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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
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March 24, 2021
1:00 P.M.
State Capitol, Teleconference

**S.B. 1291, S.D. 1
RELATING TO TRANSPORTATION**

House Committee on Transportation

The Department of Transportation **supports** S.B. 1291, S.D. 1 that amends the definition of "Autocycle" from a motorcycle, that must have a steering wheel and seating that does not require the operator to straddle or sit astride, to a motorcycle that has either a handlebar or steering wheel. The bill also clarifies when a helmet must be worn.

Thank you for the opportunity to provide testimony.



Chamber of Commerce HAWAII

The Voice of Business

**Testimony to the House Committee on Transportation
Wednesday, March 24, 2021 at 10:30 A.M.
Written Testimony**

RE: SB 1291, SD 1, RELATING TO TRANSPORTATION

Chair Aquino, Vice Chair Ilagan, and Members of the Committee:

The Chamber of Commerce Hawaii ("The Chamber") **supports** SB 1291, SD 1 which seeks to include autocycles equipped with handlebars in the definition of motorcycle in the Hawaii Safety Act and exempt motorcycles and motor scooters with a roll bar, roll cage, or fully enclosed cabs from the safety helmet requirement.

The Chamber is Hawaii's leading statewide business advocacy organization, representing 2,000+ businesses. Approximately 80% of our members are small businesses with less than 20 employees. As the "Voice of Business" in Hawaii, the organization works on behalf of members and the entire business community to improve the state's economic climate and to foster positive action on issues of common concern.

Hawaii continues to play a leading role in protecting our environment, increasing energy efficiency, and advancing clean energy benefits. We believe in the benefits of a sustainable future but also opportunities that catalyze entrepreneurs and businesses to be operate in Hawaii.

As such, we believe that extending Hawaii's reach to new and innovative businesses to operate will help shape and complement existing business models especially in the emission-free and transportation space.

Thank you for this opportunity to provide testimony.



LATE

Testimony of Joel Sheltroun, Governmental Affairs

In Support of SB 1291SD1

Honorable Chairman and Members of the House Transportation Committee:

My name is Joel Sheltroun and I have been working to secure a change in HI statute for Arcimoto. I have previously testified before Senate Transportation last year on a very similar bill and participated in a demonstration for legislators at the Capitol last year.

Arcimoto is an electric three-wheel motor vehicle manufactured in Eugene, Oregon. It helps fulfill the need for clean, sustainable, affordable transportation. It is front-wheel drive has a low center of gravity and provides similar stability found in passenger cars.

The Arcimoto Safety Management System consists of a roll cage/roof meeting automotive FMVSS 216a (roof crush) to protect the occupants in a rollover accident, a seatbelt harness system meeting automotive FMVSS for seat belts, energy-absorbing zones to lessen impact forces in a collision, as well as Anti-Dive Optimization for better handling.

The Arcimoto uses handlebar steering in place of a steering wheel. The handlebar system weighs far less than standard automotive steering options, saving up to 10% or more of the total weight of the vehicle, and provides a quicker response from steering stop to steering stop. Weight savings is a very important consideration for efficiency in all vehicles, especially electric.

Unfortunately, because Arcimoto has handlebars for steering, it does not meet the classification of "autocycle." Therefore, operators of our vehicle are currently required to obtain a motorcycle endorsement for operation. Because the Arcimoto handles very similar to front wheel drive automobiles, only a regular Class D license should be necessary for operation. No balancing, leaning into the curve, shifting, and clutching is required as in motorcycles. With the significant progress of autonomous vehicles, manufacturers are looking for different alternatives to steering wheels. Just recently, the Tesla Model S is now featuring a "steering yoke" instead of a wheel.

Unnecessary motorcycle endorsement requirements will significantly reduce rentals and sales of our vehicle. Arcimoto estimates HI has less than 8% of passenger car drivers have the currently required motorcycle license. During the Ride and Drive demo for legislators and staff at the Capitol last year, of all those that participated, only one had the required license. Making the changes in SB1291SD1 will help ensure a successful launch of Arcimoto in Hawaii by greatly expanding our customer base. SB 1291SD1 will provide a positive step forward in Hawaii's goals of clean, quiet, sustainable transportation.

It is important to note what SB1291 will not do:

- 1) It will not open a loophole for true motorcycles to qualify for autocycle classifications.
- 2) It will not eliminate any motor vehicle currently considered an autocycle.

Arcimoto is asking for your support of SB 1291SD1! Thank you for your consideration!

Respectfully Submitted,

Joel Sheltroun
Arcimoto Governmental Affairs
joel@arcimoto.com 989.387.7551



LATE

Testimony of Kasandra Griffin, Forth
In Support of SB 1291 SD 1
March 24, 2021

Honorable Chair and Members of House Transportation Committee,

Thank you for the opportunity to speak in support of SB 1291.
This is a simple and good bill and we urge you to move it forward.

About Forth

Forth is nonprofit trade association that advances electric, smart, and shared mobility around the country and beyond through innovation, advocacy, engagement, and demonstration projects. representing electric and smart mobility. Forth has over 200 members from across the transportation electrification ecosystem. Our members include most auto manufacturers and charging equipment providers, as well as utilities, local governments, consulting firms, nonprofits and environmental organizations. More information is available at forthmobility.org.

Forth has been working with Arcimoto since 2011 to support their development and deployment of affordable, zero-emissions vehicles manufactured in the United States.

Vehicle electrification is critical

Transportation electrification is critical to meeting our climate goals. In order for Hawaii to meet its ambitious goal of being carbon neutral by 2045, Hawaii will need to electrify its vehicle fleet, while also decarbonizing your electricity supply.

Hawaii's definition of "Autocycle" and motorcycle helmet exclusions should apply

This bill is very simple and very appropriate. The existing "autocycle" definition and motorcycle helmet exclusions were based on the specifics of another three-wheeled vehicle. However, there is nothing about a steering wheel that makes a three-wheeled vehicle safer or easier to handle than one with handlebars. Similarly, the same safety standards that apply to jeep wranglers are used in the manufacture of the roll cage of Arcimoto vehicles. And who wants to be in a "fully enclosed" vehicle in Hawaii? This bill will allow a beneficial, American-made vehicle to be used in Hawaii without unnecessary hassles and hurdles, while still maintaining strict safety standards.

Thank you for the consideration and please move this bill forward.



2021 Legislative Session
Testimony of Brent Gale in
SUPPORT of SB 1291
March 2021

Testimony of Brent Gale
Before the House Transportation Committee
In Support of SB 1291

Honorable Chair and Members of the Committee:

Introduction - My name is Brent Gale, and I live at 307 Pualoa Nani Place, Wailea. I strongly SUPPORT passage of SB 1291 as passed unanimously by the Senate as a critical step toward reducing CO2 emissions in the transportation sector in our State. SB 1291 reflects language suggested by Hawai'i DOT and is supported by DOT. I am president and senior energy consultant for StrataG Consulting, LLC, a Hawai'i company. I have 45 years of experience in the energy industry and have previously submitted testimony before the Hawai'i Senate Transportation Committee and Judiciary Committee, the Hawai'i Public Utilities Commission and elsewhere. I have a juris doctorate and am licensed to practice law elsewhere but not in Hawai'i. I have not been retained by anyone to lobby this bill and am not being compensated for this testimony.¹

History - The objective of the supporters of SB 1291 has always been very simple; that is, to update Hawai'i law to allow electric vehicles with two front wheels and handlebars to be operated with a Class 3 driver's license. In the 2019 legislative, we supported SB 408, and in the 2020 session, we supported SB 2104. The latter bill passed the Senate Transportation Committee with DOT supporting but did not get through Senate Judiciary Committee before

¹ Disclosure: My wife and I have a modest 400 share investment in Arcimoto, an Oregon company that manufactures and sells 3-wheeled electric vehicles (EVs). We also own one of Arcimoto's EVs, the first in Hawai'i. The Arcimoto EV seats two people, meets all applicable federal standards plus federal standards for seat belt assemblies and roof crush resistance, has a range of over 100 miles per charge, has a top speed of 75 mph, has a miles per gallon equivalent of over 173, and uses a handlebar in its steering mechanism to reduce total weight. This EV was on Oahu in January 2020 to allow legislators and other interested persons to see it and ride in it. Because current HRS sections 286-2 and 286-102 only allow 3-wheeled EVs with handlebars to be operated by drivers possessing a motorcycle driver's license or 3-wheel endorsement, most legislators and interested persons unfortunately were only able to see and ride in the vehicle, not experience the pleasure and safety of driving it.

the session expired. SB 1291 this session reflects DOT's suggested language, is supported by DOT, and was passed unanimously in the Senate Transportation Committee, Senate Judiciary Committee and the full Senate.

Need for bill and purpose – Our State has identified reducing CO2 emissions as an essential strategic, environmental and public safety goal. Achieving meaningful CO2 reductions in the transportation sector will be very challenging,² and it is important to take reasonable steps now. Passage of SB 1291 is one very important step that we can take immediately, with minimal to zero impact on the State treasury. It will allow both residents and visitors the opportunity to rent or own 3-wheeled EVs (whether with a steering wheel or handlebars) and drive them with a general Class 3 driver's license, providing the State a critical non-CO2-emitting option to today's CO2-emitting mopeds, motor scooters, motorcycles and cars.³ In addition, passage of the bill is also important to facilitate the conversion to electric vehicles by fleet operators in this State. I do not believe that fleet operators would readily and voluntarily convert their fleets to electric vehicles if each of their drivers were required to obtain a motorcycle driver's license or 3-wheel endorsement to operate a 3-wheeled EV with handlebars.

² Achieving CO2 reductions in the transportation sector will be much more difficult than in the electric generation sector. In the electric generation sector, the CO2 emitting resources are almost exclusively owned by a few highly regulated and well financed entities. In contrast, CO2 emitting vehicles are owned by millions of individuals, the most polluting of which are owned by those who can't afford to, or choose not to, maintain their vehicles. It is not realistic to assume these individuals will or can spend \$30,000 or more to replace their polluting fossil-fueled, vehicles with electric-powered 4-wheeled sedans and SUVs, regardless of tax credits. Safe, stable and lower cost 3-wheeled EVs are a needed option.

³ The transportation sector is currently produces the largest share of greenhouse gas emissions in the U.S., more than 28 percent in 2018. Source: U.S. EPA, *Sources of Greenhouse Gas Emissions* (December 2020 Update). "Further, emissions from transportation grew 21 percent between 1990 and 2016, whereas emissions from the electric sector declined 1 percent over the same period. In fact, today's power sector emits the same amount of carbon dioxide as it did a generation ago, although it produces nearly 30 percent more electricity annually. These trends indicate the value of electrifying transportation as part of an overall decarbonization policy." Farnsworth, D., Shipley, J., Sliger, J. and Lazar, J. (2019, January). *Beneficial electrification of transportation*. Montpelier, VT: Regulatory Assistance Project, at 10.

The purpose of SB 1291 is simply to recognize emerging EV technology and add a narrow new category of vehicle which can be operated by drivers with a general Class 3 Hawai'i driver's license or the equivalent from another state or country. The category added is autocycles (3-wheeled vehicles as defined in HRS section 286.2) with handlebars. Currently under HRS sections 286-2 and 286-102, 3-wheeled vehicles with handlebars can only be operated on public highways by drivers possessing a Class 2 motorcycle driver's license or 3-wheel endorsement. This severely and unnecessarily restricts the sales and rental market potential of 3-wheeled EVs, and creates an impediment to Hawai'i fleet operators converting to these non-CO2 emitting vehicles. SB 1291 removes these unnecessary restrictions and impediments.

Many new 3-wheeled EVs will use handlebars rather than steering wheels because use of handlebars can materially reduce the weight of the total steering mechanism and other design elements without negatively impacting handling or safety. For example, the U.S. EV manufacturer I mentioned in footnote 1, Arcimoto, was able to reduce the weight of the 3-wheeled EV that I own to 1,300 pounds, a massive 600-pound reduction from the same vehicle equipped with a steering wheel and associated steering mechanism. Reducing vehicle weight to reduce consumer range anxiety without negatively impacting safety and performance is critical to the EV industry supplanting CO2-emitting vehicles and is a critical technological evolution the State should recognize by passing this bill.

If the current licensing impediments are removed by passage of SB 1291, I anticipate that 3-wheeled EVs will be very attractive in our State and actively rented or purchased by residents and visitors as a clean, safe alternative to fossil-fuel-powered, CO2-emitting mopeds, as well as CO2-emitting motor scooters, motorcycles, and even cars. By my calculations, every moped with a two-cycle engine emits 2.2 pounds of CO2 for every 10 miles driven. And thousands of mopeds are driven in our State every day, many of them by visitors. It is not reasonable to expect visitors will be willing or able to forfeit their state's driver's license in

order to secure a Hawai'i motorcycle driver's license or a 3-wheel endorsement as our statutes currently require. Instead, they will continue to rent combustion-engine-powered vehicles and continue to emit CO2.

Reasons a motorcycle license or 3-wheel endorsement is not required for public safety for 3-wheeled EVs – I was the first driver to take and pass the 3-wheel endorsement exams given by the DMV on Maui.⁴ The standard state DMV driving skills exam for 2-wheeled and traditional 3-wheeled motorcycles (i.e., one wheel in front and two in the rear) tests for principally four concerns: Can the driver (1) counter-steer at speed; (2) coordinate foot and hand movements to safely brake; (3) shift gears using a hand clutch and foot lever; and (4) avoid stalling. None of these concerns apply to 3-wheeled EVs with handlebars: (1) the driver does not/cannot counter-steer a front-wheel drive 3-wheeled vehicle, a fact acknowledged by the DMV manual; (2) 3-wheeled EVs like mine have a foot brake just like a car so hand/foot coordination is unnecessary for braking all wheels; (3) because they are electric, there is no need for clutching or shifting; and (4) an EV doesn't stall. Thus, the principal concerns which are the focus of the motorcycle and the 3-wheel endorsement exam don't apply, and a motorcycle license or 3-wheel endorsement should not be necessary.

I acknowledge the State has legitimate safety concerns that operators of all motor vehicles must possess the knowledge and skills to safely operate the vehicles they are driving. These concerns include handling/stability, turning, braking, shifting and seat belts. The focus of these concerns and the associated licensing law should not be on whether the particular vehicle has a steering mechanism that is circular (i.e., a wheel) or a bar (i.e., handlebars). Instead, the focus should be that 2-wheeled vehicles (including manual and motorized bicycles), as compared to 3-wheeled vehicles, are less stable, handle differently, require skill and balance

⁴ I want to acknowledge the willingness of DMV personnel to recognize that the standard layout of the driving exam for 2-wheeled vehicles and traditional (i.e., 2 rear wheels) 3-wheeled vehicles is not appropriate for 3-wheeled vehicles with two wheels in the front, whether the steering mechanism is a steering wheel or handlebars. None of my testimony is critical of DMV, whose representatives were uniformly excellent and helpful.

when turning, require experience with hand-braking, require experience with manual shifting, and lack safety belts. Consequently, a different set of licensing requirements for 2-wheeled vehicles is both defensible and necessary. But, a 3-wheeled EV with handlebars poses none of the unique concerns associated with the operation of 2-wheeled vehicles. Stability, handling, turning, and braking of a 3-wheeled EV with two widely-spaced driving wheels in the front are more comparable to a 4-wheeled, front-wheel-drive car than a motorcycle, notwithstanding the existence of handlebars.

Handlebars should not have any significant adverse impact upon vehicle safety; in fact, I find them more intuitive and responsive than a steering wheel. The existence of handlebars should not be the determining factor for whether a motorcycle Class 2 license or a general Class 3 license is required to operate a vehicle.

Summation - It is critical to provide consumers, particularly visitors renting vehicles, with a non-CO2-emitting option to mopeds, motor scooters, motorcycles and cars. Passage of SB 1291 will help do that. I truly believe 3-wheeled EVs, whether with handlebars or steering wheels, are the nearly perfect vehicle for our islands. In addition to having no CO2 emissions, 3-wheeled EVs can reduce traffic congestion, parking congestion, and imported gasoline and oil usage. EVs on average can convert 60 percent of electric energy into miles traveled, while internal combustion engines on average can convert only 20 percent of their energy source into miles traveled.⁵ Safe, quiet, non-CO2-emitting and compact, 3-wheeled EVs can help us make further progress toward our CO2 reduction goals while at the same time addressing part of our ever-increasing traffic congestion and parking problems but only if our State allows them to be operated by drivers with Class 3 driver's licenses or equivalent. Passage of this bill is critical to

⁵ Source: Farnsworth, D., Shipley, J., Sliger, J. and Lazar, J. (2019, January). *Beneficial electrification of transportation*. Montpelier, VT: Regulatory Assistance Project, at 8.

2021 Legislative Session
Testimony of Brent Gale in
SUPPORT of SB 1291
March 2021

this progress. Thank you for the opportunity to offer this written testimony. If it would be beneficial, I would be pleased to appear in person before the Committee to discuss SB 1291.

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