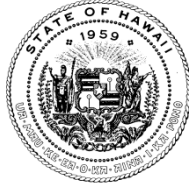


DAVID Y. IGE
GOVERNOR



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

March 11, 2020
1:15 P.M.
State Capitol, Room 225

H.B. 2590, H.D. 2
RELATING TO AUTONOMOUS VEHICLES

Senate Committee on Transportation

The Department of Transportation (DOT) **supports** H.B. 2590, H.D. 2 which authorizes automated driving system equipped vehicles on public roads as we believe these types of vehicles will ultimately lead to reducing the severity and number of vehicle crashes, injuries, and fatalities on our roads, as well as reduce pollution levels.

The DOT understands the importance of testing the technology to ensure the public roads are as safe as possible through automated vehicle deployment. The DOT is prepared to be the lead agency in setting rules or providing regulation of the testing and implementation.

Thank you for the opportunity to provide testimony.



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 Senate Committee on
TRANSPORTATION**

**Wednesday, March 11, 2020
1:15 PM
State Capitol, Conference Room 225**

**In support of
HOUSE BILL 2590, HOUSE DRAFT 2
RELATING TO AUTONOMOUS VEHICLES**

House Bill 2590, House Draft 2 proposes to establish within the Department of Transportation (DOT) a two-year autonomous vehicle (AV) testing pilot program, requires report to the legislature, and appropriates funds. **On behalf of the Hawaii Climate Change Mitigation and Adaptation Commission (Commission) I support 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, Session Laws of Hawaii 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 the Department of Land and Natural Resources and Office of Planning, it consists of 20 members—chairs of four legislative committees, and executive department heads at the county and state levels.

Reducing emissions from ground transportation is one of the two main priorities of the Commission.

This measure proposes to enact a two-year pilot program on the viability of autonomous vehicles in Hawaii. Other states have embraced AV vehicles and the potential to decrease noise, pollution, and congestion in urbanized areas. So far, 29 states have enacted AV-related legislation, and the number of states considering new legislation increases every year.¹

¹“Autonomous Vehicles” (2019) National Conference on State Legislatures, available at: <https://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx>

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
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Director, DOH
Chairperson, DOE
Director, C+C DPP
Director, Maui DP
Director, Hawai'i DP
Director, Kaua'i DP
The Adjutant General
Manager, CZM

According to the UC Davis Institute for Transportation and Development Policy, up to 80% CO² emissions can be reduced if cities embrace both automation and electrification in public transportation.² AVs could significantly increase both public and private transportation choices in the future by promoting affordability, accessibility and equity in the industry. As long as autonomous vehicles are electric, Hawaii can continue to progress toward its carbon neutrality goals and increase EV infrastructure this way.

Despite widespread implementation of regulatory frameworks in states such as California, there is still a lack of data on the long-term, widespread viability of AV.³ Therefore, it is critical that legislation reflects the gravity of enacting autonomous vehicle implementation. According to a Princeton report, autonomous vehicles "could increase mobility, improve safety, reduce traffic congestion and make fleet management companies rich, while lowering emissions and reducing energy use. However, poorly managed ones could make things significantly worse on all these fronts."⁴

I defer to DOT on matters of safety, data sharing and oversight to make this a successful pilot. If implemented correctly, AVs represent an important first step in replacing single-operator vehicles and enhancing Hawaii's multimodal transportation infrastructure.

Thank you for the opportunity to testify on this measure.

² *Three Revolutions in Urban Transportation* (2017) Institute for Transportation and Development Policy, UC Davis.

³ "On Autonomous Vehicles: Disruption or Status Quo?" (2018) Chris Johnson, California Walks, available at: <https://www.calwalks.org/blog/2018/5/2/avs>

⁴ Judith M. Greenwald, Alain Kornhauser. It's up to us: Policies to improve climate outcomes from automated vehicles. *Energy Policy*, 2019; 127: 445 DOI: 10.1016/j.enpol.2018.12.017



STATE OF HAWAII
STATE COUNCIL
ON DEVELOPMENTAL DISABILITIES
1010 RICHARDS STREET, Room 122
HONOLULU, HAWAII 96813
TELEPHONE: (808) 586-8100 FAX: (808) 586-7543
March 11, 2020

The Honorable Senator Lorraine R. Inouye, Chair
Senate Committee on Transportation
State Capitol
State of Hawai'i
Honolulu, Hawai'i 96813

Dear Senator Inouye and Members of the Committees:

SUBJECT: HB 2590 HD2 – Relating to Autonomous Vehicles

The Hawaii State Council on Developmental Disabilities **STRONGLY SUPPORTS HB 2590 HD2** to establish a two-year autonomous vehicles testing pilot program.

Self-driving cars could revolutionize how people with disabilities get around their communities and even travel far from home. There are people who can't see well or have physical and mental difficulties that prevent them from driving safely or rely on others or local governments or nonprofit agencies to help them get around. Autonomous vehicles could be the answer. They present fundamentally new ways to think about transportation and accessibility, having the potential to change neighborhoods and individuals lives—including people with disabilities, who are often both literally and figuratively left behind. With proper planning and research, autonomous vehicles can provide more people with significant independence in their lives.

Self-driving cars could allow as many as 2 million people with disabilities to work! This was quoted in a recent article in Auto Trader magazine. Currently, the unemployment rate for people with disabilities is at a low of 70%. When people with disabilities have been surveyed about their employment situation the number one reason as to why they can't get employed or stay employed is transportation.

Self-driving cars could be the major disruptor in transportation for people with disabilities. This would give the disability community another viable option. Currently, the on-demand transportation network companies are not accessible, such as your Uber and Lyft companies. The disability community welcomes this opportunity for an autonomous vehicle pilot in Hawaii. As we go down this road in this new venture, we must continually include people with disabilities and the aging community, in these pilot programs to ensure full accessibility for everyone.

Thank you for the opportunity to submit testimony **strongly supporting HB2590 HD2.**

Sincerely,

Daintry Bartoldus
Executive Administrator



John Uekawa, President
Dave Rolf, Executive Director

HADA Testimony in SUPPORT of HB2590 HD2
RELATING TO AUTOMOMOUS VEHICLES
Presented to the Senate Committee on Transportation
at the Public Hearing 1:15 p.m. Wednesday, March 11, 2020
in Room 225 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

Chair Inouye, Vice Chair Harimoto and members of the committee:

HADA members fully support the testing and deployment of driverless vehicle technology in Hawaii.

We appreciate the opportunity to offer SUPPORT for HB2590 HD2 which proposes to establish within the Department of Transportation a two-year autonomous vehicle testing pilot program, and requires a report to the legislature, and appropriates funds.

Governor's Executive Order 17-07 announced that "the Aloha State is open for business for testing and deploying the new driverless vehicle technology." Efforts are being made this year to facilitate the testing and deployment of driverless vehicles through HB2590 HD2.

There are 62 companies with permits to do testing in California.

In Hawaii, there has been established a Hawaii connected autonomous vehicle contact in the Office of the Governor, with the intent to provide the highest level of attention and support to companies seeking to test self-driving vehicle technology in Hawaii. The governor's executive order specifies that the Hawaii Department of Transportation, the Hawaii Department of Public Safety, and the Hawaii Department of Business and Economic Development and Tourism shall take steps to work with companies seeking to do self-driving vehicle testing and development business in Hawaii, through policies and as otherwise needed, in the interests of the public.

HADA dealers appreciate the opportunity to SUPPORT HB2590 HD2, and we look forward to further discussions on the testing and deployment of autonomous vehicles in Hawaii as this bill, hopefully, continues to move forward.

Respectfully submitted,
David H. Rolf
For the Members of the Hawaii Automobile Dealers Association

HB-2590-HD-2

Submitted on: 3/9/2020 10:47:58 PM

Testimony for TRS on 3/11/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Climate Protector	Testifying for Climate Protectors Coalition	Support	No

Comments:



Email: communications@ulupono.com

SENATE COMMITTEE ON TRANSPORTATION
Wednesday, March 11, 2020 — 1:15 p.m. — Room 225

Ulupono Initiative supports HB 2590 HD 2, Relating to Autonomous Vehicles

Dear Chair Inouye 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 2590 HD 2, which establishes within DOT a 2-year autonomous vehicles (AV) testing pilot program.

AV benefits will not necessarily accrue on their own but require community conversations on not just what AV may provide but should. The Transportation Research Board, one of our national academies of science, outlines two broad ends of the spectrum for the impacts of AVs:

- 1) Successfully deploying a combination of automated vehicles, shared mobility systems, and electric/zero-emission vehicles could reduce energy consumption and related emissions by 60 percent over the next 30 years with other benefits in safety and greater access to opportunity for non-drivers.
- 2) Conversely, a combination of automated vehicles, zero-occupancy vehicles, increased vehicle miles traveled, access for new user groups, and continued reliance on fossil fuels could increase energy consumption and related emissions by up to 200 percent over this same time period.¹

As mentioned in the Environment and Energy section of the [Preliminary Report of the Hawai'i Autonomous Vehicles Legal Preparation Task Force](#), creating a mechanism for AVs'

¹ <http://onlinepubs.trb.org/onlinepubs/circulars/ec236.pdf>

legality, although necessary, is not sufficient to ensure congestion reduction, energy efficiency, or even improved accessibility for those currently underserved by our transportation system.

More broadly, we believe any AV legislation should work to align with the State's broader goals and therefore promote not just AVs, but A²CES – AVs that are accessible, automated, connected, electric, and shared. As such, we recommend that the bill requires the DOT to require performance measures to assess pilots, such as reducing congestion, increasing safety and accessibility, and utilizing clean energy. These pilots should actively involve community engagement to ensure that the performance measures align with the local and broader state goals.

We look forward to working with our larger community to help realize the benefits of AVs – leveraging the innovations of AVs for a stronger, more resilient Hawai'i.

Thank you for this opportunity to testify.

Respectfully,

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

DATE: March 11, 2020

TO: Senator Lorraine R. Inouye
Chair, Committee on Transportation

Submitted Via Capitol Website

FROM: Curt Augustine / Gary Slovin / Tiffany Yajima

RE: **H.B. 2590, H.D.2 – Relating to Autonomous Vehicles**
Hearing Date: Wednesday, March 11, 2020 at 1:15p.m.
Conference Room: 225

Dear Chair Inouye, Vice Chair Harimoto, and Members of the Committee on Transportation:

On behalf of the Alliance for Automotive Innovation (“Alliance”) we submit this testimony in support of the intent of H.B. 2590, H.D.2, which establishes a two-year autonomous vehicle testing pilot program under the Department of Transportation.

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 testing of autonomous vehicles in Hawaii and is prepared to work with the legislature and the administration as this measure continues to move on language that would enable and promote testing. As automobile manufacturers continue to develop autonomous vehicle technology, it is vital for governments to create open regulatory environments that encourage both autonomous vehicle testing and highway safety.

We also understand that the current bill draft contains a blank speed limit and would support a measure that sets the mileage per hour to match the state speed limit.

Over many decades, the auto industry has steadily evolved vehicle technologies toward a future when cars will be fully self-driving. Technological advancements continue to improve, and many companies are developing vehicles with higher levels of driving automation. Highly automated vehicles promise to improve road safety while saving consumers time and money. Such systems may also dramatically expand mobility and facilitate better land use in urban settings.

Vehicles on our roads today are more advanced than ever and feature extraordinary capabilities with the primary goal of passenger safety and saving lives. Many driver-assist features are available right now — from automated braking to adaptive cruise control to lane-keeping cameras — and are technologies that bring us closer to the reality of self-driving vehicles. According to the U.S. Department of Transportation, more than 37,000 lives were lost on U.S. roadways by the end of 2017, with human error accounting for more than 94 percent of these fatalities. These fatalities underscore the importance for motor vehicle manufacturers to deliver life-saving automated vehicle technologies.

Thank you for the opportunity to submit this testimony.



Senate Committee on Transportation
415 South Beretania Street
Honolulu, Hawaii 96813

March 10, 2020

Dear Members of the Senate Committee on Transportation,

I am writing on behalf of the [Self-Driving Coalition for Safer Streets](#), a group of leading autonomous vehicle companies that includes Argo, Aurora, Ford, Lyft, Nuro, Uber, Volvo, and Waymo. Despite their different backgrounds, the companies formed the Coalition to bring the tremendous potential safety benefits of autonomous vehicle (AV) technology to consumers quickly and safely. Our shared mission is to promote the safe and rapid deployment of AVs so that the public can benefit from this life-saving technology. We write to inform you that, at this time the Self-Driving Coalition for Safer Streets has significant concerns regarding H.B. 2590 HD2.

It is our view that if Hawaii, or any other state, does choose to take legislative or regulatory action with respect to AVs, such action should be premised on removing impediments to the safe testing or deployment of such vehicles, and creating a pro-competitive and level playing field.

We believe that the limited pilot program currently contemplated by the bill would stifle AV innovation. Our understanding is that the bill proposes only a limited pilot project, subject to speed restrictions and the requirement of human drivers being physically present. Such a framework would not allow for a scalable commercial business, and such piecemeal deployment of AVs will stagnate innovation and create unnecessary hurdles to implementing this life-saving technology in Hawaii. We would welcome the opportunity to discuss with you the practices and legislative provisions that we have seen states adopt that we believe can best encourage the safe deployment of this technology.

Autonomous vehicles have significant potential to improve safety and mobility, and we support efforts at the state level to facilitate the safe and timely deployment of fully self-driving vehicles (SAE Level 4 and 5). An estimated 94% of all crashes are due to human error, including reckless, drunk and distracted driving. Hawaii is also home to thousands of blind, disabled, or elderly individuals who are unable to drive themselves. Fully self-driving vehicles therefore offer the potential to save lives and transform mobility.

We appreciate your interest in this area and would welcome further collaboration moving forward.

Sincerely yours,

Ariel Wolf
Counsel
Self-Driving Coalition for Safer Streets



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

To: The Senate Committee on Transportation
From: Brodie Lockard, Founder, 350Hawaii.org
Date: Wednesday, March 11, 2020, 1:15 pm

Support for HB 2590 HD2

Dear Chair Luke, and members:

350Hawaii supports HB 2590 HD2, *with an amendment*.

In 2019, HCR 220 HD1 SD1 formed an Autonomous Vehicle Legal Preparation Task Force to report on "the legal and regulatory implications of transitioning to autonomous vehicles."

As requested, the Task Force submitted the preliminary report of its findings and recommendations to the Legislature on December 1, 2019. The report makes three recommendations.

On page 6, it says, "consistent implementation of standards and recommendations from the U.S. Department of Transportation's Manual of Uniform Traffic Control Devices is essential to the safe operation of self-driving vehicles."

On pages 77-79, it *recommends that all Autonomous Vehicles (AVs) in Hawaii be electric, and shared:*

By combining the emissions reduction potential of electric powertrain technologies with the added benefit of small, shared AVs, and assuming a future low-carbon grid as planned for Hawaii, GHG emissions could be reduced by about 90% when compared with today's vehicles.

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 thorough adoption of electric vehicles (EVs) in Hawaii would reduce our greenhouse gas emissions enormously.

Most auto industry watchers predict that AVs will be adopted surprisingly quickly and eventually replace a huge percentage of traditional vehicles.

McKinsey says, "We expect Level 4 autonomy—operating within virtual geographic boundaries—to be disruptive and available between 2020 and 2022" [1].

Gartner forecasts that by 2023, worldwide net additions of vehicles equipped with hardware that could enable autonomous driving without human supervision will reach 745,705 units [2].

HCR 220 says, "current autonomous vehicle industry trends suggest overwhelmingly that all autonomous vehicles will be electric, which could contribute significantly to Hawaii's clean energy goals."

But several major AV manufacturers are converting gas-burning cars into their prototype AVs. Ford is pushing hybrid AVs. Uber is working on gas-powered AVs. This is trying to fit tomorrow's driving technology into yesterday's vehicles. Gas-burning cars should be going extinct, not promoted to the future of transportation.

HCR 220 says, "autonomous vehicles benefit society by ... lessening greenhouse gas emissions [and] easing traffic congestion."

With the introduction of AVs to Hawaii comes a tremendous opportunity to help retire gas-burning cars, and increase our adoption of EVs.

HB 2590 should seize the opportunity to move Hawaii farther into a world of EVs. **From the very start, it should allow only electric AVs from manufacturers who want to test and sell here.**

350Hawaii requests the following amendment to SECTION 1 (d):

(d) The department shall determine which entities shall be permitted to engage in the testing of autonomous vehicles in the State, provided that any such vehicle is powered by a non-petroleum-based fuel.

Hawaii is a very appealing site for AV testing: geo-fenced, with varied weather but within a very limited temperature range, and offering a wide variety of traffic conditions and terrains. Any influence the state has on AV testing and development could be felt throughout the industry.

Limiting AV testing here to clean energy vehicles also aligns with the four mayors' commitments to a future of those vehicles statewide.

350Hawaii strongly urges the committee to add language to this effect to HB 2590. Missing this chance to mothball gas cars and promote EVs would be a tragic oversight.

Brodie Lockard
Founder, 350Hawaii.org

[1] <https://www.mckinsey.com/features/mckinsey-center-for-future-mobility/overview/autonomous-driving>

[2] <https://www.gartner.com/en/newsroom/press-releases/2019-11-14-gartner-forecasts-more-than-740000-autonomous-ready-vehicles-to-be-added-to-global-market-in-2023>

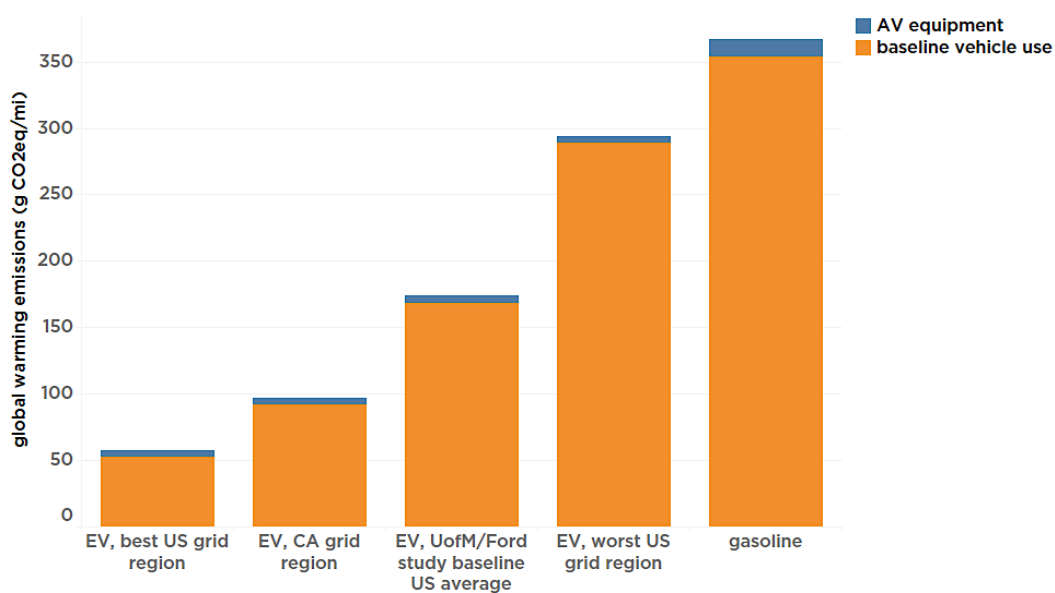
From the PRELIMINARY REPORT OF THE HAWAII AUTONOMOUS VEHICLES
LEGAL PREPARATION TASK FORCE:

- Successfully deploying a combination of automated vehicles, shared mobility systems, and electric/zero emission vehicles could reduce energy consumption and related emissions by 60% over the next 30 years with other benefits in safety and greater access to opportunity for non-drivers.
- Conversely, a combination of automated vehicles, zero-occupancy vehicles, increased VMT, access for new user groups, and continued reliance on fossil fuels could increase energy consumption and related emissions by up to 200% over this same time period. [29]

[Irrelevant text omitted here.]

Make them electric

As discussed previously, the most important determinant for direct emissions from AVs is their fuel source. The figure below shows the difference in emissions between an EV powered from a grid fed by renewable resources and a vehicle powered by gasoline, including technology and fuel variations in between, clearly demonstrating how electric matters. [30]



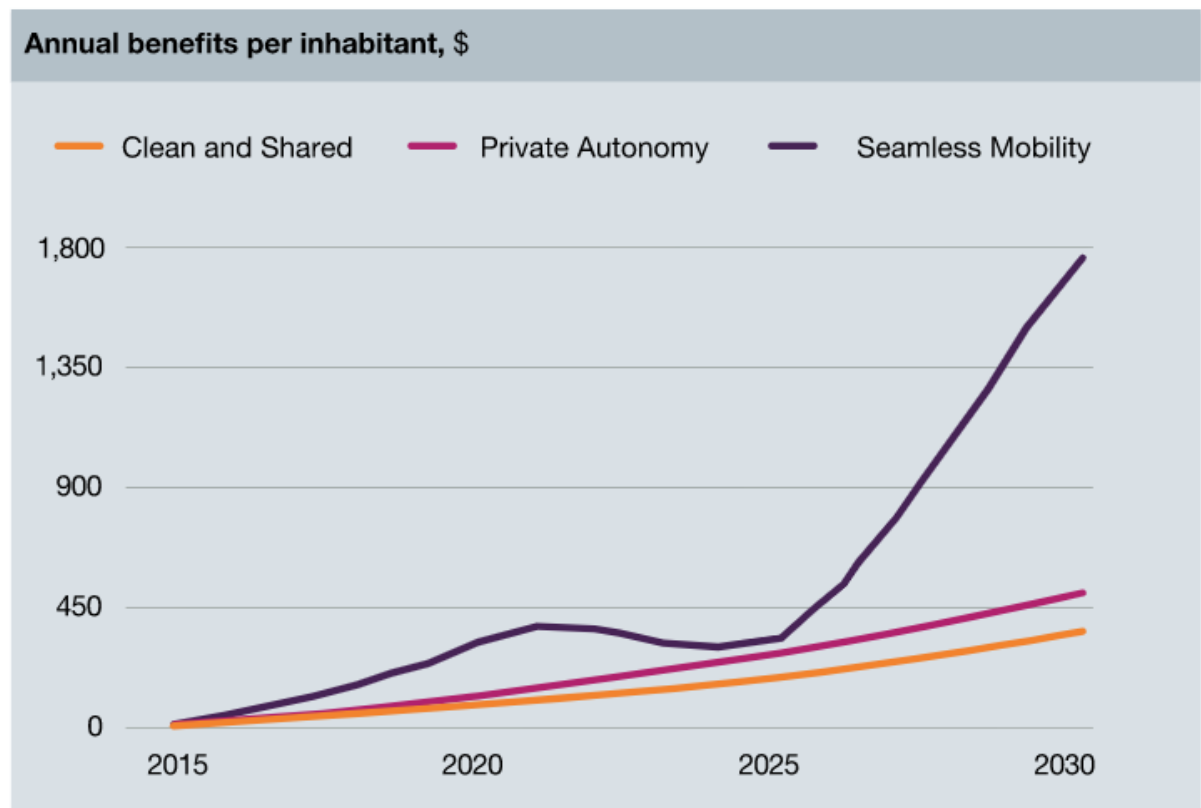
It should not be assumed that all autonomous vehicles of the future will operate on electric powertrains. While GM and Waymo invest in zero-emission autonomous vehicles, other companies like Uber and Ford are piloting AV technology on gasoline-powered vehicles. Boston University’s Institute for Sustainability argues that one important way to shape this future is to demand that electric (battery or hydrogen) AVs be part of testing fleets. As companies want to expand testing to new cities, cities have the ability to demand the types of vehicles operated on their roads. [31]

Make them shared

One of the critical concerns with AVs is that they will dramatically increase vehicle miles travelled. What used to be one trip (you going to work) is now two trips (one trip to pick you up via ridehail and then another to get you to your

destination). With AVs, those miles driven increase even more as the vehicle circles aimlessly until you are ready to leave your destination. Early estimates suggest that 40% of trips will be of the cruising variety—driving with no passengers. [32] This means that there must be a push from policymakers to make them shared to avoid increased congestion and energy use. Using AV technology for public transit vehicles and microtransit is a key opportunity and will help to ensure that AVs complement public transit rather than displace it. It is also important to provide incentives for shared options, which may encourage fleets or AV transportation services rather than individual ownership.

Individually these elements are critical, but collectively they can be even more powerful. McKinsey assessed three potential scenarios for the future of mobility – private autonomy, clean and shared, and then seamless mobility. Seamless mobility is a future in which clean and shared vehicles are deployed within an urban framework to provide the greatest



individual and societal benefit. [33]

By combining the emissions reduction potential of electric powertrain technologies with the added benefit of small, shared AVs, and assuming a future low-carbon grid as planned for Hawaii, GHG emissions could be reduced by about 90% when compared with today's vehicles. [34]

29. <http://onlinepubs.trb.org/onlinepubs/circulars/ec236.pdf>

30. <https://blog.ucsusa.org/dave-reichmuth/how-important-is-it-for-self-driving-cars-to-be-electric>

31. Hatch, J. & Halveston, J. (2018, August). Will Autonomous Vehicles be Electric? Boston University Institute for Sustainability.
<https://www.bu.edu/ise/2018/08/27/will-autonomous-vehicles-be-electric/>
32. <https://www.businessinsider.com/self-driving-cars-traffic-worse-research-2019-2>
33. <https://www.mckinsey.com/business-functions/sustainability/our-insights/the-futures-of-mobility-how-cities-can-benefit>
34. Greenblatt, J.B., & Saxena, S. (2015). Autonomous taxis could greatly reduce greenhouse gas emissions of U.S. light-duty vehicles. *Nature Climate Change*. Doi: 10.1038/nclimate2685
<https://www.nature.com/articles/nclimate2685>



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LATE

March 10, 2020

Senator Inouye
415 South Beretania St
Honolulu, HI 96813

RE: HB 2590 HD2 – Relating to Autonomous Vehicles

Dear Senator Inouye,

On behalf of TechNet, I am respectfully submitting comments on HB 2590 HD2, related to autonomous vehicles (AV). TechNet is the national, bipartisan network of innovation economy CEOs and senior executives. Our diverse membership includes dynamic American businesses ranging from startups to the most iconic companies on the planet and represents over three million employees and countless customers in the fields of information technology, e-commerce, the sharing and gig economies, advanced energy, cybersecurity, venture capital, and finance.

TechNet supports the development of a pilot program at the Department of Transportation (DOT) and believes this is an important step forward for AV development in Hawaii. However, TechNet does have concerns regarding the limited 2-year time frame of the pilot program, lack of clarity around speed limit requirements, and the requirement of a human driver being in the vehicle.

AV passenger service has the potential to increase road safety, increase mobility, reduce personal car ownership, reduce parking demand, and increase levels of carpooling. But these benefits can only be explored and achieved if the industry has confidence in the potential investment around this technology in Hawaii. A two-year program may not provide the industry clarity on the future of the ability to innovate and expand use of this technology in Hawaii, whether through a pilot program or commercialization. A specific, limited timeline may also not provide enough time to show progress and have holistic participation from companies of all sizes. TechNet recommends ensuring if a two-year pilot program is established that there is clarity for the industry moving forward.

Currently, HB 2590 HD2 also has an undetermined speed limit cap, stating that AVs could only operate on public roads with a specific speed limit or less. We strongly urge this to not be included in the legislation as it sets up confusion and could significantly undermine the potential for testing to generate actionable learnings. We believe the best approach for Hawaii would be to require AVs to follow the posted speed limit of any public road. The potential speed limit cap included in the bill will stifle innovation and impede the potential benefits of autonomous vehicle technology in the future.

Finally, and most problematic, is the requirement to have a human driver physically present in the vehicle at all times. As AV technology continues to develop it should be a top

priority of every state to avoid overly prescriptive legislation and instead create an open regulatory environment that encourages both AV testing and commercial deployment. It should also be noted other states, including California, Nevada, Arizona and Colorado, do not require a human driver or operator to be in the vehicle. Innovation and testing of AVs has been successful in these states because of the open regulatory environment the states have created.

If you have any questions regarding TechNet's comments on HB 2590 HD2, please do not hesitate to contact Courtney Jensen, Executive Director, at 916-600-3551 or cjensen@technet.org.

Thank you,
Courtney Jensen
Executive Director, Southwest
TechNet

HB-2590-HD-2

Submitted on: 3/9/2020 7:58:46 AM

Testimony for TRS on 3/11/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Nanea Lo	Individual	Support	No

Comments:

Dear Chair Inouye, and members:

As one of 350Hawaii.org's 6,000 members, I support HB 2590 HD1, **with an amendment**. 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 thorough adoption of electric vehicles (EVs) in Hawaii would reduce our greenhouse gas emissions enormously.

Most auto industry watchers predict that AVs will be adopted surprisingly quickly and eventually replace a huge percentage of traditional vehicles.

McKinsey says, "We expect Level 4 autonomy—operating within virtual geographic boundaries—to be disruptive and available between 2020 and 2022" [1].

Gartner forecasts that by 2023, worldwide net additions of vehicles equipped with hardware that could enable autonomous driving without human supervision will reach 745,705 units [2].

Several AV manufacturers are converting gas-burning cars into their prototype AVs. Ford is pushing hybrid AVs. Uber is working on gas-powered AVs. This is trying to fit tomorrow's driving technology into yesterday's vehicles. Gas-burning cars should be going extinct, not promoted to the future of transportation.

With the introduction of AVs to Hawaii comes a tremendous opportunity to help retire gas-burning cars, and increase our adoption of EVs.

HB 2590 should seize the opportunity to move Hawaii farther into a world of EVs. From the very start, it should allow only electric AVs from manufacturers who want to test and sell here.

Hawaii is a very appealing site for AV testing: geo-fenced, with varied weather but within a very limited temperature range, and offering a wide variety of traffic conditions and terrains. Any influence the state has on AV testing and development could be felt throughout the industry.

Limiting AV testing here to clean energy vehicles also aligns with the four mayors' commitments to a future of those vehicles statewide.

I strongly urge the committee to add language to this effect to HB 2590. Missing this chance to mothball gas cars and promote EVs would be a tragic oversight.

[1] <https://www.mckinsey.com/features/mckinsey-center-for-future-mobility/overview/autonomous-driving>

[2] <https://www.gartner.com/en/newsroom/press-releases/2019-11-14-gartner-forecasts-more-than-740000-autonomous-ready-vehicles-to-be-added-to-global-market-in-2023>

me ke aloha 'Ä• ina,

Nanea Lo

HB-2590-HD-2

Submitted on: 3/9/2020 10:30:07 AM

Testimony for TRS on 3/11/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Noel Morin	Individual	Support	No

Comments:

Dear Chair Inouye, and members:

I support HB 2590 HD1 with an amendment.

Autonomous vehicle technology is advancing rapidly and this is offering society the opportunity to benefit from an upcoming disruption to transportation, one that will help society in many ways. Fully autonomous vehicles (self-driving cars) will offer the opportunity for the "transportation-as-a-service" model to exist. We can expect many benefits - consumers will be able to thrive and be productive without having to own a vehicle; less real estate will have to be dedicated to parking lots; vehicles will have a much higher utilization rate; significant time will be saved with less traffic congestion; and we can expect reduced emissions and pollution.

This vision is best achieved with electric vehicles - their much longer lifespans ('million-mile' batteries are coming), lower maintenance requirements, simpler 'fueling' process (wireless induction charging already exists) make them ideal for the task. Yes - they are also ideal for the environment with their fossil fuel-free operation.

HB 2590 is a great opportunity for autonomous vehicles to be introduced in Hawaii. Our environment, relatively short driving ranges, and commute patterns offer an ideal location for this transportation future.

I recommend that we allow any testing and investment in autonomous transportation to be limited to zero-emissions vehicles. This will ensure that we don't introduce unnecessary barriers to our clean ground transportation goals.

Thank you for the opportunity to testify.

Noel Morin - Hilo

HB-2590-HD-2

Submitted on: 3/9/2020 10:31:57 AM

Testimony for TRS on 3/11/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Katherine Ray	Individual	Support	No

Comments:

Dear Chair Inouye, and members:

As one of 350Hawaii.org's 6,000 members, I support HB 2590 HD1, **with an amendment**. 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 thorough adoption of electric vehicles (EVs) in Hawaii would reduce our greenhouse gas emissions enormously.

Most auto industry watchers predict that AVs will be adopted surprisingly quickly and eventually replace a huge percentage of traditional vehicles.

McKinsey says, "We expect Level 4 autonomy—operating within virtual geographic boundaries—to be disruptive and available between 2020 and 2022" [1].

Gartner forecasts that by 2023, worldwide net additions of vehicles equipped with hardware that could enable autonomous driving without human supervision will reach 745,705 units [2].

Several AV manufacturers are converting gas-burning cars into their prototype AVs. Ford is pushing hybrid AVs. Uber is working on gas-powered AVs. This is trying to fit tomorrow's driving technology into yesterday's vehicles. Gas-burning cars should be going extinct, not promoted to the future of transportation.

With the introduction of AVs to Hawaii comes a tremendous opportunity to help retire gas-burning cars, and increase our adoption of EVs.

HB 2590 should seize the opportunity to move Hawaii farther into a world of EVs. From the very start, it should allow only electric AVs from manufacturers who want to test and sell here.

Hawaii is a very appealing site for AV testing: geo-fenced, with varied weather but within a very limited temperature range, and offering a wide variety of traffic conditions and terrains. Any influence the state has on AV testing and development could be felt throughout the industry.

Limiting AV testing here to clean energy vehicles also aligns with the four mayors' commitments to a future of those vehicles statewide.

I strongly urge the committee to add language to this effect to HB 2590. Missing this chance to mothball gas cars and promote EVs would be a tragic oversight.

[1] <https://www.mckinsey.com/features/mckinsey-center-for-future-mobility/overview/autonomous-driving>

[2] <https://www.gartner.com/en/newsroom/press-releases/2019-11-14-gartner-forecasts-more-than-740000-autonomous-ready-vehicles-to-be-added-to-global-market-in-2023>

Sincerely,

Katherine Ray

HB-2590-HD-2

Submitted on: 3/9/2020 3:11:26 PM

Testimony for TRS on 3/11/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
tlaloc tokuda	Individual	Support	No

Comments:

To: The Senate Committee on Transportation

From: Tlaloc Tokuda

Date: Wednesday, March 11, 2020, 1:15 pm

Support for HB 2590 HD2

Dear Chair Inouye, and members:

Chair Inouye I am a constituent of yours. As one of 350Hawaii.org's 6,000 members, I support HB 2590 HD1, **with an amendment**. 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 thorough adoption of electric vehicles (EVs) in Hawaii would reduce our greenhouse gas emissions enormously.

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With the introduction of AVs to Hawaii comes a tremendous opportunity to help retire gas-burning cars, and increase our adoption of EVs.

HB 2590 should seize the opportunity to move Hawaii farther into a world of EVs. From the very start, it should allow only electric AVs from manufacturers who want to test and sell here.

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Mahalo for your considerations

Tlaloc Tokuda

Kailua Kona HI 96740

HB-2590-HD-2

Submitted on: 3/9/2020 9:00:22 PM

Testimony for TRS on 3/11/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Severine Busquet	Individual	Support	No

Comments:

Dear Chair Inouye, and members:

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 thorough adoption of electric vehicles (EVs) in Hawaii would reduce our greenhouse gas emissions enormously.

HB 2590 should seize the opportunity to move Hawaii farther into a world of EVs. From the very start, it should allow only electric automated vehicles (AVs) from manufacturers who want to test and sell here. Limiting AV testing here to clean energy vehicles aligns with the four mayors' commitments to a future of those vehicles statewide.

For these reasons, I support HB 2590 HD1, with an amendment limiting AV testing here to clean energy vehicles.

Thanks for your attention

Severine Busquet

Hawaii Kai, Honolulu

HB-2590-HD-2

Submitted on: 3/9/2020 9:28:24 PM

Testimony for TRS on 3/11/2020 1:15:00 PM

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

Comments:

HB-2590-HD-2

Submitted on: 3/10/2020 6:33:58 AM

Testimony for TRS on 3/11/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Caroline Kunitake	Individual	Support	No

Comments:

Dear Chair Inouye, and members:

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Mahalo,

Caroline Kunitake

LATE

HB-2590-HD-2

Submitted on: 3/11/2020 9:44:53 AM

Testimony for TRS on 3/11/2020 1:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Rayne	Individual	Oppose	No

Comments: