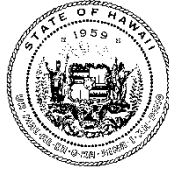
The HSEO would like to provide comments that, rather than insert specific milestones in statute at this time, the HSEO will work with DOT and stakeholders on establishing appropriate milestones consistent with these goals to ensure that the transition is efficient from both an operational and budgetary perspective, accounting for existing fleets and facilities. In particular, such milestones could result from other bills the Legislature is considering that would require the HSEO to undertake a statewide transportation plan.

HRS §196-71 (b)(3) directs the HSEO to provide renewable energy, energy efficiency, energy resiliency, and clean transportation project deployment facilitation to assist private sector project completion when aligned with state energy goals. Additionally, HRS §226-18 provides direction that planning for the State's facility systems with regard to energy shall be directed toward the achievement of increased energy security and self-sufficiency through the reduction and ultimate elimination of Hawaii's dependence on imported fuels for electrical generation and ground transportation. Both HRS §196-71 (b)(3) and HRS §226-18 support the direction provided in HB 2699 for the HSEO and DOT to collaborate in developing strategies to transition all light-duty vehicles, public and private, in the State to meet the clean ground transportation goal of being one hundred percent powered by renewable sources by December 31, 2045.

The HSEO defers to state agencies on the budget considerations related to achieving the clean ground transportation goals.

Thank you for the opportunity to testify on this bill.

DAVID Y. IGE
GOVERNOR



SARAH ALLEN
ADMINISTRATOR
BONNIE KAHAKUI
ASSISTANT ADMINISTRATOR

**STATE OF HAWAII
STATE PROCUREMENT OFFICE**

P.O. Box 119
Honolulu, Hawaii 96810-0119
Tel: (808) 586-0554
email: state.procurement.office@hawaii.gov
<http://spo.hawaii.gov>
Twitter: [@hawaiispo](https://twitter.com/hawaiispo)

TESTIMONY
OF
SARAH ALLEN, ADMINISTRATOR
STATE PROCUREMENT OFFICE

TO THE HOUSE COMMITTEE
ON
ENERGY & ENVIRONMENTAL PROTECTION
AND
TRANSPORTATION
February 4, 2020, 11:05AM

HB 2699
RELATING TO THE ENVIRONMENT

Chair Lowen, Chair Aquino, Vice-Chair Wildberger, Vice Chair Hashimoto and members of the committee, thank you for the opportunity to submit testimony on HB 2699. The State Procurement Office (SPO) appreciates the intent of the bill, and offers the following comments and recommendations:

Comments.

1. The SPO has partnered with State Departments including DOT, DAGS, DLNR, DCCA, and DBEDT to develop a strategic procurement plan regarding the adaptation of electric vehicles and its respective infrastructure for Hawaii state light-duty vehicles. SPO has already authorized a state-wide cooperative agreement to procure for electric vehicles and charging stations; the procurement of which is currently underway.
2. There are some conflicting Bills covering electric vehicles and its infrastructure. SPO has been asking for a state-wide transportation plan as we have seen duplicative efforts from multiple departments attempting to procure for this effort. In order to leverage economic spending power, an acquisition plan covering all state needs is recommended first before procuring any further infrastructure or state assets.

3. Section 2, Page 2, Lines 18-21, and Page 3, Lines 1-4 creates a new section within the procurement code that includes statements outside of the subject-specific HRS Chapter 264 on Clean ground transportation, and also outside of the procurement-specific policy found in HRS 103D-412.

Concern: Subject-specific specifications should be included in the subject-specific HRS Chapter and not included as a whole new section inside of the procurement code. The Code is meant for general procurement methods, and high-level direction. It should not be a receptacle for all industry-specific specifications as this will, over time, create a vast, and complicated Code that will confuse buyers because it they will not be able to trust that specifications are in the respective chapter and procurement specific requirements are lost within the sea of specifications.

Recommendation: Remove Section 2 in its entirety, and move any verbiage to HRS Chapter 264 in Section 3.

Thank you.



STATE OF HAWAII
HAWAII CLIMATE CHANGE MITIGATION & ADAPTATION
COMMISSION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Testimony of
Anukriti Hittle
Coordinator, Hawaii Climate Change Mitigation and Adaptation Commission

Before the House Committee on
ENERGY & ENVIRONMENTAL PROTECTION
And
TRANSPORTATION

Tuesday, February 4, 2020
11:05AM
State Capitol, Conference Room 325

In support of
HOUSE BILL 2699
RELATING TO THE ENVIRONMENT

House Bill 2699 establishes clean ground transportation goals for state agencies on a staggered basis until achieving a 100 per cent light-duty vehicle clean fleet by 12/31/2035, and for all light-duty vehicles in the State by 12/31/2045. **On behalf of the Hawaii Climate Change Mitigation and Adaptation Commission (Commission) I offer the following comments in support of this measure.**

The Hawaii Climate Change Mitigation and Adaptation Commission “recognizes the urgency of climate threats and the need to act quickly. It promotes ambitious, climate-neutral, culturally responsible strategies for climate change adaptation and mitigation in a manner that is clean, equitable and resilient.” The Commission, established by Act 32 SLH 2017 to uphold the United States’ pledges under the Paris Agreement, is the coordinating body for policies on climate change mitigation and adaptation for the state. It is a high-level multi-jurisdictional body that guides the priorities of the state’s climate response. Co-chaired by DLNR and Office of Planning, it consists of 20 members—chairs of four legislative committees, and executive department heads at the county and state levels.

Transportation (air and ground) is the single largest source of greenhouse gas emissions in Hawaii, which mirrors the trend nationwide (according to EPA, it was the largest source of GHG emissions in 2017). One of the two focuses of the Commission is to reduce emissions from ground transportation, and HB2699 is a crucial component of this effort. The Commission’s statement on ground transportation, issued in November 2018, “supports mechanisms to reduce overall vehicle

Co-Chairs:
Chair, DLNR
Director, Office of Planning

Commissioners:
Chair, Senate AEN
Chair, Senate WTL
Chair, House EEP
Chair, House WTH
Chairperson, HTA
Chairperson, DOA
CEO, OHA
Chairperson, DHHL
Director, DBEDT
Director, DOT
Director, DOH
Chairperson, DOE
Director, C+C DPP
Director, Maui DP
Director, Hawai'i DP
Director, Kaua'i DP
The Adjutant General
Manager, CZM

miles travelled (VMT) as well as converting all remaining vehicle-based ground transportation to renewable, zero-emission fuels and technologies.” It specifically urges the state to:

“Transform State and county fleets to address VMT reduction, congestion, and emissions—especially through electrification, renewable fuels, carshare, and supporting infrastructure development and deployment.”

HB2699 makes the case that electrification of light duty vehicles will have the added benefits of cost savings and energy independence for Hawaii. Several jurisdictions have taken advantage of tax credits, aggregated procurement, and other mechanisms to convert their public fleets in a cost effective manner.^{1 2} In addition, at the 2020 Statewide Climate Change Conference held this month, researcher Katherine McKenzie, Hawaii Natural Energy Institute, emphasized the declining cost of electric vehicles and that “over the life of the vehicle however it may be already more cost effective to own and operate an EV, depending on the model and use, because of the low maintenance and fueling costs. In addition, low electricity rates are available from Hawaiian Electric Companies during daylight hours.”^{3 4}

Thank you for the opportunity to comment in support of this measure.

¹A case study of three all-electric vehicle procurements conducted by the US Navy, City of New Bedford, MA, and City of Seattle, WA. EV Smart Fleets. June 2017.

²Capturing the federal EV Tax Credit for Public Fleets: A case study of a multi-jurisdictional electric vehicle fleet procurement in Alameda County, California. EV Smart Fleets. April 2017

³ “Where 3 Million Electric Vehicle Batteries Will Go When They Retire”, Bloomberg Business Week, June 2018.

⁴“Electric Vehicle Lifecycle Cost Assessment for Hawaii”, Makena Coffman, University of Hawaii Economic Research Organization, for Hawaii Natural Energy Institute, Electric Vehicle Transportation Center study, September 2015.

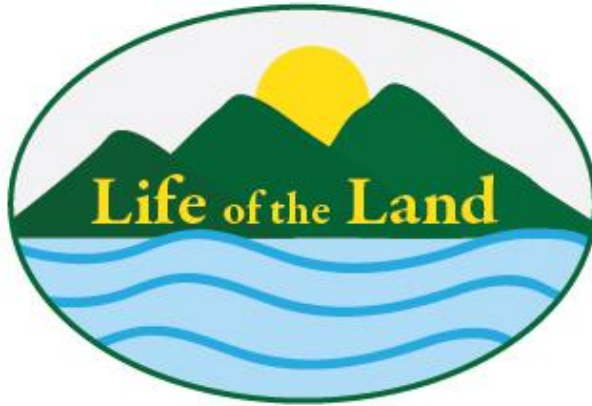
HB-2699

Submitted on: 1/31/2020 9:33:21 AM

Testimony for EEP on 2/4/2020 11:05:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Alexandra Kahn	Surfrider Oahu	Support	No

Comments:



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

COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

Rep. Nicole E. Lowen, Chair
Rep. Tina Wildberger, Vice Chair

COMMITTEE ON TRANSPORTATION

Rep. Henry J.C. Aquino, Chair
Rep. Troy N. Hashimoto, Vice Chair

DATE: Tuesday, February 4, 2020
TIME: 11:05 a.m.
PLACE: Conference Room 325

HB 2398 Electric Vehicles

STRONG SUPPORT

Aloha Chairs Lowen and Aquino, Vice Chairs Wildberger and Hashimoto and, and Members of the Committee

Life of the Land is Hawai'i's own energy, environmental and community action group advocating for the people and `aina for 50 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.

Every effort should be made to electrify transportation. Life of the Land prefers a shorter time frame.

Mahalo
Henry Curtis
Executive Director



HB 2699, RELATING TO THE ENVIRONMENT

FEBRUARY 4, 2020 · HOUSE ENERGY AND ENVIRONMENTAL PROTECTION COMMITTEE AND HOUSE TRANSPORTATION COMMITTEE · CHAIRS REP. NICOLE E. LOWEN AND REP. HENRY J.C. AQUINO

POSITION: Support.

RATIONALE: IMUAlliance supports HB 2699, relating to the environment, which establishes clean ground transportation goals for state agencies on a staggered basis until achieving a 100 per cent light-duty vehicle clean fleet by 12/31/2035 and for all light-duty vehicles in the State by 12/31/2045.

According to a report produced by the Hawai'i Climate Change Mitigation and Adaptation Commission, global sea levels could rise more than three feet by 2100, with more recent projections showing this occurring as early as 2060. In turn, over the next 30 to 70 years, approximately 6,500 structures and 19,800 people statewide will be exposed to chronic flooding.

Additionally, an estimated \$19 billion in economic loss would result from chronic flooding of land and structures located in exposure areas. Finally, approximately 38 miles of coastal roads and 550 cultural sites would be chronically flooded, on top of the 13 miles of beaches that have already been lost on Kaua'i, O'ahu, and Maui to erosion fronting shoreline armoring, like seawalls.

Furthermore, according to research conducted by Michael B. Gerrard from Columbia Law School, modern-day slavery tends to increase after natural disasters or conflicts where large numbers of

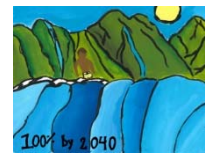
people are displaced from their homes. In the decades to come, says Gerrard, **climate change will very likely lead to a significant increase in the number of people who are displaced and, thus vulnerable, to human trafficking.** While the Paris Climate Agreement of 2015 established objectives to limit global temperature increases and several international agreements are aimed at combating modern-day slavery, it is highly uncertain whether they will be adequate to cope with the scale of the problem that is likely to occur as a result of climate change.

As we work to reduce carbon emissions and stave off the worst consequences of climate change, we must begin preparing for the adverse impact of sea level rise on our shores. We are now quantifying the speed at which we must act. We cannot continue to develop the 25,800-acre statewide sea level rise exposure area—one-third of which is designated for urban use—without risking massive structural damage and, potentially, great loss of life.

Therefore, **our state must take bold steps to address the worsening climate crisis, which is exacerbated by a transportation sector that is still too heavily reliant on fossil fuels, like oil and natural gas.** According to the U.S. Energy Information Administration, the burning of fossil fuels was responsible for 76 percent of U.S. greenhouse gas emissions in 2016. These gases contribute to the greenhouse effect and are a primary driver of the pending climate catastrophe.

Honolulu and Maui Counties recently announced lawsuits against fossil fuel companies for the role they have played in the climate crisis. Just like with tobacco and pharmaceutical companies, fossil fuel corporations are being held financial accountable for taking reckless actions that jeopardized public health. At the same time, we should work to **divest our state's transportation sector from contributing to global harm by taking steps to incentivize the public purchase of electric vehicles and ensure that government vehicles are part of Hawai'i's pathway toward reducing carbon emissions, ultimately bankrupting the businesses that have placed our planet in peril and helping to limit global warming below 1.5 degrees Celsius.**

For the sake of our overheating Earth, we cannot afford to wait.



**HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
HOUSE COMMITTEE ON TRANSPORTATION**

February 4, 2020, 11:05 A.M.

Room 325

(Testimony is 6 pages long, including attachment)

TESTIMONY IN SUPPORT OF HB 2699

Aloha Chair Lowen, Chair Aquino, and members of the Committees:

Blue Planet Foundation **supports HB 2699**, which sets a planning vision for the elimination of fossil fuels from ground transportation in Hawai'i by 2045. This bill will help to promote alignment and collaboration in ongoing and future planning efforts for multiple aspects of the state's transportation energy sector.

HAWAI'I NEEDS A VISION FOR 100% CLEAN TRANSPORTATION

The legislature has long stressed the importance of the state's transition to a renewable energy system. For example, in 2001's Act 272 the legislature adopted a renewable standard for electricity, recognizing "the economic, environmental, and fuel diversity benefits of renewable energy resources" and encouraging further development of renewable resources. The legislature found that "while Hawaii is a national leader in the development of renewable energy resources for electricity production, there may be more that the State can do to encourage the development and implementation of renewable energy. These efforts can reduce the amount of imported oil used for the generation of electricity."

More recently, Hawai'i's leaders set a vision for 100% renewable electricity by 2045, becoming the first state in the nation to set such a target. That vision has become a driving force in electricity planning, and a focal point for a variety of key energy issues.

While Hawai'i has made substantial progress on policies, programs, and actions to reduce burning fossil fuels in the electricity sector, **we are falling short on decarbonizing our ground transportation sector**. Greenhouse gas emissions from transportation are increasing. Last year, we sold 6% more gasoline than the previous year.¹ Over one million gasoline-powered vehicles are on Hawai'i's roads—and from them comes nearly five million metric tons of climate-changing carbon pollution. Although we now have roughly 10,000 electric vehicles (EVs) on Hawai'i's roads, they still only make up less than 1% of all registered vehicles in the state.²

¹ *DBEDT Monthly Energy Trends*, December 2019, <http://dbedt.hawaii.gov/economic/energy-trends-2/>.

² *Id.*

Recognizing that emissions from ground transportation have been increasing in recent years, in December 2017, **the mayors from all four of Hawai'i's counties pledged to transform ground transportation to 100 percent renewable fuel by 2045.** The purpose of their action was to set a vision for clean, modern mobility options for all. This goal is necessary and achievable. **The state should support these county goals and set its own goal for 100% renewable ground transportation.**

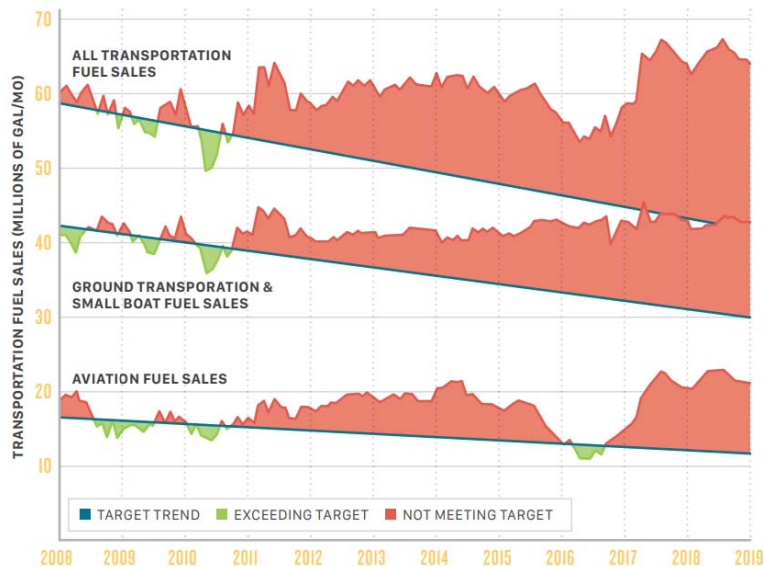


Chart from Blue Planet's Hawai'i 2019 Energy Report Card (hawaiienergyreportcard.com)

With the mayors' proclamations in December 2017, Hawai'i joined the ranks of several countries who have also recognized that fossil fuel-powered ground transportation needs to end. **Both France and Britain have set a target phasing out the sale of new gas cars by 2040.** India, Netherlands, Israel, and Denmark have set a similar goal for 2030. Belgium, Sweden, and Norway are developing policies to do the same. China also announced plans to electrify its entire vehicle fleet. These countries recognize the environmental imperative for setting long-term transportation policies. Here, policy is key, as the market fails to account for the environmental and social cost of carbon pollution from vehicles today.

In the current national political climate, the importance of a vision for our state energy plan cannot be overstated. News reports from indicate that President Trump is attempting to dismantle progress on decarbonization. He intends to weaken vehicle fuel efficiency, end a moratorium on new coal mines, stop the Clean Power Plan, and eliminate a review of climate impacts in environmental impact statements. Without state action, these steps will hurt local consumers and our environment, simply to line the pocket of the fossil fuel industry.

Hawai'i's leaders must set the state's own vision and narrative for local, clean energy.

Answers to several Frequently Asked Questions are attached to this testimony. Topics include:

- The **urgent need** for a planning target date for 100% clean transportation;
- The **economic benefits** of clean transportation;
- The **achievability of a 2045 planning target**, with trends such as electrified vehicles, biofuels, and multi-modal transportation options.

Thank you for the opportunity to submit testify.

100% Clean Ground Transportation Frequently Asked Questions

Why is a 100% Clean Transportation Necessary?

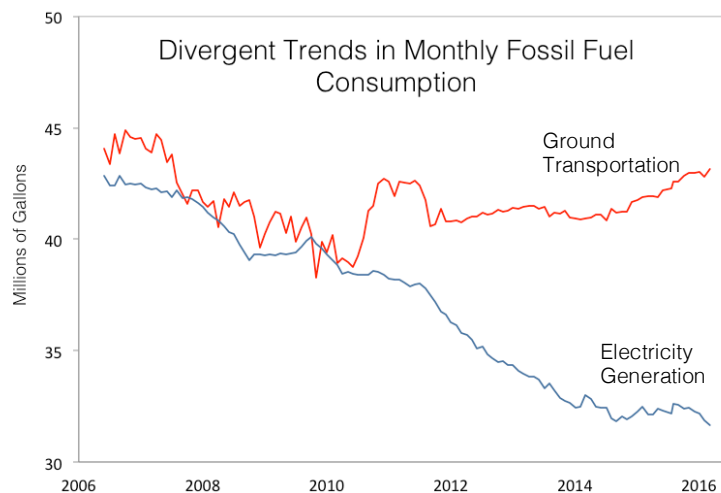
Hawai'i's policy leaders have long stressed the importance transitioning the state's energy system to clean energy. This transition has been driven by economics, and also by concern for our shared environment. As described by Governor George Ariyoshi:

“Stewardship . . . mean living with the constant reminder that our actions occur in context of other people over generations.”

Ground transportation accounts for around one-third of the state's fossil fuel consumption and greenhouse gas emissions. A resilient economy and a healthy environment require that we consider these impacts.

This is especially important in an age where 194 countries—essentially every country on earth—have agreed that it is imperative that we rapidly reduce greenhouse gas emissions.³

The state has long utilized planning targets as a way to set a course for reducing fossil fuel consumption in the electricity sector.⁴ This transformation is on track to reach the goal of 100% renewable energy by 2045. In contrast, fossil fuel consumption for ground transportation is essentially unchanged from a decade ago.



Closing this gap will require many efforts by many entities, both today and in the future. The importance of SB 2699 is that it can align those efforts around a common vision, set by the state's leaders.

What are the Economic Benefits?

The transition to clean transportation creates many opportunities for cost savings. Some of these opportunities come in the form of more efficient multi-modal transportation (e.g. saving money with more walking, biking, and public transit). Other opportunities arise from fuel-cost savings.

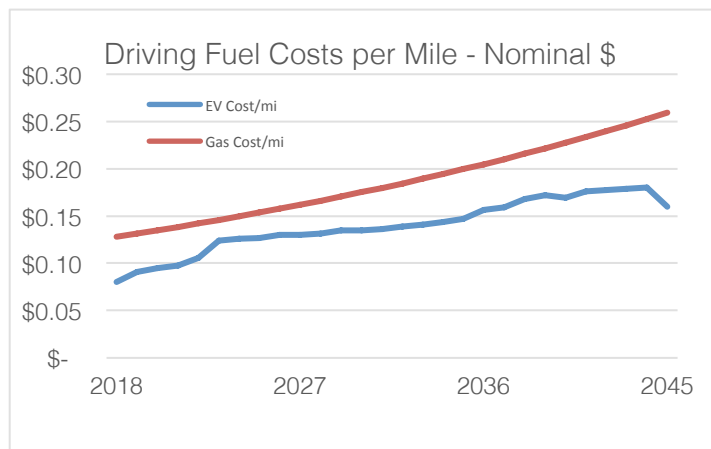
³ See Paris Agreement, U.N. Framework Convention on Climate Change (2016).

⁴ See H.R.S. § 269-91.

For example, the transition to clean energy is sure to include more electric passenger vehicles, buses, and fleet vehicles (“EVs”).⁵ This electrification trend provides a double benefit. First, the cost of powering an EV is generally less than powering an equivalent gasoline vehicle. So consumers can save money—today—by switching to an EV. Second, a growing fleet of EVs can help to balance renewable energy on the electric grid. This can lower the cost of electricity for everyone.

University of Hawai‘i Engineering Professor, Matthias Fripp, has created a quantitative model of the state’s transition to renewable energy. He has calculated that a 100% renewable transportation system, with smart EV charging to match renewable electricity generation, can be expected to **save utility consumers approximately \$150 million per year in fuel and electricity costs.**⁶

Blue Planet Foundation has evaluated recent projections for electricity rates in Hawai‘i, comparing them to a World Bank estimate of the long-term trend for increasing oil prices, under a variety of transportation scenarios. This comparison indicates that we can expect electricity to remain the cheaper fuel option through 2045, and that the potential aggregate benefit in fuel savings is on the order of several billion dollars.



Is 100% Clean Transportation by 2045 Possible?

Much like in the electricity sector, many factors will influence the pace of the state’s transition to clean energy. While some of those factors remain unknown (as is expected for a 30-year planning horizon), several important factors are apparent today:

1. The Rise of Battery Electric and Fuel Cell Vehicles

While familiar clean transportation options (like biofuels, walking, biking, public transit, etc.), and emerging technologies (like hydrogen) will undoubtedly play an important role, we expect the emergence of electric vehicles (EVs) to quickly and radically shift the state’s transportation energy landscape.

⁵ For example, auto executives recently polled by KPMG identified EVs as the top trend in the car market between now and 2025.

⁶ See M. Fripp, *Effect of Electric Vehicles on Design, Operation and Cost of a 100% Renewable Power System* (Apr. 2016).

On a global scale, important factors such as the cost of producing batteries for electric cars has fallen dramatically, from around \$1,000 per kWh to less than \$200. As we enter the second and third generation of modern EVs, a steadily increasing variety of models are coming onto the market with lower prices, larger batteries, and longer driving ranges. Nearly every major auto manufacturer is investing heavily in battery electric and/or hydrogen fuel cell electric vehicles, and views zero emission vehicles as the long-term solutions for transportation fuels.

Hawai'i is particularly well-suited for the this acceleration of EV adoption because electric batteries perform well in our year-round warm climate. Our island geography often restricts the distances we need to drive, making range anxiety less of an issue compared to other locations.

2. Transportation will Become More Multi-modal, Networked, Autonomous

The future of transportation in Hawai'i is likely to include more efficient land use that reduces travel demand and travel distances, significant improvements in mass transit, bicycling and pedestrian infrastructure, and new mobility alternatives such as autonomous taxis and other networked 'mobility as service' options. These changes are likely to shift a sizable percentage of Hawai'i's trips from personal automobiles to alternative modes and to significantly reduce transportation energy use.

With sufficiently transformative policies, the small sector of gasoline vehicles can be a small fraction of the total ground transportation sector (around 6%).

3. Biofuels are a Near-Term and Long-Term Option

Hawai'i is home to one of the leading pioneers of biofuel production, Pacific Biodiesel. Today, the state is producing commercial quantities of biofuels using local feedstocks.

In a report commissioned by DBEDT in 2010, the consultant firm Black & Veatch Corporation performed an analysis of the potential for biofuel production in the state of Hawai'i. The report found that the maximum theoretical capacity of biofuel production in the state was equal to the equivalent of 848 million gallons of "green gasoline" or 779 million gallons of "green diesel" per year (see chart below). This is around 2.5 times the total amount of gasoline and diesel used in ground transportation in Hawai'i today.

Table 1-6. Maximum Theoretical Hawai'i Biofuel Production Potential.					
Feedstock	Biofuel 10 ¹² Btus/yr	Ethanol million gal/yr	Green Gasoline equivalent million gal/yr	Green Diesel equivalent million gal/yr	Green Jet Fuel equivalent million gal/yr
Energy Crops	101	1,202	786	722	751
Cellulosic Wastes	8	95	62	57	59
Total:	109	1,297	848	779	810

Source: DBEDT (2010). "The Potential For Biofuels Production in Hawaii"

The report also concluded that "...it should be quite achievable for biofuels produced from in-state resources to displace 20 percent [over 50 million gallons] of the gasoline and diesel fuel needed for vehicle transportation in Hawai'i. This could be accomplished using about 10 percent of available agricultural land for energy crop production to supply the required biomass feedstock."

In short, local biofuels are a viable option for powering significant portions of the transportation sector.



TESTIMONY REGARDING HB 2699

**being heard jointly by the House Committee on Energy and Environmental Protection
and the House Committee on Transportation
on Tuesday, February 4, 2020 at 11:05 AM**

Aloha Chair Lowen, Chair Aquino, and Members of the Committees:

Thank you for the opportunity to provide on HB 2699 which would establish clean ground transportation goals for state agencies such that 100 percent of their light duty fleets would have to be 100% renewably powered by December 31, 2045. Although laudable in its intent, Tesla is very concerned that unless amended to further clarify that electric vehicles will count toward the clean ground transportation goals proposed, the measure will inappropriately narrow the scope of vehicle technologies that are deployed meet the bill's objectives.

Tesla's mission is to accelerate the world's transition to sustainable energy through the deployment of electric vehicles and sustainable energy products, like storage and solar energy systems. Tesla is the only domestic mass market automobile manufacturer that exclusively builds and sells electric vehicles. To date we have sold over 900,000 EVs globally.

In 2018, the Mayors of Hawaii established an ambitious goal to eliminate the use of fossil fuels from ground transportation by 2045, recognizing the profound economic, energy security and environmental challenges that dependency on fossil fuels imposes on Hawaii and its residents. Bringing this proclamation to fruition will require concerted efforts by the state to support the deployment of alternative-fueled vehicles. Establishing clear goals for the procurement of these vehicles by state agencies has a potentially important role to play in achieving this, but such goals need to be carefully crafted so as to not limit the technological pathways that may be pursued.

Tesla is specifically concerned that this measure, by establishing goals for the share of vehicles in agency fleets that must be "powered by renewable sources", but without a clear definition for what qualifies as meeting this criterion, will create confusion and potentially result in the inadvertent exclusion of certain technologies, like battery electric vehicles, despite the proven capacity of these types of vehicles to play a central role in decarbonizing the transportation sector.

To address this, Tesla asks that the term "powered by a renewable source" be clearly defined and to explicitly include plug-in battery electric vehicles. The deployment of pure electric vehicles is entirely consistent with objectives to eliminate the use of fossil fuels from ground transportation particularly within the context of Hawaii where the state's electricity system is on the path to 100% renewable energy by 2045.

Additionally, while Tesla supports the directive to the Department of Transportation, in consultation with the Hawaii State Energy Office, to develop strategies to transition all light-duty vehicles in the state,



public and private, to achieve the 100% renewably powered goal, we are concerned that this effort is both too narrow, and also does not establish any timelines for completion of this initiative or require any stakeholder engagement.

Regarding the narrowness of the effort, Tesla believes that it should include strategies to transition light, medium and heavy duty vehicles given the importance of eventually transitioning all vehicles away from fossil fuels. The legislation should also ensure that the development of these strategies is done in a timely manner by requiring the Department of Transportation to submit a final report to the legislature before the start of the 2021 legislative session. This will allow the study to inform additional legislative action that may be needed to further facilitate the transition away from fossil fuels. Additionally, this effort should require robust stakeholder engagement by directing the Department to meet regularly with stakeholders throughout the strategy development process and provide an opportunity for comments on a draft of the report before it is finalized and submitted to the legislature.

Tesla appreciates the opportunity to submit this testimony.



**Hawaiian
Electric**

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

H.B. 2699

Relating to the Environment

Tuesday, February 4, 2020
11:05 AM, Agenda Item # 3
State Capitol, Conference Room 325

Michael Colón
Manager, Electrification of Transportation
Hawaiian Electric Company, Inc.

Aloha Chair Lowen and Chair Aquino, Vice Chair Wildberger and Vice Chair Hashimoto and Committee Members,

My name is Michael Colón and I am testifying on behalf of Hawaiian Electric Company, Inc. (Hawaiian Electric) in **support of H.B. 2699**, Relating to Electric Vehicles. Hawaiian Electric Company supports this measure because it will strengthen Hawaii's commitment to clean ground transportation and help drive investment resulting in quantifiable emissions reductions.

This landmark bill would bring the transportation sector in line with the state's clean energy goals by seeking the ultimate elimination of fossil fuels for ground transportation. The Company supports the legislature's broad vision and substantial commitment to carbon reduction and applauds the legislature's intent to have the State lead by example by converting its own fleet over the next 15 years. This bill will also help align clean energy planning with transportation in new and dynamic ways. Hawaiian Electric anticipates leveraging forecasted electric load growth to integrate

renewable energy at a new scale, with increased opportunity for grid integration and demand response.

Reducing barriers to adoption and facilitating the electrification of transportation is one of the Company's top priorities established in our *Electrification of Transportation Strategic Roadmap*. In addition, the Company applauds the acknowledgment that certain sectors may struggle with compliance in the intervening years without additional economic development. Thus, the inclusion of renewable fuel development will create investment opportunities that can lead to a more robust and sustainable green economy.

Accordingly, Hawaiian Electric Company supports H.B. 2699. Thank you for this opportunity to testify.



SanHi

GOVERNMENT STRATEGIES
A LIMITED LIABILITY LAW PARTNERSHIP

DATE: February 4, 2020

TO: Representative Nicole Lowen
Chair, Committee on Energy & Environmental Projection

Representative Henry Aquino
Chair, Committee on Transportation
Submitted Via Capitol Website

FROM: Tiffany Yajima

RE: **H.B. 2699 – Relating to the Environment**
Hearing Date: Tuesday, February 4, 2020 at 11:05 a.m.
Conference Room: 325

Dear Chair Lowen, Chair Aquino and Members of the joint Committees:

On behalf of the Alliance for Automotive Innovation (“Alliance”) we submit these comments on H.B. 2699.

The Alliance for Automotive Innovation is the singular, authoritative and respected voice of the automotive industry. Focused on creating a safe and transformative path for sustainable industry growth, the Alliance for Automotive Innovation represents the manufacturers producing nearly 99 percent of cars and light trucks sold in the U.S. Members include motor vehicle manufacturers, original equipment suppliers, technology, and other automotive-related companies and trade associations.

The Alliance supports the intent of this measure which would establish a procurement policy and plan for state agencies to transition their fleet and procurement preferences to utilize ground transportation that is fully powered by renewable sources by December 31, 2045.

The Alliance supports government efforts to transition fleet and fleet procurement preferences in favor of zero emission vehicles and suggests an amendment at page 3, line 11, under section 3 of the bill, by removing reference to private vehicles. Government support for zero emission vehicles, charging infrastructure, and alternative fuel deployment is essential to the overall transition to cleaner transportation. This amendment would allow state agencies to focus on policies that support the successful transition of public fleets to meet our state’s clean transportation goals.

Thank you for the opportunity to submit this testimony.

HB-2699

Submitted on: 2/3/2020 10:57:46 AM

Testimony for EEP on 2/4/2020 11:05:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Noel Morin	Big Island Electric Vehicle Association, Hawaii Electric Vehicle Association	Support	No

Comments:

Dear Chair Lowen, Vice Chair Wildberger, and members:

I support HB 2699. It will allow us to place as much effort on this important part of our decarbonization strategy as we are placing on the shift to renewable energy. The transportation sector consumes a significant amount of our fossil fuel imports and contributes to significant carbon emissions. Importantly, our gasoline consumption and emissions are still increasing. We must be aggressive in the decarbonization of our transportation sector in order to get closer to our clean energy future; electrification is expedient way to accomplish this.

Electric vehicles are many times more efficient than fossil fuel vehicles and naturally contribute to dramatic emissions reductions. They will help enable us to achieve energy independence, don't contribute to air and noise pollution, and are also more cost effective to maintain and operate.

Electric vehicles are becoming more available, diverse, and improving in affordability. There will soon be a fossil fuel-free variant to meet almost every use case.

We have the opportunity to lead in the electrification of transportation and we have many reasons for doing so – to contribute to the healing of our planet, to enable our energy independence, to improve the quality of life of Hawaii's residents, and to create a livable world for future generations.

HB 2699 allows us to generate the creative tension, focus, and action towards a clean energy future for our people.

Thank you for your support of this measure.

Sincerely,

Noel Morin

President – Big Island Electric Vehicle Association, Hawaii Electric Vehicle Association

HB-2699

Submitted on: 2/3/2020 11:05:07 AM

Testimony for EEP on 2/4/2020 11:05:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Justin R Carvalho	Mission Zero Hawaii	Support	No

Comments:

Aloha,

My name is Justin Carvalho of Lihue, HI. I am the owner and operations manager for Mission Zero Hawaii, An Electric Car Rental and Green Solutions Company for Hawaii.

We are in support of the this bill and look to further push green transportation and green initiative to protect and invigorate Hawaii's social, economic, and environmental needs.

Thank you for your attention,

Justin Carvalho, Mission Zero Hawaii

8082370242 . www.missionzerohawaii.com



ELEMENTAL
EXCELERATOR

**Written Statement of Elemental Excelerator
before the House Committees on Energy and Environmental Protection and Transportation
February 4, 2020**

**In consideration of [HB 2699](#)
RELATED TO THE ENVIRONMENT**

**Aloha Chairs Lowen and Aquino, Vice-Chairs Wildberger and Hashimoto, and Members of the
Committees on Energy and Environmental Protection and Transportation:**

Elemental Excelerator respectfully **submits support for the intent of HB 2699**, which establishes clean ground transportation goals for state agencies on a staggered basis until achieving a 100 per cent light-duty vehicle clean fleet by 12/31/2035, and for all light-duty vehicles in the State by 12/31/2045.

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. Fifteen percent of Elemental Excelerator's portfolio has companies like AMPLY, KIGT, eMotorWerks, and Chargetrip that specifically support solutions that advance the electrification of transportation.

We support the intent of HB 2699 because it signals to the broader mobility innovation sector Hawai'i's commitment to growing its economy through cleantech innovation and opens opportunities to mobility companies like the ones in our portfolio to support our state's ambitious goals. The City & County of Honolulu is currently analyzing pathways toward clean transportation goals that evaluate both vehicle miles traveled as well as electrification. We recommend that the language in this bill set targets for fleets under State control and work with the State Energy Office, Office of Planning, and utilities to identify pathways for clean transportation.

Mahalo for the opportunity to provide testimony on this legislation.

Sincerely,

A handwritten signature in black ink, appearing to read 'Aki Marceau'.

Aki Marceau
Managing Director, Policy & Community



Email: communications@ulupono.com

HOUSE COMMITTEES ON ENERGY AND ENVIRONMENTAL PROTECTION AND TRANSPORTATION
Tuesday, February 4, 2020 — 11:05 a.m. — Room 325

Ulupono Initiative supports HB 2699, Relating to the Environment.

Dear Chair Lowen, Chair Aquino, 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 HB 2699, which establishes clean ground transportation goals for state agencies on a staggered basis until achieving a 100% light-duty vehicle clean fleet by 12/31/2035, and for all light-duty vehicles in the State by 12/31/2045.

Ulupono supports energy efficiency measures to lower consumption across the State. 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. Ground transportation makes up a significant portion of Hawai'i's reliance on imported oil and the largest contributor to our State's greenhouse gas emissions. EVs currently offer an effective option to progress clean renewable ground transportation and provide immediate benefits to Hawai'i.

We applaud legislators for pushing the State to lead by example and welcome the urgency to purchase zero emission vehicles, such as EVs, and setting a goal for the entire State fleet to be clean and electric. Not only will this help move the State's environmental, health and energy goals, but it will also signal to the market that Hawaii demands EVs while creating a more robust EV market in the State, particularly as State vehicles enter the used car market. This market signal is critical positioning to help ensure suppliers prioritize clean vehicles for Hawaii, particularly since the State is unable to join California and others via a ZEV mandate.

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

Thank you for this opportunity to testify.

Respectfully,

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

Investing in a Sustainable Hawai'i



John Uekawa, President
Dave Rolf, Executive Director



LATE

HADA Testimony with COMMENTS on HB2699
RELATING TO THE ENVIRONMENT

Presented to the House Committee On Energy & Environmental Protection and the
House Committee on Transportation
at the Public Hearing 11:05 a.m., Tuesday, February 4, 2020
in Room 325 Hawaii State Capitol

by David H. Rolf for 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 Lowen and Aquino, Vice chairs Wildberger and Hashimoto and members of the committees:

HADA members appreciate the opportunity to offer COMMENTS on HB2699—a bill which proposes to establish clean ground transportation goals for state agencies on a staggered basis until achieving a 100 per cent light-duty vehicle clean fleet by 12/31/2035, and for all light-duty vehicles by 12/31/2045

HADA dealers, over the years, have ardently worked to help the State transition to renewable fuel vehicles. Dealers have paid to purchase thousands of electric vehicles for their inventories, paid to send their auto technicians off for training in the new technology, and paid to install expensive electric vehicle infrastructure and charging stations in their dealerships. Their efforts, and efforts of others have resulted in Hawaii posting the #2 rate of customer purchases of EVs, in the nation. Second only to California.

Reaching a 100 per cent light-duty clean fleet for all light-duty vehicles by 12/31/2045 provides an infrastructure challenge, and additionally may force the removal of many hybrid vehicles and other likely highly fuel-efficient vehicles that still operated on roadways by that date. HADA believes the process in an evolution, not a revolution, and that the free market provides the best path to achieving Hawaii's goals.

With support the State purchasing EVs to replace the current fleet of State vehicles, and the information we have on the size of that fleet is a little dated, but likely has remained fairly constant. See the data in the following graphic on the next page.

Recently the State issued a Request for Proposal for 43 electric vehicles, which would be provided by a private bidder along with charging stations and coordination of maintenance and repairs. The State is moving ahead in the direction of facilitating a transition to renewable fuel vehicles, but the need to provide infrastructure will be challenging for the bidders. Indeed, infrastructure, is the key challenge. Eventually electricity production capacity for the utilities will also come into play. An EV uses about as much electric power in a year, as a small residential apartment.



The statistic shows the number of publicly owned vehicles in Hawaii in 2009. In that year, 32 federally-owned buses were operated in Hawaii.

Number of publicly owned vehicles in Hawaii in 2009



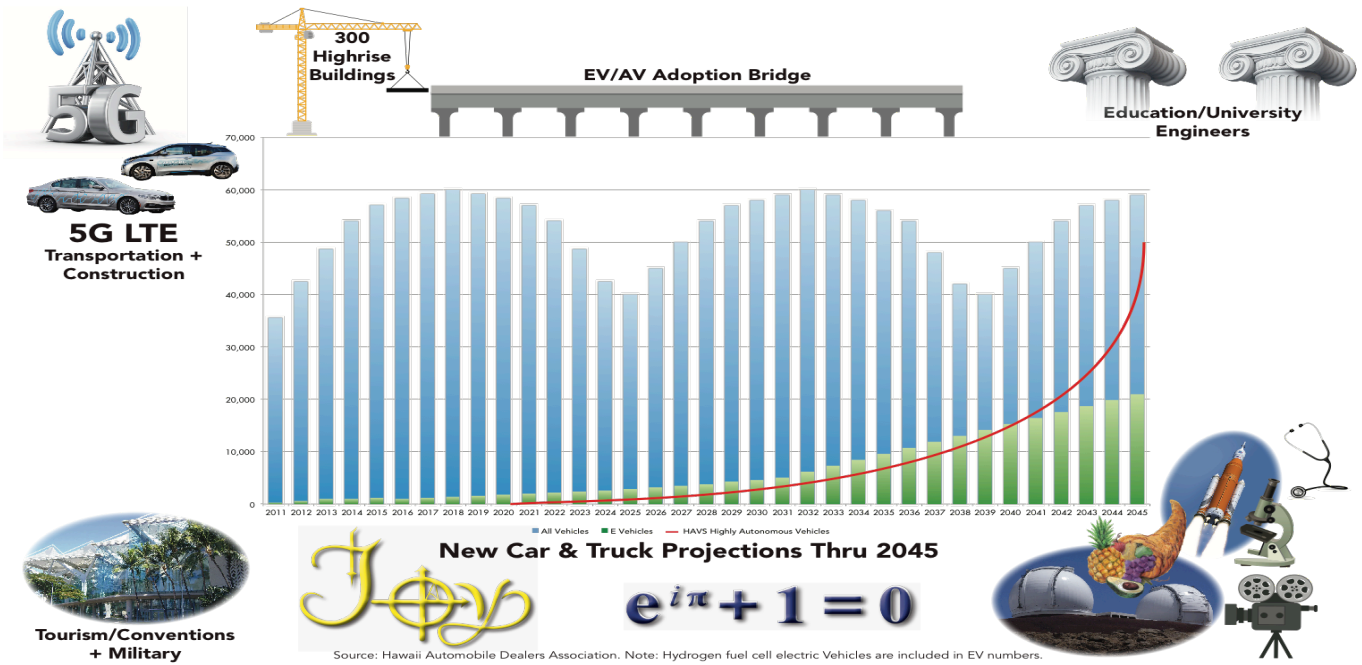
Vehicle type	Federal*	State, county and municipal**
Trucks and truck tractors	1,903	7,315
Automobiles	524	6,742
Buses	32	1,457
Trailers and semitrailers	5	1,289
Motorcycles	0	706

© Statista 2019

Source

Show detailed source information?

So, where are we now in electric vehicle uptake and what is the likely uptake scenario through 2045?

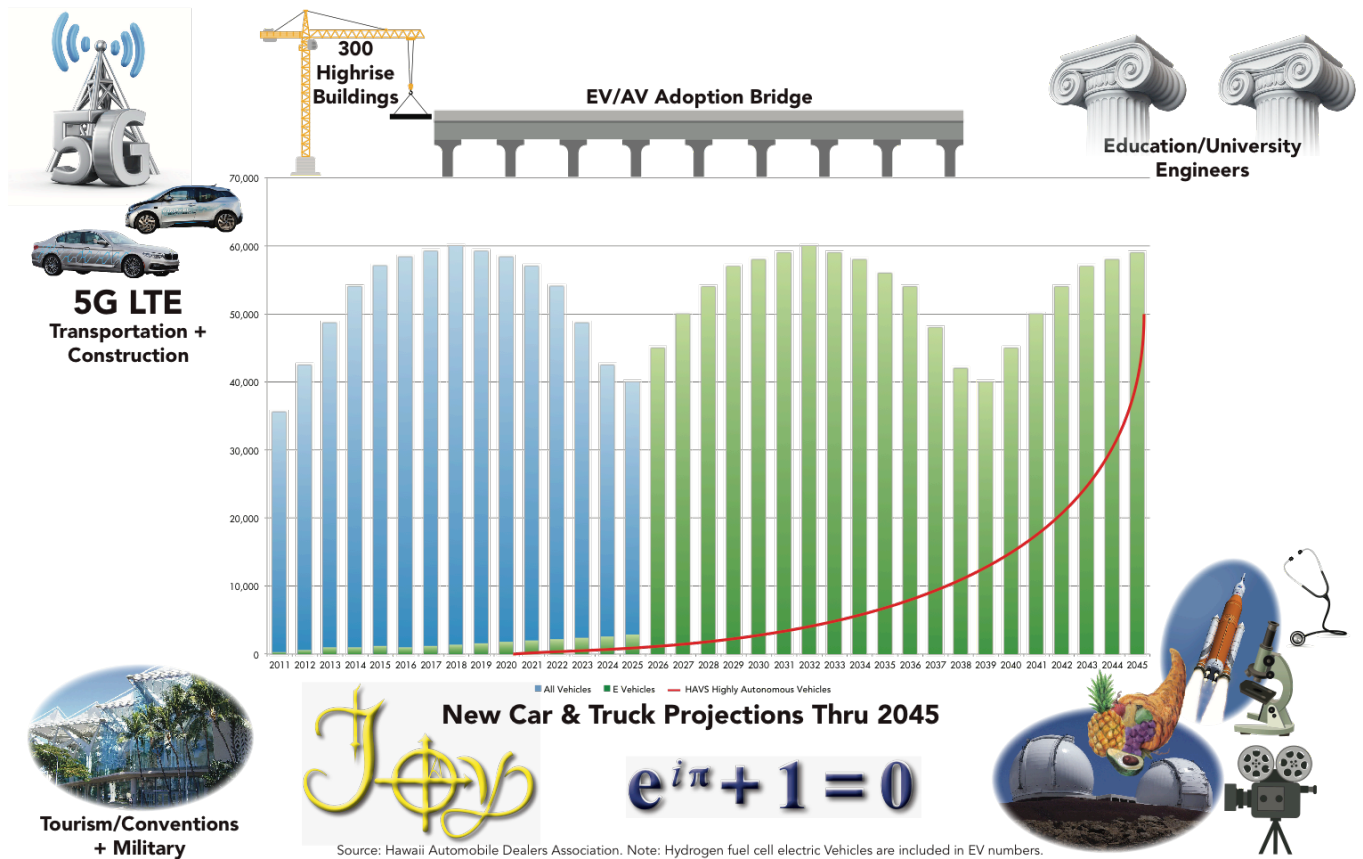


The HADA Rosetta Stone graphic shows our association’s predictions of EV / HFCEV uptake by customers through 2045 at 29%. Which corresponds to independent uptake percentage projections by major auto manufactures. (Note we use Euler’s Identity, as a mathematical proof of “JOY” because the process of transition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

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

HADA notes, that if the (light duty cars and trucks... 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.... that their grid by that time could handle that many electric vehicles.

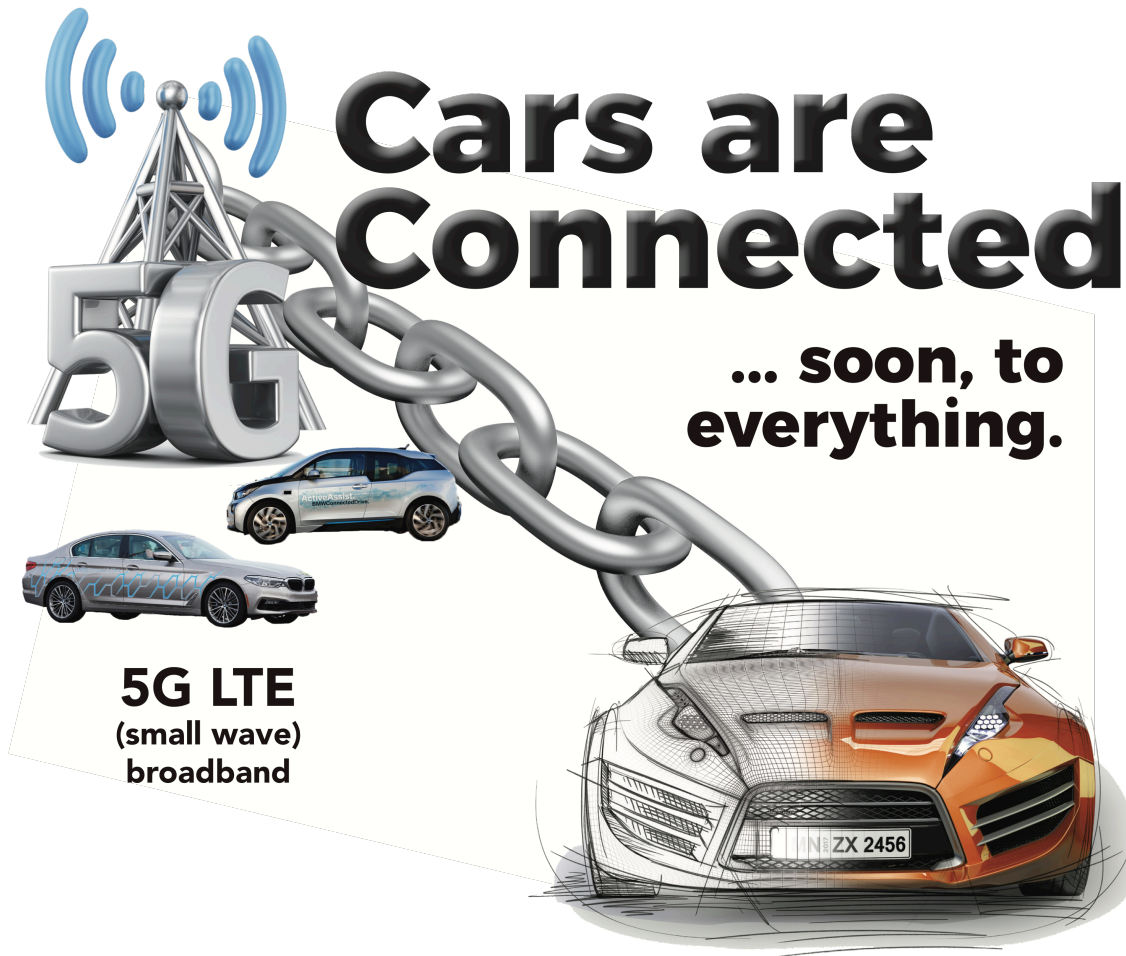
Reaching 100% EV/HFCEV vehicles by 2045 would require 100% of all new vehicles sold after 2025 to be EVs/ or HFCEVs. And the graph would look like this, if Units in Operation (UIOs) remained at current private vehicle levels.



This scenario, jumping from 8% of EV sales in 2025 to 100% overnight so to speak, remains challenging 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...



5G LTE
(small wave)
broadband

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 appreciates the opportunity to offer COMMENTS on HB2699.

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

HADA
Making Hawaii Better Together



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

To: The House Committees on Energy & Environmental Protection;
and Transportation
From: Brodie Lockard, Founder, 350Hawaii.org
Date: Tuesday, February 4, 2020, 11:05 am

In strong support of HB 2699

LATE

Dear Chairs Lowen and Wakai, and members:

350Hawaii.org strongly supports HB 2699.

The transportation sector contributes more to the Climate Crisis than any other sector in Hawaii. More than two-thirds of the fossil fuel imported into the State is used for transportation.

The State's vehicle fleet needs to be changed to electric vehicles (EVs) as quickly as possible.

Our four mayors have already committed to fully-electric fleets.

It's time for the State to step up. HB 2699 would lead the way for every vehicle in the state to be electric.

Brodie Lockard
Founder, 350Hawaii.org

HB-2699

Submitted on: 2/3/2020 3:49:45 AM

Testimony for EEP on 2/4/2020 11:05:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jennifer Azuma Chrupalyk	Individual	Support	No

Comments:

HB-2699

Submitted on: 2/3/2020 9:40:41 PM

Testimony for EEP on 2/4/2020 11:05:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Sherry Pollack	Individual	Support	No

Comments:

LATE

HB-2699

Submitted on: 2/2/2020 12:56:12 PM

Testimony for EEP on 2/4/2020 11:05:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Andrew Richard Kass	Individual	Support	No

Comments:

Aloha Comitee Members,

I am writing in strong support od HB 2699. As a strong environmentalist I believe we need to decarbonize immediately, and the state needs to lead by example. All our counties already comitted to 100% of their fleet powered by renewables by 2035, and it would be great if the state followed suit.

Mahalo

Andy Kass

302 Makani Rd,

Kapaa, HI 96746

808-822-1794

Hawaii resident since 2003, EV driver since 2014