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February 4, 2021  
3:00 P.M.  
State Capitol, Teleconference

**S.B. 1291**  
**RELATING TO TRANSPORTATION**

Senate Committee on Transportation

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The Department of Transportation **opposes** S.B. 1291 that changes the definition of “Autocycle” that currently requires a steering wheel and seating that does not require the operator to straddle or sit astride, to be amended to allow for the motor vehicle to have either a handlebar or steering wheel.

The American Association of Motor Vehicle Administrators (AAMVA) is a non-profit organization whose membership includes Hawaii and all 51 U.S. jurisdictions, U.S. Territories, and Canada. AAMVA published a best practices document on regulating three-wheeled vehicles. AAMVA is the primary resource that Hawaii and other states rely on for foremost guidance relating to motor vehicle and driver’s licensing topics. The best practices document clearly explains that one of the major characteristics that distinguish a 3-wheeled motorcycle from an autocycle is that the autocycle has a steering wheel and the 3-wheeled motorcycle uses a handlebar.

In addition to requiring the steering wheel and seating configuration, several states have included the requirement of foot pedals. Similarly, we recommend that the “Motorcycle” definition in Section 1 be amended to remove the handlebar inclusion and instead require foot pedals. The amended definition of “Autocycle” to include foot pedals will better match the operation of passenger vehicles that are equipped with a steering wheel and foot pedal controls. This is significant because autocycles require a passenger vehicle driver’s license and testing must be performed in a passenger vehicle. We suggest the following amendment to Section 1, Subsection (2) of the bill’s “Motorcycle” definition to instead read:

“(2) Every motor vehicle that has a steering wheel~~[-or handlebar]~~, foot pedals and seating that does not require the operator to straddle or sit astride on it, is designed to travel on three wheels in contact with the ground, and is called an autocycle, which is certified by the manufacturer to comply with all applicable Federal Motor Vehicle Safety Standards as of the date of manufacture.”

The AAMVA Best Practices for the Regulation of Three-Wheeled Vehicles further states, "The mass of a three-wheel motorcycle is beneath the operator and therefore has a direct connection to the way the vehicle handles. This is a break-point between three-wheeled vehicles and autocycles because the mass of an autocycle is spread out either above or at the same height as the operator. Autocycle operators are within the vehicle they are operating and do not have to worry about their location on the vehicle or positioning themselves when cornering or stopping." The best practices document further recommends that the differences mean three-wheeled motorcycles and autocycles should have different types of operating licenses which is already established in statutes.

Section 2 of the bill amends when a safety helmet is not required for operators or passengers in a motorcycles and motor scooters by adding the term "partial" body enclosed cab. It is unclear as to what cab design is being intended to be included for a partial body enclosed cab and we recommend that the term "partial enclosed cab" be explicitly defined. As examples, is a motorcycle with just a windshield and no roof or doors, a roof but no doors, or just doors without a roof or windshield, are what is to be included as a partial enclosed cab?

Thank you for the opportunity to provide testimony.



Testimony of Joel Sheltroun, Governmental Affairs

In Support of SB 1291

Honorable Chair and Members of Transportation and Energy Committee:

Introduction:

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 sustainable, affordable transportation that is a pleasure to drive. It's 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, and energy absorbing zones to lessen impact forces in a collision.

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, a regular Class D license is all that should be necessary for operation. No balancing, leaning into the curve, shifting and clutching are required as in motorcycles. Unnecessary motorcycle endorsement requirements will reduce rentals and sales of our vehicle. Making the changes in SB1291 will help facilitate a successful launch of Arcimoto in Hawaii.

Hawaii's helmet law creates a dangerous situation operators and passengers (required under the age of 18). The lap and shoulder seat belts hold the torso against the seat, but the head (with the helmet adding 30% more weight to the head) flies forward in a frontal collision. This can result in severe whiplash or death, even at speeds as slow as 30 MPH. There is no need for a helmet with a roof and roll cage protecting operator and passengers.

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 1291. Thank you for your consideration.

Warmest regards,

Joel Sheltroun  
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Testimony of Brent Gale  
In Support of SB 1291/HB 717

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 companion bills SB 1291 and HB 717, as introduced, as a critical step toward reducing CO2 emissions in the transportation sector in our State. 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, 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.<sup>1</sup>

**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,<sup>2</sup> and it is important to take reasonable steps

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<sup>1</sup> 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.

<sup>2</sup> 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,

now. Passage of these bills 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.<sup>3</sup>

The purpose of companion bills SB 1291 and HB 717 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 SB 1291/HR 717 removes that unnecessary restriction.

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

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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.

<sup>3</sup> "The transportation sector accounts for a significant portion of US greenhouse gas emissions, roughly 28 percent in 2016. 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.

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 CO<sub>2</sub>-emitting vehicles and is a critical technological evolution the State should recognize by passing these bills.

If the current licensing impediments are removed by passage of these bills, 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, CO<sub>2</sub>-emitting mopeds, as well as CO<sub>2</sub>-emitting motor scooters, motorcycles, and even cars. By my calculations, every moped with a two-cycle engine emits 2.2 pounds of CO<sub>2</sub> 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 CO<sub>2</sub>.

**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.<sup>4</sup> 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;

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<sup>4</sup> 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.

(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 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 these bills



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.<sup>5</sup> 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 these bills is critical to 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 these bills.

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

**SB-1291**

Submitted on: 2/3/2021 8:44:02 AM

Testimony for TRS on 2/4/2021 3:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Dean Shimabukuro	Individual	Support	No

Comments:

I am a resident of Waipio Gentry on Oahu and have owned and been driving an Electric Vehicle since 2020.

I left the Auto retail industry in 2019 after nearly 40 years and I have seen much development in the design of automobiles.

I am convinced that electric vehicles will become the dominant choice in the market soon and will influence manufacturers to shift their focus away from vehicles with internal combustion engines (so-called "ICE cars"). The rental market will also follow and, therefore, I think this Bill will place Hawaii in line with with market trends that are presently developing.

However, classifying all vehicles with handlebars used for steering as motorcycles will restrict their involvement in the market and in particular, Hawaii's rental car market, which serves our tourism industry.

Mahalo,

Dean Shimabukuro

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