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KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

**Testimony of  
LEAH LARAMEE  
Climate Change Coordinator on behalf of  
Climate Change Mitigation and Adaptation Commission  
Co-Chair Ryan K. P. Kanaka'ole**

**Before the House Committee on  
TRANSPORTATION**

**Tuesday, March 24, 2026  
9:00 AM  
State Capitol, Conference Room 430**

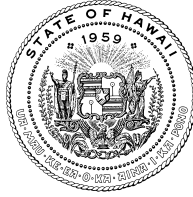
**In consideration of  
SENATE BILL 2999, SENATE DRAFT 1, HOUSE DRAFT 1  
RELATING TO A CLEAN FUEL STANDARD**

Senate Bill 2999, Senate Draft 1, House Draft 1 proposes to require the Department of Transportation to adopt rules by January 1, 2028 governing a clean fuel standard for alternative fuels in the State, **The Hawai'i Climate Change Mitigation and Adaptation Commission (Commission) supports this measure.**

The Commission consists of a multi-jurisdictional effort between 20 departments, committees, and counties with the purpose of promoting ambitious, climate-neutral, culturally responsive strategies for climate change adaptation and mitigation.

Setting a clean fuel standard will reduce carbon pollution from transportation, the largest source of greenhouse gas (GHG) emissions in Hawai'i by reducing these emissions from the production and supply of transportation fuels. Washington, California, Oregon New Mexico, and British Columbia, Canada, have adopted clean fuel standards. In California, renewable natural gas (RNG) made up just 5.1% of all on-road alternative fuels and generated 19.2% of all CO2 equivalent reductions of on road alternative fuels. In addition to reducing GHG emissions, clean fuel standards diversify the transportation fuel supply and improve public health. Clean fuel standards provide economic opportunity and can create jobs associated with the production and delivery of new fuels. Clean fuel standards look at life cycle emissions, not just tailpipe emissions ensuring that truly clean fuels are identified.

Mahalo for the opportunity to comment on this measure.



EXECUTIVE CHAMBERS  
KE KE'ENA O KE KIA'ĀINA

JOSH GREEN, M.D.  
GOVERNOR  
KE KIA'ĀINA

**House Committee on Transportation**

Tuesday, March 24, 2026

9:00 a.m.

State Capitol, Conference Room 430 and Videoconference

**In Support**

**Senate Bill No. 2999 SD1 HD1, Relating to a Clean Fuel Standard**

Chair Kila, Vice Chair Miyake, and Members of the Senate Committee on Transportation:

The Office of the Governor **supports** S.B. No. 2999 SD1 HD1, Relating to a Clean Fuel Standard.

SB2999 SD1 HD1 advances our State's climate and energy objectives by requiring the Department of Transportation to implement a program that gradually reduces the carbon intensity of transportation fuels. This measure establishes a necessary timeline, with initial reductions beginning in 2035 and more significant reductions by 2045.

Building a clean energy future has remained a top priority of this administration. Since taking office in 2022, several measures have been enacted into law, including SB691 (Act 224), HB192 (Act 225), and SB1024 (Act 226), to strengthen efficiency standards, protect the environment, and expand opportunities for collaboration. These actions reflect the State's ongoing commitment to achieving one hundred percent clean energy by 2045.

This measure establishes a market-based framework through a credit and deficit system in which lower emission fuels generate credits and higher emission fuels generate deficits. It authorizes credit trading, banking, and optional participation for certain sectors, encouraging flexibility while fostering innovation across the energy market.

The bill also includes appropriate exemptions for aviation, military, rail, and maritime uses. In addition, it incorporates cost containment measures, coordination with other states, and periodic updates to emissions modeling to ensure that the program remains effective and adaptable over time.

Testimony of the Office of the Governor  
S.B. No. 2999 SD1 HD1  
March 24, 2026  
Page 2

Transitioning to sustainable energy may be challenging, but it is vital to protecting our natural resources. SB2999 SD1 HD1 takes a significant step toward achieving the State's energy goals while preserving Hawaii for future generations.

Mahalo for the opportunity to provide testimony on this measure.



House Committee on Transportation  
Representative Darius K. Kila, Chair  
Representative Tyson K. Miyake, Vice Chair

March 24, 2026  
9:00am  
Conference Room 430

Aloha Chair Kila and Vice Chair Miyake:

On behalf of Clean Energy, I would like to express **strong support for SB 2999** which would require the Department of Transportation to adopt rules governing a clean fuel standard for alternative fuels in the state of Hawaii.

Our company was a foundation stakeholder since a CFS was conceived in the respective California, Oregon, New Mexico and Washington processes. Each of these states has been a success and we believe it will be a success in Hawaii as well. As North America's largest provider of renewable natural gas (RNG) transportation fuel with over twenty-nine years of leading industry experience, Clean Energy provides construction, operation and maintenance services for refueling stations nationwide. We have a deep understanding of the growing marketplace, as our portfolio includes over 600 stations in 43 states and we deliver liquified natural gas to Hawaii's utility and built a fuel station in Honolulu.

Already used as a clean, low carbon source of energy around the world, RNG is proven to be a cost-saving alternative fuel to diesel and gasoline. RNG for transportation fuel strengthens our economy with lower fuel costs, increases our energy security, and significantly benefits our environment by reducing carbon emissions and smog-forming NOx emissions by up to 300% and 99%, respectively, relative to diesel fuel.

As we have seen in California, this approach will not significantly raise fuel prices. Recent analyses show that retail fossil fuel prices are strongly influenced by many factors (e.g., global events, holiday weekends, seasonal fluctuations, refinery disruptions and decisions about production that affect supply, refinery pricing decisions, seasonal fuel blends, and taxes) and fossil fuel producer pricing strategies are complex, reflecting local and regional market conditions. **As the California Air Resources Board has noted: "The reality is that the actual cost pass-through from LCFS to retail gasoline or diesel prices is uncertain, that there is no correlation between historical LCFS credit prices and gasoline prices, and that the LCFS is not a major driver of overall retail fuel prices in California."**


The CFS is a cost-effective critical tool not only to effectively meet carbon emission reduction targets, but also as a mechanism that fosters technological innovation, supports a robust market for alternative fuels, provides long-term investment certainty and stimulates job creation and investment.

In addition, the CFS could provide compliance flexibility to producers of high carbon intensity transportation fuels to either invest in low carbon alternative fuels or to purchase credits from low carbon fuel producers. This market-based program enables regulated parties to make their own choice as to whether to invest in low carbon fuels directly or to continue to sell purely high carbon emitting fuels.

For example, California's LCFS is working: it's helping deliver clean air, good jobs and clean energy choices to all Californians and has strengthened the demand for low carbon fuels. California is the fourth-largest economy in the world: we can have clean fuels and grow our economy. The CFS is a powerful tool for supporting the commercialization of the fastest broad-market transitions to clean and low-carbon technologies.

Our company is a prime example of success from clean fuel standards and we look forward to continuing this success in Hawaii. **Please support SB 2999.**

Sincerely,

A handwritten signature in blue ink, appearing to read "Ryan Kenny". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Ryan Kenny  
Policy Director – Western U.S.  
Clean Energy



March 24, 2026

**COMMENTS TO  
SB 2999 SD1 HD1  
RELATING TO A CLEAN FUEL STANDARD**

House Committee on Transportation  
The Honorable Darius Kila, Chair  
The Honorable Tyson Miyake, Vice Chair

Tuesday, March 24, 2026, 9:00 a.m.

VIA VIDEOCONFERENCE  
Conference Room 430  
State Capitol  
415 South Beretania Street

Chair Kila, Vice Chair Miyake, and Members of the Committee,

Island Energy Services, LLC ("IES") offers the following comments on SB2999, SD1, HD1 which proposes the implementation of a Clean Fuel Standard (CFS) for Hawai'i.

The CFS program's flexibility is a key factor in its potential success. By allowing producers to choose how they reduce emissions, whether using renewable fuels or the acquisition of credits—it empowers the market to drive innovation. The program's technology neutral stance further encourages the introduction of new and diverse renewable fuels to the market.

The CFS program treats both local renewable production and renewable fuel imports equitably when considering the carbon intensity. We very much support in-state production of biofuels, however imports will need to be part of the fuel solution to enable Hawaii to meet its long range decarbonization goals and this CFS program allows imports for that to be possible.

Hawaii should be aligning carbon regulations with the other western states and Canada (CA, OR, WA, BC) given its geographic location and market dynamics to create a level commercial playing field. Hawai'i will be in direct competition with the U.S. West Coast states and British Columbia

for renewable fuels and without a carbon pricing or similar CFS program, Hawai'i will be at a distinct commercial disadvantage to attract renewable fuels.

The CFS program is an equitable way to drive carbon intensity down across end-users. IES believes that CFS programs are a more equitable way to drive carbon intensity down rather than tax-based programs. CFS programs burdens the users of the fuel rather than unfairly burdening the taxpayers of Hawaii.

Given the requirements outlined in the Navahine v. Hawaii Department of Transportation settlement to address climate concerns in the transportation sector, IES believes that fuels for intrastate marine vessels should be included in the program as well. As written, the current bill allows for exemptions for diesel, gasoline, or other fuels used by aircraft, railroad locomotives, military vehicles, and interstate waterborne vessels.

We thank the House Committee on Transportation for hearing this bill and thank you for the opportunity to testify.

Albert D.K. Chee, Jr  
Executive Vice President Island Energy Services, LLC



House Committee on Transportation  
Representative Darius K. Kila, Chair  
Representative Tyson K. Miyake, Vice-Chair

March 24, 2026  
9:00 a.m.  
Conference Room 430

Thank you for the opportunity to submit testimony in strong support of SB 2999\_SD1\_HD1. My name is Cristina Cornejo and I am the Sr. Public Affairs Manager for Neste, the world's leading producer of sustainable aviation fuel and renewable diesel.

A Clean Fuel Standard (CFS) for Hawaii is an essential policy that will enable the state to meet its decarbonization goals, while reducing air and water pollution from the use of fossil fuels in our transportation system. Similar CFS programs have been implemented in California, Oregon, Washington, and Canada. Most recently, New Mexico enacted a CFS in March 2024 that will begin later this year. In addition, there are currently more than 10 additional states considering CFS policies, due to their effectiveness.

SB 2999\_SD1\_HD1 is NOT a mandate, nor is it a tax credit, but rather it is an incentive program designed to promote the decarbonization of all transportation fuels. CFS policies drive the adoption of lower-carbon transportation technologies, resulting in advanced competition and a diversity of fuel options for consumers. As an example, consumers in California have gone from 2 fuel types (gasoline and diesel) to more than 7 fuel types (gasoline, diesel, renewable diesel, electric, ethanol, biodiesel, hydrogen, and renewable compressed natural gas). This policy also drives substantial new investments in electric vehicle charging and hydrogen infrastructure at no cost to taxpayers.

One crucial element of a CFS is that it is a technology neutral policy that allows consumers to decide what fuels work best for them and their businesses. All transportation fuels can partake in a clean fuels market, and the policy is flexible enough to allow for new technologies that will come online in the future.

Another key component of SB 2999\_SD1\_HD1 is that it utilizes an independent third-party, science-based evaluation for all transportation fuels. The policy uses the GREET model, which was created by Argonne National Laboratory and is the worldwide standard methodology to calculate the carbon intensity of a given fuel. This model assesses fuel on a well-to-wheel basis and considers the full life cycle of a fuel to determine its carbon intensity (CI) score. This ensures that all fuels are scored on an equal playing field, and the winners are those fuels with the lowest possible carbon intensity score. It incentivizes cleaner fuels while letting technologies compete.



In conclusion, a clean fuel standard is the most effective policy in reducing carbon emissions from the transportation sector by incentivizing the production and availability of lower carbon fuels. The State of Hawaii deserves access to cleaner fuels and protection of its treasured natural resources. SB 2999\_SD1\_HD1 is a significant piece of the decarbonization puzzle and we at Neste are proud to support this pivotal policy.

Cristina Cornejo, Sr. Public Affairs Manager, Neste

Phone: (361) 701-9922

Email: [cristina.cornejo@neste.com](mailto:cristina.cornejo@neste.com)

#### *Neste Background*

*Neste (NESTE, Nasdaq Helsinki) creates solutions for mitigating climate change and accelerating a shift to a circular economy. The company is the world's leading producer of sustainable aviation fuel (SAF) and renewable diesel, enabling its customers to reduce their greenhouse gas emissions. Neste refines waste, residues and other renewable raw materials to high-quality renewable fuels at its refineries located on three continents. The company's annual renewable fuels production capacity will be increased to 6.8 million tons in 2027.*

*Neste has high standards for sustainability, and the company has consistently been recognized by several leading sustainability indices.*



House Committee on Transportation  
Representative Darius K. Kila, Chair  
Representative Tyson K. Miyake, Vice-Chair

March 24, 2026

9:00 a.m.

Conference Room 430

Pump Cleaner Fuels Hawai‘i is grateful for the opportunity to express **strong support** for **SB2999\_HD1** to implement a HI Clean Fuel Standard (CFS). The CFS is a strong, reliable, and proven policy mechanism that addresses fuel emissions while enhancing energy security, resilience, and economic prosperity. SB2999\_HD1 represents a pragmatic, actionable plan to decouple emissions from economic growth and feasibly transition Hawai‘i to a renewable economy.

Hawai‘i’s dependence on the transportation sector underscores the critical importance of prioritizing the industry’s economic output and long-term resilience. With current reliance on imports to supply fuels, a CFS will reduce Hawai‘i’s vulnerability to supply chain disruptions, geopolitical uncertainty, and volatile global fuel prices. By slowly requiring reductions in the lifecycle emissions of transportation fuels over time, SB2999\_HD1 offers a flexible approach that allows market participants to utilize the most cost-effective strategies to address greenhouse gas emissions.

Clean Fuel Standard–like programs in California, Washington, Oregon, and throughout Canada have created markets where consumers are protected, economic growth is strong, and emissions are declining year over year. States with these policies have benefited from the deployment of electric charging infrastructure, private investment, job creation and protection, and significant public health benefits through reduced air pollution. Hawai‘i has the opportunity to replicate these benefits through the passage and implementation of this program.

SB2999\_HD1 aligns with Hawai‘i’s climate and economic goals and utilizes a private market approach rather than a mandate or a tax. For these reasons, I respectfully urge the Committee to pass SB2999\_HD1.

Sincerely,

Liat Carlyle



3/24/26

## **Testimony in Support of SB 2999–House of Representatives, Committee on Transportation**

As a manufacturer of electric vehicles and EV charging infrastructure, **Rivian is pleased to support SB 2999**. A clean fuel standard, or “CFS,” is a proven policy that can catalyze growth in the EV sector.

Clean fuels policies create new markets that marshall private capital for accelerated investment in the provision and use of clean fuels like electricity—without requiring substantial new budget commitments and annual appropriations.

For the EV industry, the benefits of a clean fuels standard are many.

- A CFS harnesses market forces, creating powerful incentives for the use of a portfolio of clean fuels, including electricity.
- For example, under a CFS charging providers can create significant monetary value through charging activity, a powerful “pull” factor encouraging further investment in charging networks.
- Done right, the policy could also support EV sales across the light- and medium-/heavy-duty sectors—complementing the state’s ambitions to grow the EV market in Hawai’i.

The EV industry is eager to invest and grow our market in Hawai’i. While we believe SB 2999 can be even stronger with the benefit of some targeted amendments, Rivian expresses its support for the bill.

Comments before  
March 24, 2026 House Committee on  
Transportation

**OPPOSING  
Senate Bills 2999**

Relating to “Clean Fuels” Standard

Mike Ewall, Esq.  
Founder & Executive Director  
Energy Justice Network  
215-436-9511  
mike@energyjustice.net  
[www.EnergyJustice.net](http://www.EnergyJustice.net)

Aloha Honorable Committee members. Energy Justice Network is a national organization supporting grassroots groups working to transition their communities from polluting and harmful energy and waste management practices to clean energy and zero waste solutions. In Hawai‘i, we’ve been working with residents, members and member groups since our support and involvement was first solicited in 2015.

**We’d love to see Senate Bill 2999 deferred indefinitely. However, should you choose to advance this bill, we ask that you at least consider amending it to avoid some of the major harms associated with the burnable fuels involved, most of which are more (or just differently) harmful than the fossil fuels they’d replace.**

**Here are some high-level suggestions for amendments:**

- 1) Remove eligibility of fuels produced from solid wastes such as municipal solid waste (household and commercial trash) or construction and demolition (C&D) wastes unless it can be demonstrated that the feedstocks have no greater concentrations of halogens or toxic metals (like arsenic) than the conventional fossil fuels or biofuels that they would replace.
- 2) Limit the bills to supporting only in-state production of biofuels, and only after demonstrating that land and water resources used are unable to be used for in-state food production.
- 3) Limit the scope to what is required in state law. Note that [HRS §225P-8](#) mandates zero emissions by 2045 of greenhouse gases from “ground transportation and sea and air interisland transportation” – *not* fuel for intercontinental flights (which is also subject to federal preemption and commerce clause litigation).
- 4) Put any subsidies and tax credits toward electrification (like seaglidors for interisland travel) instead of into burnable fuels to avoid a prohibitively expensive double-transition by 2045.

**Why are we opposed to this bill?**

**Faulty Greenhouse Gas (GHG) accounting:** Biofuels look like a climate solution only because of biases in carbon accounting systems and life cycle assessments. There is a long-standing controversy over whether biofuels production uses more energy than it produces. The incredible amount of fossil fuel resources, land, water, fertilizer, chemicals, and other production systems needed to replace fossil fuels is enough to raise the question over whether it even makes sense to replace fossil fuels with biofuels – fuels that, are still carbon based and will still release GHGs when burned.

The incentives would be based on assessing the fuels for their “lifecycle greenhouse gas emissions.” There are many flaws and biases in greenhouse gas (GHG) accounting that cause plant-based (biomass/biofuels) and waste-based feedstocks to be assumed to be “carbon neutral,” even though there is a credible scientific debate over this controversy going for over two decades. Some of the science shows biofuels such as corn-

based ethanol to consume more fossil fuels than they displace. The very existence of a debate over this shows that the “net energy” of biofuels are close enough to 1:1 that there can even be a scientific dispute over it. If biofuels require about as much fossil fuel (to grow, process, and transport) as they displace, there is no point subsidizing them and building new infrastructure to support a system that is not really an improvement.

As our comments on HDOT’s 2025 Draft Energy Security & Waste Reduction Plan summarize, the GREET model used in this legislation is fundamentally flawed, and makes biofuels look like a climate solution by improperly accounting for indirect land use change. Leading climate scientists have described this in this 2024 paper that our comments cite:

Berry, S., Searchinger, T., & Yang, A., “Evaluating the Economic Basis for GTAP and Its Use for Modeling Biofuel Land Use,” Yale Tobin Center for Economic Policy, March 19, 2024. A full copy of the article is available at <https://www.energyjustice.net/fuels/gtap.pdf>

Find this 32-page paper summarized on pages 10-12 of our [comments to HDOT](#), attached.

**It would have the state violate the legal settlement in *Navahine F. v. Hawaii Department of Transportation*.** This settlement requires that the State achieve a goal of zero greenhouse gas emissions across all transportation modes within the State, including ground transportation and sea and air interisland transportation no later than 2045. This is not possible if biofuels or waste-based fuels are part of the mix, as they are not carbon free.

Calling it “clean fuel” or “sustainable aviation fuel” (SAF) does not make it clean. There is not enough land and water to grow a significant amount of biofuels in-state. The biotech industry keeps testifying in favor of biofuels bills because they know genetically modified enzymes and crops will be involved, risking biosecurity if grown or processed in-state. It is clear that most of this “clean fuel” will be imported big ag monocrop (mostly GMO) biofuels from the Americas, and that much of what would come from in-state is from toxic waste-to-fuels schemes like Aloha Carbon’s plan to try to gasify construction and demolition waste in Campbell Industrial Park on O’ahu... using wood that the Hawaii Natural Energy Institute documented to have 200 times as much arsenic as clean wood.

There are no green alternatives for intercontinental flights and this falls outside of the *Navahine F.* settlement scope and the scope of state laws the settlement aims to enforce. Interisland flights can best be decarbonized by switching to a combination of electric ferries and electric seaglidgers which can be powered by clean electricity sources like wind and solar. There is no need to be building infrastructure for differently dirty fuels that will involve companies that later lobby to prevent the transition to clean options we can start adopting now.

**Production will not be local:** As was discussed in the 1/29/2025 Joint Hearing on SB 995 before the Senate Energy and Intergovernmental Affairs and Agriculture and Environment Committees, the Department of Agriculture testified to the fact that there simply is not sufficient land or water to have a significant biofuels production industry within the state. This means that most of the production will come from the continent, predominantly the Midwestern states, and from South America, defeating the goal of establishing biofuels as a home-grown industry.

**Competition with food:** The same Senate hearing exposed how growing crops for biofuels in Hawai’i would take up land and water needed for the state’s own food security goals to have more food grown in-state.

**Genetic engineering:** The Biotechnology Industry Organization regularly submits testimony in favor of biofuels bills, yet fails to be transparent about their motivation. Clearly, they expect to have genetically engineered crops and/or enzymes used for the production of supposedly “sustainable” aviation fuels. This raises many biosecurity concerns, as well as concerns over increased herbicide spraying, since most genetically modified food crops are modified to withstand increased herbicide use.

**Toxic waste streams as feedstocks:** At least two companies are pursuing goals of producing fuels in the state using contaminated waste streams like construction and demolition waste. This is terribly polluting and even if the toxic metals and dioxins/furans do not end up in the fuel, they’ll end up in the air, water, and/or waste byproducts at the in-state production facilities being proposed. More on the toxics concerns below.

**Finances:** The rather costly fuels are not competitive and are inherently quite expensive. If they were truly clean, one could argue that the expense is worth it, but a state mandate would have to be stacked with multiple federal subsidies to make it remotely feasible. However, those [federal subsidies](#) are vanishing as we speak under the Trump administration and [cannot be expected](#) to carry the day.

**Sustainable Aviation Fuel does not exist:** There is no clean or sustainable way to produce a burnable fuel from raw resources and turn it into air pollution when burned. It is inherently not sustainable or circular. There is one approach that comes close to being sustainable or circular, and that is the approach advanced by Feather Fuels and by Twelve Benefit Corporation, one of the companies testifying in favor of “clean fuels” bills. That involves using wind or solar electricity to pull carbon dioxide out of the air, and to also electrolyze water to obtain hydrogen, then use Fischer-Tropsch gas-to-liquids technology to turn the carbon dioxide and hydrogen into a burnable hydrocarbon fuel. This combination of very expensive and energy intensive technologies is rather experimental and has not been done at scale. It could be good to experiment with and prove up as a technology that could make sense in 20 years, but it makes no sense to use clean wind and solar energy on this approach, when wind and solar can decarbonize things much faster and more efficiently if used to replace the burning of oil, biofuels, trash, and trees in the state’s electric grid, and then to eliminate oil and gas in transportation by electrifying that sector. More on this not being the right time below.

## Toxicity concerns

Biofuels are impractical and unaffordable to produce in-state. The main efforts to make “sustainable” aviation fuel in the state involve waste-based fuels. There are plans to gasify construction and demolition debris to make burnable aviation fuels on O’ahu. This is part of an array of experimental incinerator-like technologies that aim to convert waste into fuels. These waste-to-fuels (WTF) technologies usually start with pyrolysis or gasification – technologies that, when the resulting gases are burned, are [defined and regulated](#) by EPA as municipal waste combustors (waste incinerators). Typically, these two-stage technologies will replace the second stage (burning the gases) with a liquefaction stage, to make liquid fuels to be burned elsewhere. This is known as Fischer-Tropsch gas-to-liquids technology, named after the two German scientists who developed the ability to make oil from coal by gasifying, then liquefying it.

These are toxic and dangerous technologies that are experimental and often fail both technically and economically. When fuels are burned off-site in land vehicles or for air travel, they are not subject to the sorts of air pollution controls that can be applied to a centralized facility with a single smokestack. Even when such a facility burns the gasified waste on-site with the full complement of air pollution control devices, waste incineration is still [dirtier](#) than burning coal for the climate as well as for most other air pollutants. This is even *with* all four air pollution control systems that waste incinerators should have (note that H-POWER’s two older burners are missing half of these four control systems, though their third burner has all four).

Unlike coal, construction and demolition (C&D) waste is very heterogenous, which can be comprised of steel, concrete, brick, lumber, plaster, empty paint cans, asphalt, wire, shingles, and much more. Pyrolysis and gasification technologies do not work well on heterogenous fuels. They break down constantly and operate only in batches. These finicky technologies require very homogenous fuels. Even those trying to process scrap tires fail repeatedly, because tires are not homogenous enough for pyrolysis. Even the nation's top cheerleader for tire burning, a spokesperson for the Rubber Manufacturers Association, once stated that "scores of start-ups have tried and failed to make money from tire pyrolysis. The road is littered with the carnage of people who were trying to make this technology viable."

These technologies have been unable to operate at commercial scale, and typically are garage-scale pilot projects that go nowhere. This trend has led the nation's leading incinerator-promoting solid waste consulting outfit, GBB, to [classify](#) the technology as "high" risk due to "previous failures at scale, uncertain commercial potential; no operating experience with large-scale operations" (pyrolysis) and "limited operating experience at only small scale; subject to scale-up issues" (gasification).

Hawai'i has been targeted in recent years by quite a few fly-by-night companies aiming to cash in on state and federal subsidies to satisfy the desire for sustainable aviation fuels while making waste streams go "away." Companies like Aloha Carbon and Yummet prey upon uninformed public officials who don't have time to research the track record of this industry, the toxic hazards associated with it, or the better alternatives.

Regarding toxic hazards, please see this heavily-cited (92 footnotes) six-page overview I wrote on the [toxic pollution issues associated with construction and demolition \(C&D\) waste incineration](#). While the paper focuses on direct incineration, many of the same principles apply, as the high temperature processes used in WTF technologies still release toxic metals while producing new toxic pollutants such as [dioxins and furans](#), the most toxic chemicals known to science.

C&D waste contains many toxic ingredients. There are chlorine sources in wood treatment chemicals like pentachlorophenol, and in PVC plastics in C&D waste. Painted wood can contain lead and mercury, while treated wood can contain other toxic metals, namely arsenic, chromium, and copper. [Testimony](#) on House Bill 976 of 2025 from the Hawaii Natural Energy Institute (on pages 43-44 of the testimony packet), affirms high levels of arsenic, chromium and lead in C&D waste, with [arsenic concentrations 200 times higher than clean wood](#). Their research also shows high levels of hydrochloric acid, copper and zinc from C&D waste, but doesn't point out a significant conclusion about this – that numerous [published studies](#) show that copper and zinc serve as catalysts for dioxin formation. [Dioxins](#) are the most toxic chemicals known to science and are formed in processes like those used to make these "sustainable" aviation fuels, where you have hydrocarbons, halogens like chlorine, and medium-high temperatures that are perfect for dioxin formation. These ultratoxic chemicals rapidly bioaccumulate and concentrate in meat and dairy products where 92% of human exposure comes from. Even if these emissions are blown out to sea, they concentrate and come back in the form of seafood.

## **Not the right time**

### **Prioritizing Conservation and Efficiency**

Transportation fuels should first be tackled by prioritizing a reduction in the need for unnecessary travel, then more efficient transportation. After prioritizing these, electrifying transportation is the best solution so that

combustible fuels can be avoided entirely. Any system that relies on extraction of resources, burning them up, polluting the air, and having to dispose of wastes is not sustainable. For long-distance flights where electrification may not become possible, perhaps hydrogen has a role, but not until the electric grid is cleaned up and we have *extra* wind and solar available for truly green hydrogen production.

### **No Such Thing as Transition Fuels**

Burnable fuels are not a long-term option, as they are not clean or sustainable, no matter whether they're "biofuels" or waste-based. Any such move is in-between the present and the arrival of clean, non-burn options. Such fuels are often called "transition" fuels. However, the concept of a transition fuel is that we can go from A to B to C, as if B helps us get to C. However, transition fuels have different infrastructure and their own economic weight that causes them to stand in the way of a future transition to clean options.

By the time we finish transitioning the energy sectors that we have clean, non-burn solutions for, long-distance air travel will probably have viable solutions we can focus on to complete the job. However, investments in "differently bad" fuels are an economic investment dead-end, requiring another transition later, wasting time and money needed to do the proper transitions in other energy sectors. In fact, the notion of "transition" fuels is a false one, since it entails investing in infrastructure that could last for 30+ years. No company developing so-called "transition" infrastructure, and trying to amortize their investment, is going to step aside in 5-10 years when something cleaner comes along. They're going to fight to stop the transition to cleaner options to protect their investment. In this sense, it's dangerous to steer resources into false solutions such as waste-based burnable transportation fuels.

### **Prioritize the Energy Sectors That Have Clean Alternatives**

There are [three sectors of energy consumption](#): electricity, transportation, and heating. Transportation can be broken down into land, sea, and air. Heating is broken down in federal energy reporting as industrial, residential, and commercial/institutional sectors of use.

Just as there are preferable non-burn solutions for every waste management need, there are clean non-burn solutions for nearly every energy sector, though long-distance commercial passenger aviation is not there yet.

Cleaning up these energy sectors should start with solutions we already have, without trying to solve the most unsolvable sector by replacing one type of burnable fuel (petroleum-based aviation fuel) with differently bad burnable fuels (crop-based biofuels) or even more hazardous types of burnable fuels (waste-based fuels).

Since the way to clean up the transportation and heating sectors is to electrify them so that they can run on wind and solar without burning anything, it's critical to clean up the electricity sector first, and faster, since electricity demand will grow as the other energy sectors are electrified. Electricity production is easiest to fully transition to non-burn technologies – mainly solar and wind with energy storage, which are becoming the cheapest options over time. The state's renewable portfolio standard (RPS) aims to transition the electricity sector to "renewable" sources by 2045, but still counts some combustion sources as renewable – the worst of them being solid fuel combustion (burning of trash and trees). [SB 680](#) aimed to clean up the RPS starting by removing solid fuel combustion sources, which will speed up the implementation of solar, wind, and energy storage.

The heating sector is dominated by industrial heating, which is increasingly possible to electrify, while residential and commercial space heating and cooking needs are easily electrified. Electric stoves and heat pumps for space heating can be incentivized.

The transportation sector is easily electrified for land-based travel. International shipping is now possible with [electric ships](#) (see also [here](#) and [here](#)). The hardest sector to make non-burn is long-distance air travel, though inter-island air travel can now be electrified with [sea gliders](#), as Hawaiian Airlines has been exploring.

While waiting for good non-burn solutions to powering long-distance air travel, let's focus where we have good alternatives:

- 1) end combustion in the electricity sector, which is mostly oil in Hawai'i, but also some burning of trash, trees, and biofuels; replace with conservation, efficiency, solar, wind, and energy storage.
- 2) electrify any heating needs... most use is industrial sector, but also help transition residential or commercial sectors where cooking and space heating is done with combustible fuels (mainly gas made from oil).
- 3) end combustion use for land-based vehicles by reducing vehicle use, having better (and fare-free) electrified public transit, and electrifying other land vehicles.
- 4) replace inter-island air travel with electric sea gliders, and electrify shipping, which is now possible.

The 2024 *Navahine F. vs. Hawaii Department of Transportation* settlement requires that the state come up with a plan to reach zero emissions in the transportation sector, which requires doing the same in the electricity sector. This bill would violate that requirement by advancing carbon-based fuels instead of investing in the transition needed in the electricity and (certain) transportation sectors to decarbonize properly and in the right order.

Attached is a resolution adopted by the Democratic Party of Hawaii in 2024 in support of an alternatives study, called for in [SB 2369](#), which would look at non-burn alternatives for the transportation and other energy sectors. Such a study would be more appropriate and in line with the state's greenhouse gas (GHG) reduction goals and legal requirements.

Also attached are our 8/31/2025 comments on HDOT's Draft Energy Security & Waste Reduction Plan which explain how greenhouse gas accounting for biofuels is gamed and unreliable, how the plan is insufficient in many ways, not to mention unaffordable, and how the plan will be ridiculously expensive and environmentally harmful if relying on burnable "alternative" or "sustainable" fuels.

## Democratic Party of Hawai'i Resolution [Adopted](#) May 18, 2024

### **2024-15: Urging the Hawai'i State Energy Office to Study Non-Burn Alternatives to Combustible Fuels**

Whereas, It is important to use Hawai'i state taxpayer funds wisely to create the most good without speculative investments, unnecessary subsidies, or promotion of energy technologies or fuels that conflict with the state's climate change goals, or the peoples' constitutional right to a clean and healthful environment under Article XI, Section 9 of the Hawai'i State Constitution; and

Whereas, Energy consumption sectors tracked by the U.S. Energy Information Administration are electricity, transportation, and industrial, commercial and residential heating; and

Whereas, Technology exists to meet the needs of the electricity sector using conservation, efficiency, solar, wind, and energy storage, which can be made as firm as needed with added storage capacity; and

Whereas, Residential and commercial cooking space and water heating needs are easily electrified with existing technology, including ground- and air-source heat pumps and hybrid electric water heaters; and

Whereas, Industrial heating needs are increasingly possible to meet through a combination of concentrated solar, electricity, and—if necessary—green hydrogen sources from wind and solar; and

Whereas, Land-based transportation, even heavy trucking, can now be fully electrified and powered on clean, non-burn, electricity sources; and

Whereas, Ocean-based transportation is now possible to fully electrify, including international cargo ships with batteries, and some with stationary wind masts; and

Whereas, Interisland air travel is possible with electric sea gliders, as Hawaiian Airlines is exploring, while intercontinental air travel is the one sector that is hardest to convert to clean energy, though Airbus aims to bring to market the world's first hydrogen-powered commercial aircraft by 2035; and

Whereas, Combustible carbon-based fuels release greenhouse gasses as well as other harmful air pollutants, and the production of burnable fuels has many other environmental implications, including the use of land for fuel instead of food, water and soil depletion, spread of genetically modified organisms, and—if using waste streams to make fuel— toxic chemical releases and solid waste byproducts; and

Whereas, Technologies to turn waste into fuels are highly speculative, controversial and polluting, and typically fail to operate at a commercial scale, usually falling apart technically, economically, or both; and

Whereas, Climate impacts of biomass and waste-based biofuels can be close to or greater than those from fossil fuels, especially where trees are cleared to grow bioenergy crops; and

Whereas, Investing in "transition" fuels only builds up an economic interest that makes it harder, politically and economically, to move to the next step where burnable fuels are ultimately replaced; and

Whereas, It is wise to spend public funding first on clean, combustion-free solutions that already exist, focusing on energy sectors where those solutions are not yet fully implemented; therefore be it

*Resolved*, That the Democratic Party of Hawai'i urges the Hawai'i State Energy Office to conduct a study of the different energy consumption sectors to determine which can be most quickly and cost-effectively decarbonized through additional public investment in combustion-free alternatives; and be it

*Ordered*, That copies of this resolution shall be transmitted to the offices of the Governor and Lieutenant Governor of the State of Hawai'i, the Hawai'i Chief Energy Officer, and all members of the Hawai'i State Legislature who Democrats.



## Comments on HDOT's Draft Energy Security & Waste Reduction Plan

8/31/2025



Aloha HDOT:

We submit these comment to express our concerns over the fiscal and environmental consequences of the Hawai'i Department of Transportation (HDOT) [Draft Energy Security & Waste Reduction Plan](#) (hereinafter "ESWRP"). We urge HDOT staff, consultants and stakeholders, including members of the Hawai'i Youth Transportation Council to read these comments in full, and to spend time digging into the references and footnotes, as there is much to understand about the wide range of false solutions being advanced by this draft plan.

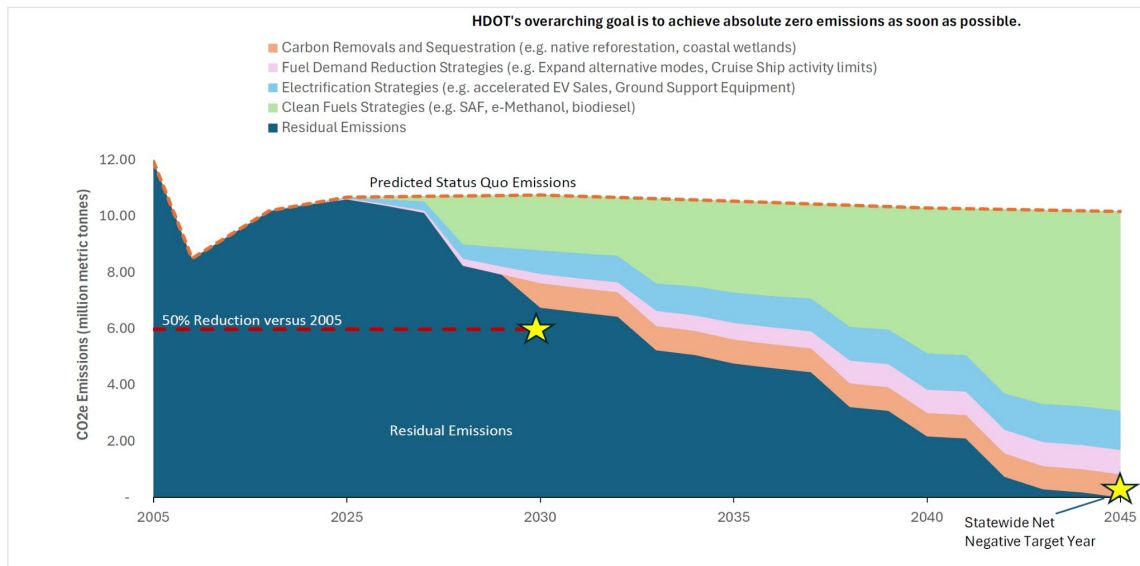
The plan's objective is to meet the goal of zero greenhouse gas (GHG) emissions from the state's "ground transportation and interisland sea and air transportation" systems by 2045, in accordance with state law (HRS § 225P-8)<sup>1</sup> and the *Navahine F. v. Hawai'i Department of Transportation* court settlement.<sup>2</sup>

Sadly, the plan falls short of this goal and advocates for harmful false solutions and for a "double transition" approach that will be far more expensive than necessary by making two (or three?) major industrial transformations within 20 years instead of one, more thoughtful, transition.

**An environmentally-friendly plan should rely on about 40% demand reduction and 60% electrification, which requires that the state's electric grids' capacities be expanded and that combustion-based generation be eliminated.**

**Instead, as the chart below shows, the plan relies about 70% on burnable "clean fuels" (in green) which are far from clean (some are even worse than the fossil fuels they'd replace), only 14% electrification (light blue), only 8% demand reduction (pink), and the remaining 8% is a shortfall (orange) that HDOT wants to make up with controversial "reductions" elsewhere, in violation of the legal settlement.<sup>3</sup> The plan's text states that the shortfall is actually 10%, but the chart in Figure 3-1 shows it to be closer to 8%.<sup>4</sup>**

Figure 3-1. Transportation 2045 Net-Negative Emissions Strategy



<sup>1</sup> <https://law.justia.com/codes/hawaii/title-13/chapter-225p/section-225p-8/>

<sup>2</sup> <https://statecourtreport.org/sites/default/files/2024-07/first-circuit-court-of-hawai-i-joint-stipulation-and-order.pdf>

<sup>3</sup> Hawai'i Department of Transportation, "Draft Energy Security & Waste Reduction Plan," (hereinafter "ESWRP") June 27, 2025, p.27, Figure 3-1. <https://hidot.hawaii.gov/wp-content/uploads/2025/06/Draft-ESWRP-6.27.25.pdf>

<sup>4</sup> ESWRP, page 28 states: "The combined strategies are projected to achieve a 90 percent reduction of baseline emissions in 2045, with the remaining 10 percent reduction coming from hard-to-decarbonize sectors addressed by future carbon removal projects."

## Let's not plan to fail

To fulfill legal mandates, the plan must go all the way to zero greenhouse gas emissions by 2045. No plan can guarantee success, but it has to be designed so that it is possible. It's not adequate to start off the plan with this in the first paragraph:

"A sustainable and just intermodal transportation system is one that is ***largely*** powered by clean and locally sourced power, including electricity fueled by renewable energy, ***low-carbon fuels***, and people walking or rolling" (emphasis added).

Furthermore, in the second paragraph of the substance of the plan, on page 14, it states that the plan "aims to lead the state to **net-negative emissions by 2045 and ultimately** zero emissions in the transportation sector **as soon as possible**" (emphasis added).

"Net" meant "not" (hence the need to meet shortfalls of the mandated zero emissions with reductions outside of the transportation sector), and the "ultimately" (implied to be *after 2045*) reaching zero emissions "as soon as possible," is an admission that this plan aims to push the zero emissions target past 2045, the year mandated in the state law and enforced in the settlement agreement.

Page 90 of the plan states:

"...the reality that currently available SAF [sustainable aviation fuels] has significant remaining lifecycle GHG emissions. Because of these hurdles, despite HDOT's and stakeholders' expected best efforts to reduce GHG emissions, it is anticipated that **achievement of absolute zero GHG emissions will occur after 2045**" (emphasis added).

It is good to see the honesty, but HDOT is still required to have a plan that lands at zero by 2045. As discussed later, this means that sustainable aviation fuels (SAF) must go, as there is not adequate time or money to waste on false solutions that are not zero GHG emissions.

HDOT cannot start off with a plan that expects to miss its mark by 8-10%. Since the "clean" fuels and electricity that make up about another 84% of the plan are not zero GHG emissions sources, the draft plan would miss the mark by far more than 8-10%.

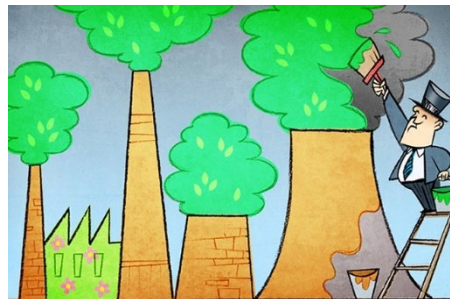
Air travel comprises over half of the GHG emissions this plan aims to reduce. The plan expects 62% of air travel emissions reductions to come from "traditional SAF" by 2045.<sup>5</sup> SAF is not zero emissions and could easily have greater emissions than the jet fuel currently used. Planning for "traditional" SAF to still be used by the 2045 goal is also not in line with the plan's intention to move from "near-term" biofuels options (synonymous with "traditional SAF") to long-term electrofuel options that supposedly have lower or zero GHGs.

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<sup>5</sup> ESWRP, p.69, Table 3-3.

## Avoid greenwashing language

“Clean fuels” and “sustainable aviation fuels” are inappropriate terms. To be more credible and objective, we recommend using “alternative fuels” or “alternative aviation fuels” so that the name itself is not pre-judging that the fuels are clean or sustainable when the plan (in appendix F) even addresses how most of these fuels have downsides that make them not so clean or sustainable.



Similarly, terms like “zero-carbon alternative fuels” (p.18 of the plan) should not be used since nearly every burnable fuel contains carbon and releases it when burned. Fuels that do not contain carbon have other GHG impacts associated with them such as nitrous oxides from burning ammonia, or the indirect effects of leaked hydrogen, which helps methane persist in the atmosphere. When people hear “zero carbon,” it is typically understood to be synonymous with “zero GHG impacts.”

All uses of the words, “clean,” “sustainable,” or “zero” should be searched and reviewed for objectivity. Similarly, assumptions that “renewable” means “clean” or “zero GHG emissions” must be reviewed, as it does not mean that when combustion-based systems are used. The state’s Renewable Portfolio Standard (RPS) law counts as “renewable” the burning of “biomass” (trash, trees and other solid waste and crops), liquid biofuels, and biogas (toxic landfill gases and anaerobic digester gas), none of which are clean or zero-GHG emission, and some of which are worse than the fossil fuels they replace. Nearly half of the energy from the burning of trash comes from fossil fuel sources like plastics made from oil and gas. Even once the 100% renewable electricity by 2045 RPS goal is met, assumptions that this means electricity is GHG-free will be false unless these combustion sources are eliminated from the electric utility’s portfolio.

As the opening of the 2023 Cerology report, “Scrutinising the future role of alternative fuels in delivering aviation decarbonisation” states:

“Readers who are used to the discussion of alternative aviation fuels might have noticed that... we have studiously avoided using a term that has become standard in the industry in recent years – SAF, standing for Sustainable Aviation Fuel. Instead, we prefer to say ‘alternative aviation fuel’.... The reason that we prefer not to use the term SAF is because sustainability is a characteristic of a fuel pathway that is at least somewhat subjective (i.e. it depends on which sustainability criteria are considered important), that may change over time (sustainability can be affected by variables outside the control of a fuel producer such as deforestation rates), and that is at least somewhat scale-dependent – one might feel differently about devoting a couple of farms to bioenergy cropping than devoting half of the agricultural area of Europe.”<sup>6</sup>

The report goes on for two pages on this deliberate use of language, and we encourage HDOT to take it to heart as well.

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<sup>6</sup> Malins, C., Scrutinising the future role of alternative fuels in delivering aviation decarbonisation: Part 3 – the pathway to decarbonised aviation,” October 2023. [https://www.aef.org.uk/uploads/2023/11/Cerology\\_Alternative-fuels-in-aviation\\_Part-3-decarbonisation\\_Oct2023-1.pdf#page=10](https://www.aef.org.uk/uploads/2023/11/Cerology_Alternative-fuels-in-aviation_Part-3-decarbonisation_Oct2023-1.pdf#page=10)

## **Discuss public health impacts in a balanced way**

It is also important to provide balance and not selectively present only benefits and not harms when discussing energy sources that have both. Page 49 of the plan states: “Biodiesel also significantly lowers sulfur oxide (SOx) and particulate matter (PM) emissions, improving air quality for nearby residents.” There is no mention in the body of the report that other pollutants increase, such as nitrogen oxides (NOx) that trigger asthma attacks and volatile organic compounds (VOCs) that can cause cancer. One must reach into Appendix F on page 150 of the PDF to find out that there could be increased NOx emissions from biodiesel “in some cases” – and no mention of other pollutants that could increase, or of the health consequences of exposure to them.

Putting only benefits up front and burying the harms deep in an appendix is a form of greenwashing and misleads readers. The entire document has only one mention of asthma, one mention of respiratory disease and two mentions of cardiovascular disease (in Appendix F on pages 150 and 152 about biodiesel and renewable diesel). Both of these sentences speak in terms of diseases that would be avoided when these biofuels are burned in place of fossil fuels. However, asthma can be aggravated by increases in NOx from biodiesel burning. While there is a slight admission of the possibility of NOx increasing, there is no corresponding statement that it could aggravate asthma... only that respiratory disease could be alleviated. There are zero mentions of cancer or other public health impacts associated with some of the solutions in the plan.

We expect one-sided discussion of topics from corporations advancing their interests, but not from a public agency that is charged with implementing a plan that should benefit the environment and public health.

## **“Transition” fuel approach is politically unrealistic and makes high costs more extreme**

The plan’s “transition” approach is that it aims to build up a biofuels industry that will lobby against the subsequent transition to electrofuels because private corporations do not want to finance and build 30+ year infrastructure just to tear it down in 10-15 years.

In recent years, there has been a phalanx of lobbyists pressing the state legislature to subsidize “clean fuels” and “sustainable aviation fuels.” This includes airlines, the PAR oil refinery, biorefiners, electric utilities, agribusiness interests, the biotechnology industry trade association, fledgling startups aiming to turn waste streams into fuels, and some nonprofits who are aligned with these interests. Should they succeed and build out this industry to grow, import, and refine biofuels and waste-based fuels, which will take several years just to start up, it would make no sense for them to throw out these investments and tear down all of this infrastructure just to facilitate a transition to “electrofuels” in the latter portion of the 20-year plan period.

It can easily take 5-10 years to get a major new infrastructure project like a biorefinery financed and built. Financing typically involves a 10-20 year investment. The lifetime of the infrastructure can be 20-30 years. No business person will go along with tearing down their investment half-way through its operational life if they can avoid it.

Building up a biofuels industry with the intention to switch gears to an electrofuels industry means that all the economic interests invested in the biofuels buildout will use their profits and political power to lobby against the next transition.

Despite this glaring political problem, the plan aims to make two transitions, if not actually needing a third transition after 2045.

The plan would have state taxpayers subsidize building up “low-GHG” biofuels industries in the short term just to tear them down within 20 years to replace them with other burnable “synthetic” and “electrofuels” that are terribly inefficient and purport to be zero GHG, but are not.

As the table below, from the plan, demonstrates, between 2030 and 2045, the plan would build up, then aim to dismantle 35% of the biodiesel industry, 65% of the ethanol industry, and 72% of the renewable LNG industry – both the supply side, as well as the storage and transportation infrastructure using these fuels unless the same infrastructure can run on the electrofuels that replace them.

Table F-1. Projected Alternative Fuel Demand by Type, Year, and Sector

Fuel Type	Estimated Demand (2030)	Estimated Demand (2045)	Applicable Sectors
Biodiesel	20 million gallons	13 million gallons	Ground (heavy-duty)
Renewable Diesel	19 million gallons	52 million gallons	Ground and Marine
Ethanol	17 million gallons	6 million gallons	Ground (light-duty)
Renewable Gasoline	Not included	Not included	Ground (light-duty)
Renewable LNG	32 million therms	9 million therms	Marine
SAF	410 million gallons	600 million gallons	Aviation
eSAF	No demand in 2030	110 million gallons	Aviation
BECCS SAF	No demand in 2030	36 million gallons	Aviation
e-Methanol	No demand in 2030	58 million gallons	Marine
e-Ammonia	No demand in 2030	62 million kg	Marine
Green Hydrogen	No demand in 2030	1.6 million kg	Marine

Many examples throughout the plan spell out this intent to make at least two transitions:

Page 24: “Develop the infrastructure and supply chain for bio-/renewable diesel and renewable LNG in the short term, enabling intra- and inter-state vessels to transition to these low-carbon fuels, while planning for a long-term shift to alternative clean fuels such as green methanol, green ammonia, or green hydrogen to fully decarbonize marine operations.”

Page 30: Fig 3-3:

2. **Cruise Vessel:** Non-home ported vessels transitioning to bio-LNG near term and e-fuels longer term
3. **Interisland Operation:** 100% biodiesel by 2030, transitioning to e-fuels by 2045.
4. **Inter-state Operation:** 70% bio-LNG by 2030, shifting to e-fuels by 2045.
5. **Assist Tugs :** 100% biodiesel by 2030, moving to zero emissions by 2045.

Page 49: “Clean marine fuels include biofuels (such as biodiesel or renewable diesel), methanol, ammonia, hydrogen, and bio- LNG, each of which has different technological requirements and operational impacts. Renewable biodiesel offers a drop-in solution for existing diesel engines with minimal modifications, making them an attractive early-stage emissions reduction strategy. In

contrast, LNG, methanol, ammonia, and hydrogen, require engine modifications or entirely new vessel builds, making them longer-term solutions.”

Page 49: “For intra-state marine vessels, the recommended transition strategy starts with low-carbon drop-in fuels such as biodiesel and renewable diesel in the near term, with a goal of fully adopting these fuels across intra- state operations by 2030. Beyond 2030, the transition is expected to shift toward e-methanol and e-LNG, with ammonia adoption beginning in 2035 and green hydrogen introduced post-2040. These alternative fuels will require new vessel designs or engine modifications, making their adoption more complex and capital-intensive.”

Page 52: “In the short term (by 2030), efforts should focus on biodiesel infrastructure, followed by LNG, e-methanol, and ammonia bunkering by 2035, and ultimately hydrogen infrastructure post-2040.”

“Given the higher costs of biodiesel, bio-LNG, e-methanol, ammonia, and hydrogen; financial incentives are critical to encourage adoption.” (ESWRP, p.52)

The high costs of these fuels are admitted throughout the plan, more so in the appendices. Requiring two or more transitions will make an expensive plan far more expensive. Alternative aviation fuels being explored are projected to cost about 2-5 times as much as fossil jet fuel, and this approach of making two transitions within two decades will only magnify the costs to taxpayers and consumers.

Most of these “longer-term solutions” are not genuinely zero GHG emission in their burning or lifecycle, which could necessitate a third transition to full electrification with non-burn renewable electricity sources. It would make more sense to go directly to these solutions as soon as they can be made available, and to focus on what is possible on our way there, such as conservation and efficiency strategies, cleaning up and expanding the grid, and electrifying transportation where we can, as soon as we can.

## **Ensuring Proper GHG Accounting & Modeling**

### Counting emissions from electricity generation

It is unclear whether and how GHG emissions from the electricity sector will be counted. The plan seems to state it both ways. On one hand, it seems as if they’ll be counted:

Page 80 states:

“This GHG inventory boundary includes the following two sources of indirect emissions:

- Emissions from EV electricity consumption until the electricity grid becomes 100 percent renewable
- Upstream emissions from the production of alternative fuels

The inclusion of emissions from electricity production transportation emissions is one deviation from the statewide DOH inventory approach. Because of the carbon-intensive electrical grid in Hawai’i, it would be disingenuous for this Plan to assume

zero GHG emissions from EVs. Therefore, electricity emissions from EVs and other electric non-road equipment are quantified in this Plan.”

Page B-12 reinforces this: “the baseline emissions projection includes emissions from electricity generation needed to charge EVs. ...electricity grid emissions from EVs and equipment were considered in assessing the impact of electrification on the HDOT emissions inventory.”

As the first bullet above states, emissions will be counted from EV electricity *until* the electric grid becomes 100% renewable. This notion is repeated on page 84, where it states “Emissions from EV electricity consumption will be included in this Plan until the electricity grid becomes 100 percent renewable.”

This assumes that “renewable” energy sources are not releasing GHGs. In fact, trash incineration (like the H-POWER incinerator on O’ahu) releases 65% more GHGs per unit of electricity produced than a coal burning power plant, and nearly half of those emissions are from the burning of fossil fuel-derived plastics. Burning trees, as Mahipapa, LLC does on Kaua’i, and as Hu Honua has been trying to do in Pepeekeo on Hawai’i Island for nearly two decades, releases 50% more GHGs per unit of energy than a coal power plant does. Biofuels and biogas combustion are also not without their own GHG emissions. **“Renewable” does not mean GHG-free. It is imperative that all GHGs are counted, including from “renewable” sources.**

Whether electricity emissions are counted at all seems to be contradicted on page 29, where it states, “EVs are assumed to have zero emissions in transportation,” and on page B-11:

### “Exclusions

This Plan is written with the assumption that, for purposes of tracking against net-negative and interim GHG reduction targets, transportation emissions are defined using a similar basis as the DOH GHG Inventory. In that inventory, transportation emissions are limited to the fuels consumed by ground vehicles, aircraft, and watercraft. The following briefly describes excluded sources:

- **Upstream impacts of fuel production**, which are included in the Industrial Process and Product Use (IPPU) sector or **excluded entirely for fuels produced outside Hawai’i**.
- Like fuels, **production of concrete, asphalt and steel** is covered under IPPU or **excluded for materials from outside Hawai’i**.
- **Electricity generation**, which is a portion of the Energy sector” (emphasis added).

Is this last bullet really stating that electricity generation will not be counted, even for EVs, contradicting the prior statements in the plan?

The first bullet also contradicts a statement from page 80, which correctly indicates that upstream impacts of fuel production must be counted, even for the bulk of the biofuels that are imported. Page 80 states:

“The other deviation is the inclusion of upstream emissions from the production of alternative fuels. Clean fuels and other alternative fuels vary widely on lifecycle GHG impacts, and **it is very important that this Plan not incentivize use of alternative fuels with high upstream emissions, assume all clean fuels result**

**in zero anthropogenic emissions, or ignore any shift of GHG emissions from Hawai'i tailpipes to international fuel production and processing.** Therefore, similar to the approach with electricity, the reduction pathways in Chapter 3 include pro-rated reductions to account for the estimated lifecycle impacts of fuels. For example, a shift of a group of vehicles from petroleum diesel to biodiesel is not illustrated as a 100 percent reduction in emissions in this roadmap” (emphasis added).

Is the use of the term “anthropogenic” implying that “biogenic” emissions can be ignored?

### Counting Refrigerants

Page 22 of the plan dismisses refrigerants as negligible:

“HDOT acknowledges that there are other GHG pollutants such as hydrofluorocarbons and perfluorocarbons being emitted as a result of transportation such as leakage from vessel and vehicle air conditioning systems. However, these are outside the boundary of the emissions inventory and are also expected to be quite minimal compared to combustion emissions from aviation, marine, and ground transportation vehicles and equipment, and thus negligible.”

This should be reconsidered in light of the following:

- Older mobile air conditioning systems may not be factory sealed.
- Unlike stationary units, they get jostled a lot, making leaks inevitable. This study on R134a emissions from vehicles may be useful.<sup>7</sup>
- Refrigerants historically have very high global warming potentials (GWP). R134a was the norm in systems and has a high GWP of 1,526 over 100 years (meaning that it is 1,526 times as potent as CO<sub>2</sub> over that time frame), and a GWP of 4,144 over 20-years, which is a more relevant time frame, and the time frame of this policy.
- Most passenger vehicles built in 2025 use R1234yf instead of R134a. R1234yf is an HFO with an ultra-low global warming potential (GWP<sub>100</sub> is less than 1 in AR6), however larger vehicles and trucks have not all changed over. While the amount of R134a will be decreasing over the years, R1234yf produce trifluoroacetic acid (TFA), a single-chain PFAS, which is of greater concern than its GWP value.<sup>8</sup> R1234yf completely breaks down into TFA in 7-10 days' time, which means local concentrations of that “forever chemical” will increase. TFA is being regulated in the EU, but I think the U.S. does not yet recognize it as something to worry about.
- DIY vehicle air conditioner recharging is an activity that should be regulated. Discharging a can of R134a into a leaky system will just cause that R134a to be emitted. Since systems don't necessarily need a whole can, people are likely to throw away partial cans, resulting in contents being expelled into the atmosphere. One way of lowering the environmental impact is to require cans of refrigerant to be filled with “reclaimed,” not “virgin,” refrigerant. In Washington State, they have banned the use of all small containers (or DIY) of automotive refrigerants. They did that because the R134a in the cans always left over a little bit, and the collective impact of those heels was significant.

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<sup>7</sup> <https://pubmed.ncbi.nlm.nih.gov/11878368/>

<sup>8</sup> <https://naturalrefrigerants.com/experts-sound-the-alarm-about-rising-tfa-levels/>

- New York and California have programs relating to refrigerant recovery and recycling.<sup>9,10</sup> In New York, Part 494 bans the use of small containers of automotive refrigerant containing virgin substances effective January 1, 2027.
- In New York State's 2021 HFC emissions inventory, 15.9% of HFC emissions were from transportation HVAC (which does not include transportation refrigeration). This is more than residential HVAC emissions (10.9%) and commercial HVAC (13.3%), although less than commercial refrigeration (26.8%) and the general category for foams and propellants (29.8%). If Hawaii hasn't done an HFC inventory, the plan should not assume that transportation HVAC emissions are negligible.
- California had a program that charged a \$10 deposit on the DIY cans, but I see [that program has been discontinued](#), in favor of another one, [which pays up to 90% of the cost of professional automotive AC repair](#), for income-eligible residents.

Policies that shift more residents away from DIY cans and toward getting professional help with their automotive AC systems would have long-term benefits. Most shops have a piece of equipment that automatically recovers refrigerant from vehicles, cleans the refrigerant, tests the system for leaks, and recharges the refrigerant (and oil) to precisely the right amount. This is the best practice for long-term vehicle maintenance with environmental benefits for everyone else.

#### Global warming potentials (GWP)

Page 22 states:

“Using global warming potentials (GWP), emissions from these gases are converted to CO<sub>2</sub>e in this report. Only CO<sub>2</sub>e values are presented, as they account for all three GHGs in a standardized measure, with CO<sub>2</sub> comprising the largest share of emissions from the included source categories. All GHG emissions are reported in metric tons.”

GWPs are published by the International Panel on Climate Change (IPCC) through large “Assessment Reports” that come out about every seven years. The most recent data is from IPCC’s Sixth Assessment Report (AR6), which was released in 2021. The plan provides GWPs for 20-year and 100-year time frames, where 20-year GWPs are more appropriate if we’re to avoid climate change tipping points.

Is this plan using AR6 20-year GWP values? Will GWPs be updated as the Seventh Assessment Report (AR7) comes out in 2029 and when future reports come out?

#### The GREET Model: Underestimating Climate Impacts of Biofuels

Page 57 states that “emission factors for these fuels are sourced from the GREET Well-to-Wheel (WTW) Calculator (2022 version).”

“GREET” is the Greenhouse gases, Regulated Emissions, and Energy use in Technologies (GREET) model, a life-cycle analysis tool that calculates the direct greenhouse gas emissions from the production and use of various transportation fuels, such as ethanol and biodiesel.

<sup>9</sup> <https://dec.ny.gov/sites/default/files/2023-12/part494expressterms2023public.pdf>

<sup>10</sup> <https://ww2.arb.ca.gov/resources/fact-sheets/small-containers-automotive-refrigerant-consumer-requirements>

While mentioned only once in the plan, the use of the GREET model is pivotal, as it is proposed to be used as the measuring tool with which different burnable fuels will be considered to be reducing GHG emissions from the transportation sector.

A deciding factor in whether many biofuels are better or worse for the climate than the fossil fuels they replace is indirect land use change (ILUC). Through GREET, ILUC estimates for crop-based fuels are provided by the Global Trade Analysis Project BIO (GTAP-BIO) model which estimates the area of land converted during biofuel production.<sup>11</sup>

Leading climate and biofuels experts have written up a scathing and thorough critique of the GTAP model and how it vastly understates the impact of biofuels on climate change by downplaying ILUC. Authors include Yale professor Steven Berry, who has served as a consultant for the California Air Resources Board relating to ILUC from biofuels, and Princeton Senior Research Scholar Timothy Searchinger, who authored some of the landmark critiques of biogenic carbon neutrality assumptions. They write that “GTAP lacks a credible economic foundation” and “is particularly unable to credibly evaluate land use changes.”<sup>12</sup>

In GTAP, “estimated ILUC carbon losses from a gallon of corn ethanol and soybean biodiesel are extremely low, meaning there is little carbon cost for diverting even vast areas of prime farmland to biofuel production.”<sup>13</sup>

“Of thousands of economic parameters, only a small number claim to have any direct, empirical basis. Of these, few of the cited empirical studies make any use of credible techniques for distinguishing correlation from causation and, most fundamentally, supply from demand.”<sup>14</sup>

“We also review how additional, empirically unsupported decisions added to the model since the first version used for CARB have further reduced the estimated ILUC. As an example, the model makes a pure assumption, without any supporting economic analysis, that most new cropping area will be supplied not by expansion of cropland but by cropping existing cropland more frequently. This assumption also contradicts actual experience in the U.S.”<sup>15</sup>

ILUC, according to these authors, results in emissions that are roughly 3 to 4.5 times the emissions of the fossil fuels that the ethanol or biodiesel is replacing. However, only 10% of these average emissions are accounted for in GTAP’s ILUC estimate used by CARB, and the version used in GREET is even lower. The authors point out that GTAP, as used in GREET, would claim that all the cropland in Iowa can be diverted to biofuel production – or to any other use – with almost no effect on global land use elsewhere and almost no resulting climate consequences.<sup>16</sup>

The models incorrectly assume that converting pasture to cropland will not lead to deforestation to replace the pasture.<sup>17</sup>

Regarding some of the simplistic assumptions made in the model, they write: “This choice is understandable as a research strategy, but it does not produce a model that can be treated

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<sup>11</sup> <https://www.epa.gov/system/files/documents/2022-03/biofuel-ghg-model-workshop-gtap-bio-model-2022-03-01.pdf>

<sup>12</sup> Berry, S., Searchinger, T., & Yang, A., “Evaluating the Economic Basis for GTAP and Its Use for Modeling Biofuel Land Use,” Yale Tobin Center for Economic Policy, March 19, 2024. <https://www.energyjustice.net/fuels/gtap.pdf>

<sup>13</sup> *Id.* at 1.

<sup>14</sup> *Id.* at 2.

<sup>15</sup> *Id.* at 3.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.* at 7.

seriously as a policy tool.”<sup>18</sup> They later point out that GTAP “appear[s] to be picking parameters to fit a narrative.”<sup>19</sup>

Their conclusions include the following:

“To summarize, the structure of the economics of the model produces physically impossible results. Even if the economics were reliable, the imposed adjustment factor generates an inconsistent result and lower ILUC.”<sup>20</sup>

“GTAP is generating results that project the lost carbon from land to generate additional crops for biofuels is only a very small fraction of the average carbon lost to produce these crops in the past. Only with these large reductions in ILUC can a model even project greenhouse gas reductions from these biofuels relative to using fossil shows. By contrast, as shown in Table 1, using this average carbon loss would indicate that crop-based biofuels do not come close to reducing greenhouse gas emissions from transportation over 30 years.”<sup>21</sup>

### The ACERT Model

Page 70 of the plan has a sidebar called “Lifecycle Emissions Analysis” (same title as the one mentioning GREET on page 57) that states:

“This emission inventory considers the use of sustainable aviation fuel as a clean fuel. To determine the emission reduction potential of SAF, an emission reduction factor was established by comparing the emission factor SAF to that of kerosene jet fuel (KJF). For example, KJF has a baseline emission reduction factor of 0 percent and SAF has an emission reduction factor between 65 and 80 percent. Conservatively, SAF was assumed to start at 65% reduction in 2028 and scale up reduction by 5% every five years through 2045. Note that these are some of the preliminary reduction factors assumed for this version of the report and they will be further refined in the final version.”

We ask that HDOT please respond to us to let us know what model was used to come up with these assumptions.

Elsewhere on the same page is mention of the “Airport Carbon And Emission Reduction Tool (ACERT)” which is an apparent misnaming of the “Airport Carbon and Emissions Reporting Tool.”<sup>22</sup> The ACERT model’s assumption on GHG emissions from biomass for electricity is 26 times lower per kilowatthour than EPA and Energy Information Administration (EIA) data shows. It also assumes that trash incinerator GHG emissions per tonne are 56 times lower and that wood/plant burning emissions per tonne are 108 times lower than EPA and EIA data show. How can we trust this airport industry tool on other metrics when they’re so far off on every input data value we spot checked so far?

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<sup>18</sup> *Id.* at 11.

<sup>19</sup> *Id.* at 13.

<sup>20</sup> *Id.* at 17.

<sup>21</sup> *Id.* at 21.

<sup>22</sup> <https://store.aci.aero/form/acert/>

In addition, ACERT uses outdated GWPs from 2014 (AR5)<sup>23</sup> when 2021 (AR6)<sup>24</sup> is available, and uses the 100-year instead of 20-year GWPs, which is inappropriate considering the policy time frame (2045) being 20 years away and the fact that global warming tipping points (already showing up) aren't about to wait for 100 years. They also choose the more optimistic figures with no climate-carbon feedback which allows them to pluck out the 28 number for methane instead of 34, and 265 instead of 298 for nitrous oxide (N<sub>2</sub>O). In fact, if they used the latest science (which was out for two years before the ACERT tool's latest release in 2023), the GWP for methane would be 80-82 (over 20 years), not 28 or 34 (over 100 years).

Finally, some of ACERT's data sources and emissions factors are listed as "Wikipedia," or simply as "Internet." The foundation for GHG accounting in Hawai'i state policy should have a more solid foundation than tools like GREET and ACERT, which are not confidence inspiring!

Making public policy based on deeply flawed models is problematic and results in exaggerated claims of emissions reductions that are illusory, making agencies and politicians look good while we're still cooking the planet and violating legal mandates.

### **Why burnable fuels are false solutions**

All burnable fuels have significant pollution issues, including climate impacts. It is critical to move on from burning things.

The plan includes 10 kinds of burnable fuels. Actually, 11 are listed, but renewable gasoline is not included while all 10 other kinds are part of the plan.

The dominant near-term alternative fuels are corn-based ethanol and soy-based biodiesel that would have to be imported, as Hawai'i has insufficient land and water to produce much in-state.

The U.S. Environmental Protection Agency's website (since before the current administration) states the following:

"Biofuel production and use has drawbacks as well, including land and water resource requirements, air and ground water pollution. Depending on the feedstock and production process, biofuels can emit even more GHGs than some fossil fuels on an energy-equivalent basis."<sup>25</sup>

There are three major congressionally-mandated reports on biofuels as it relates to the federal Renewable Fuels Standard, the last of which is over 1,000 pages long, backing up these concerns in great detail. We encourage HDOT to at least review the 19-page Compilation of Key Findings (Chapter 17) in "Biofuels and the Environment: Third Triennial Report to Congress," starting on page 856 of the PDF file.<sup>26</sup>

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<sup>23</sup> [https://www.climatechange2013.org/images/report/WG1AR5\\_Chapter08\\_FINAL.pdf#page=56](https://www.climatechange2013.org/images/report/WG1AR5_Chapter08_FINAL.pdf#page=56)

<sup>24</sup> [https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_FullReport.pdf#page=1034](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_FullReport.pdf#page=1034)

<sup>25</sup> <https://www.epa.gov/risk/biofuels-and-environment>

<sup>26</sup> <https://assessments.epa.gov/biofuels/document/&deid=363940>

## Counting all the carbon

In addition to the underestimated GHG impacts resulting from indirect land use change (ILUC), there is a tendency to assume that GHG emissions from burning biofuels is simply zero because it's "carbon neutral."

Nearly all of the proposed fuels will still release CO<sub>2</sub> when burned. Assumptions about biogenic carbon neutrality has been repeatedly debunked by climate scientists for over 15 years. It would be good for HDOT to get familiar with these critiques, especially with regard to fuels that involve trees, municipal waste, and construction and demolition waste, where the large time lag between harvesting trees for wood and paper, and the recapture of that CO<sub>2</sub> by newly growing trees, is so long that there is no real "carbon neutrality" in a meaningful time frame.

"Biogenic" CO<sub>2</sub> comes from the burning of paper, food scraps, yard waste, wood, leather, and other materials that ultimately grew from soil. Biogenic carbon dioxide emissions are real CO<sub>2</sub> molecules that warm the atmosphere just like any CO<sub>2</sub> molecule released from the burning of plastics and other materials made from fossil fuels.

A majority of the CO<sub>2</sub> emissions from trash incinerators like H-POWER get erased in most GHG reporting due to outdated assumptions that "biogenic" carbon should not be counted. It is important to recognize that even if HDOT will not look at the science challenging biogenic carbon neutrality assumptions, the fossil fraction of trash-derived fuel must be recognized as fossil, even though the state Renewable Portfolio Standard law brands it "renewable."

The carbon neutrality assumption comes from the notion that this carbon should not be counted because trees and plants regrow, and that this carbon is simply recirculating in the biosphere, as opposed to being "new" carbon in the biosphere that was extracted from underground in the form of coal, oil, or gas.

However, carbon (CO<sub>2</sub> or methane) in the air causes global warming, while carbon in a plant or tree does not. We cannot simply pretend that carbon in a tree is the same as carbon in the air. Carbon in a plant or tree does not warm the climate until burned (or slowly decayed).

This biomass carbon neutrality notion has been debunked by climate scientists since at least 2009. There are two main reasons: double counting, and the time lag problem.

Carbon absorbed by growing plants is already factored into global climate models. The reason why it became a practice not to count carbon emissions in certain sectors was, *when looking at all sectors together*, to avoid double counting when assuming carbon is released when trees are cut down, then counting it again if those trees are burned. However, when looking just at one sector, such as vehicle emissions, it is improper to subtract biogenic carbon as if it has not already been accounted for elsewhere. This becomes an accounting problem.<sup>27</sup>

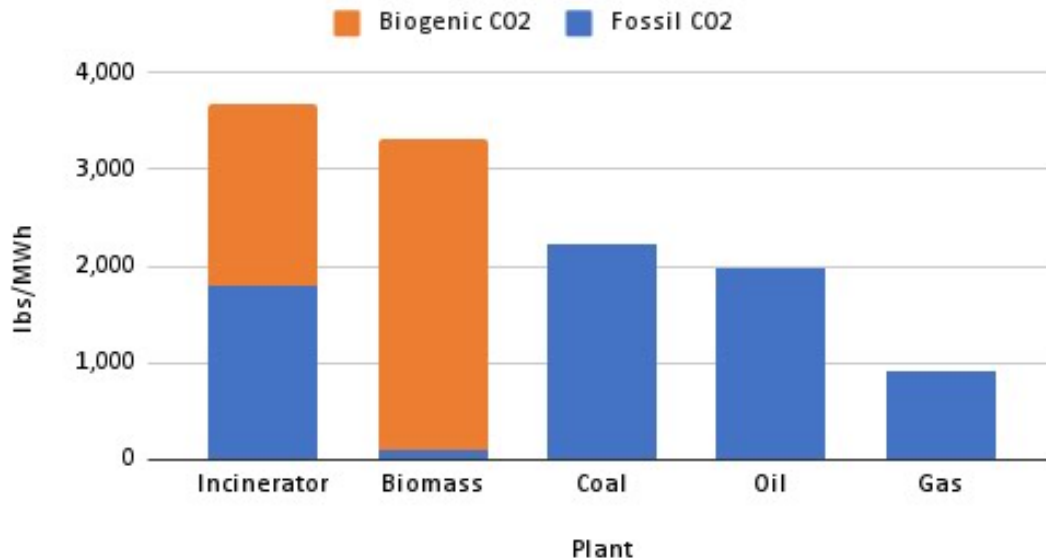
Should HDOT subtract GHG emissions because of plants and trees that already grew? [This would be the double counting error.] ...or to subtract emissions from plants and trees that they presume will grow later? [This would be speculative, and there is not always a guarantee of trees or crops being replanted, as the Hu Honua court case demonstrated. And then there is the time lag problem...]

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<sup>27</sup> Searchinger, T. D., Hamburg, S. P., Melillo, J., Chameides, W., Havlik, P., Kammen, D. M., et al. (2009). "Fixing a Critical Climate Accounting Error," *Science*, 326(5952), 527-528. <https://doi.org/10.1126/science.1178797>

Burning trees for electrical power releases 50% more CO<sub>2</sub> per unit of energy than burning coal. Burning trash for power releases 65% more CO<sub>2</sub> per unit of energy than burning coal. The following data is from EPA's Greenhouse Gas Reporting Program:

### Incinerators emit 65% more CO<sub>2</sub> than coal



Growing trees do not instantly reabsorb this extra pulse of carbon. As the Manomet Center for Conservation Sciences documented when studying the issue for the Commonwealth of Massachusetts, it takes newly growing trees around 40-70 years to take up enough carbon to make it equivalent to burning coal.<sup>28</sup> This is not carbon neutrality, but just absorbing that extra CO<sub>2</sub> so that it's as bad as coal burning after several decades. Carbon neutrality would take centuries and is never quite reached, even if trees were replanted and not cut down in that time frame (or burned up in wildfires on a warming planet).

In trying to avoid critical global warming tipping points, we do not have several decades to wait for trees to suck up extra carbon released by burning trash or trees. This carbon must be counted, not discounted as if there's a free pass to release that CO<sub>2</sub> because a slow carbon cycle will eventually suck it back up.

Ironically, it is better for the climate to burn coal and plant trees than to burn trees and plant trees. We are not recommending either. However, this CO<sub>2</sub>-only metric shows the absurdity of allowing biogenic carbon to be offset in this manner.

Burning trash and planting trees (which incinerator corporations are not doing, anyway) often allows the incinerator industry to subtract their emissions. However, if a gas-burning power plant planted trees, that rightfully would not count against their emissions.

<sup>28</sup> Thomas Walker, et. al., "Biomass Sustainability and Carbon Policy Study," Manomet Center for Conservation Sciences Report to the Commonwealth of Massachusetts Department of Energy Resources, June 2010 (Report NCI-2010-03). <https://www.mass.gov/doc/manometbiomassreportfullhirezpdf/download> Executive Summary available at: [https://www.manomet.org/wp-content/uploads/2018/03/Manomet\\_Biomass\\_Report\\_ExecutiveSummary\\_June2010.pdf](https://www.manomet.org/wp-content/uploads/2018/03/Manomet_Biomass_Report_ExecutiveSummary_June2010.pdf)

For further background on biogenic carbon accounting, see these footnotes cited here.<sup>29,30,31,32</sup> We ask that these footnoted references, in full, be considered part of our comments by reference and are to be made part of the decision-making docket.

## Feedstocks

A wide variety of feedstocks exist to make burnable fuels. Every one of them has its own significant problems, many of them rivalling fossil fuels, and all of them just “differently bad.” This includes liquefying and/or gasifying or otherwise cleaning, converting or processing municipal solid waste,<sup>33</sup> sewage sludge,<sup>34</sup> construction and demolition waste,<sup>35</sup> animal wastes,<sup>36</sup> trees,<sup>37</sup> purpose-grown crops,<sup>38</sup> crop wastes,<sup>39</sup> vegetable oils,<sup>40</sup> anaerobic digester gas,<sup>41</sup> landfill gas,<sup>42</sup> algae,<sup>43</sup> and even “thin air” and water with electrofuels that involve direct air capture<sup>44</sup> and “green” hydrogen.<sup>45</sup>

Much has been written on these topics, and we cannot reasonably provide a full exploration of them all in these comments, but please include all of these footnoted reports and the sources within them as part of our comments, as there is much to read and know about each. Please also review our 6-page comments on Senate Bill 1120 here: [https://www.capitol.hawaii.gov/sessions/session2025/Testimony/HCR70\\_HD1\\_TESTIMONY\\_TRN\\_04-01-25\\_.PDF#page=9](https://www.capitol.hawaii.gov/sessions/session2025/Testimony/HCR70_HD1_TESTIMONY_TRN_04-01-25_.PDF#page=9)

On biofuels generally, please review the excellent reports by Biofuelwatch at: <https://www.biofuelwatch.org.uk/category/reports/general-overview/> and <https://www.biofuelwatch.org.uk/category/reports/biofuels-liquid/>

Also, the reports by Aviation Environment Federation: <https://www.aef.org.uk/category/reports-briefings/>

Most critically, on aviation fuel, please read this report in full: [https://www.aef.org.uk/uploads/2023/11/Cerology\\_Alternative-fuels-in-aviation\\_Part-3-decarbonisation\\_Oct2023-1.pdf](https://www.aef.org.uk/uploads/2023/11/Cerology_Alternative-fuels-in-aviation_Part-3-decarbonisation_Oct2023-1.pdf)

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<sup>29</sup> Biomass Incineration and Climate. <https://energyjustice.net/biomass/climate>

<sup>30</sup> Energy Justice Network comments on EPA WARM Model. [https://downloads.regulations.gov/EPA-HQ-OLEM-2023-0451-0112/attachment\\_1.pdf](https://downloads.regulations.gov/EPA-HQ-OLEM-2023-0451-0112/attachment_1.pdf)

<sup>31</sup> Partnership for Policy Integrity comments on EPA WARM Model. [https://downloads.regulations.gov/EPA-HQ-OLEM-2023-0451-0112/attachment\\_7.pdf](https://downloads.regulations.gov/EPA-HQ-OLEM-2023-0451-0112/attachment_7.pdf)

<sup>32</sup> Landfill Gas <https://energyjustice.net/lfg/> and the articles and links referenced at the top and under “related links,” specifically this report: <https://www.sierraclub.org/sites/www.sierraclub.org/files/landfill-gas-report.pdf>

<sup>33</sup> <http://www.energyjustice.net/incineration>, on waste pyrolysis, see pages 3-7 and the reports footnoted within these recent comments: <https://www.energyjustice.net/ny/Sullivan2025RFPCComments.pdf>

<sup>34</sup> <https://sewagesludgeactionnetwork.com>; <http://www.ejnet.org/sludge>

<sup>35</sup> <https://energyjustice.net/waste/cd/>; <https://energyjustice.net/incineration/cd.pdf>

<sup>36</sup> <https://energyjustice.net/poultrylitter/>

<sup>37</sup> <https://energyjustice.net/biomass/>; <https://energyjustice.net/biomass/woodybiomass.pdf>; <https://energyjustice.net/hi/huhonua.pdf>

<sup>38</sup> <https://energyjustice.net/ethanol/ethanol-factsheet.pdf>; <https://energyjustice.net/biodiesel/biodiesel-factsheet.pdf>

<sup>39</sup> [https://energyjustice.net/ethanol/cellulosic/factsheet\\_cellulosic.pdf](https://energyjustice.net/ethanol/cellulosic/factsheet_cellulosic.pdf) (covers cellulosic ethanol generally)

<sup>40</sup> <https://www.biofuelwatch.org.uk/2025/fat-grab-report/>

<sup>41</sup> <http://www.energyjustice.net/digesters>; <https://zwia.org/composting-and-anaerobic-digestion-policy/>;

[https://www.foodandwaterwatch.org/wp-content/uploads/2024/01/RB\\_2401\\_LCFS\\_Methane.pdf](https://www.foodandwaterwatch.org/wp-content/uploads/2024/01/RB_2401_LCFS_Methane.pdf); [https://foodandwaterwatch.org/wp-content/uploads/2021/04/ib\\_1611\\_manure-digesters-web.pdf](https://foodandwaterwatch.org/wp-content/uploads/2021/04/ib_1611_manure-digesters-web.pdf); <https://www.foodandwaterwatch.org/2024/01/09/the-big-oil-and-big-ag-ponzi-scheme-factory-farm-biogas/>

<sup>42</sup> <http://www.energyjustice.net/lfg>

<sup>43</sup> <https://www.biofuelwatch.org.uk/docs/Microalgae-Biofuels-Myths-and-Risks-FINAL.pdf>;

<https://www.biofuelwatch.org.uk/category/reports/biofuels-liquid/cellulosic-algal-biofuels/>;

<https://www.thenation.com/article/environment/exxon-algae-biofuels/>;

<https://web.archive.org/web/20230323143637/https://www.greentechmedia.com/articles/read/lessons-from-the-great-algae-biofuel-bubble>; <https://www.canarymedia.com/articles/climate-tech-finance/stop-trying-to-make-algae-biofuels-happen>

<sup>44</sup> [https://www.foodandwaterwatch.org/wp-content/uploads/2023/01/FSW\\_2212\\_DirectAirCapture.pdf](https://www.foodandwaterwatch.org/wp-content/uploads/2023/01/FSW_2212_DirectAirCapture.pdf)

<sup>45</sup> <https://www.energyjustice.net/hydrogen/>

As these articles and reports document, in addition to climate change impacts, there are also many other harmful impacts that will come in the form of toxic releases, genetically modified crops and microorganisms, water and soil depletion, chemical use, land use, food insecurity, and – since most of this cannot be produced in-state – a heavy reliance on importing these fuels even while aiming to be energy independent and secure.

Relating to Hawai'i having sufficient land or water to grow biofuels vs. the need to import most of them, as well as concerns relating to whether taxpayers or airline customers should foot the bill for subsidizing these biofuels, we encourage all to watch the 35-minute hearing on Senate Bill 995 of 2025, pertaining to "Sustainable Aviation Fuel Import Tax Credit; Renewable Fuels Production Tax Credit."<sup>46</sup> Senator DeCoite calls up staff from the state Department of Agriculture who make it clear that there is not sufficient land or water available for this purpose. Other testimonies during this hearing are quite eye opening. You can view it here: <https://www.youtube.com/live/eLQmyLuHOu8?feature=shared&t=283>

As page 51 of the plan admits, most of the envisioned fuels do not exist and are not low-GHG at this point where they do exist:

"While Hawai'i is committed to transitioning marine operations to low- or zero-carbon fuels such as green hydrogen, methanol, and advanced biofuels, many of these alternatives are not yet commercially viable, lack supporting infrastructure in the state, or currently carry high lifecycle carbon intensities due to existing production methods."

This reality is not likely to change for biofuels, though electrofuels (horribly expensive and inefficient at this time) will get cleaner over time as the electric grid gradually shifts to clean, renewable sources.

### Food vs. Fuel; Imports

Page 2 of the plan states "we must decrease our dependence on imported energy and food." The plan also acknowledges the problem on page F-7 where it states: "But if virgin oils such as palm or soybean oil are used extensively, it can create tension with food supply and raise concerns about deforestation and agricultural expansion."

This is a great reason not to grow biofuels in-state.

Hawai'i is dependent on importing about 80-90% of its energy and 80-90% of its food. Using precious land to grow fuel for vehicles necessarily means making the state even more food insecure. As the Department of Agriculture [testimony](#) showed on SB 995 of 2025, there is next to no land or water available to grow fuels in the state, requiring that nearly all reliance on biofuels will mean shipping it in from the continent. The answer is not to grow or import biofuels, but to electrify with local (non-burn) renewable energy production.

### Biotechnology

The biotechnology industry's trade association routinely testifies in favor of biofuels bills in the state legislature. Their testimonies never state why they are so supportive of biofuels, but it is obvious to anyone who knows enough about the industry. The main biofuels currently in

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<sup>46</sup> [https://www.capitol.hawaii.gov/session/measure\\_indiv.aspx?billtype=SB&billnumber=995&year=2025](https://www.capitol.hawaii.gov/session/measure_indiv.aspx?billtype=SB&billnumber=995&year=2025)

production are corn-based ethanol and soy-based biodiesel. As of 2024, 94% of corn grown in the U.S. is grown with genetically modified organisms (GMOs) and 96% of the soy is GMO.<sup>47</sup> This is primarily to withstand higher doses of herbicides, which leads to more herbicide spraying, mainly with Bayer (formerly Monsanto) product, Roundup (glyphosate), which is the subject of many lawsuits now that it is shown that it's not as safe as table salt, and indeed causes cancer. These herbicides have also been tied to harming amphibians, including deformities in frogs born with extra legs and such. There are other food and biofuel crops and trees that industry has been working to make GMO varieties of for many years, which could also be on the horizon for biofuel production in Hawai'i. Read more on the impacts of ethanol and biodiesel production in our factsheets linked in footnote 38.

As living organisms, GMO crops don't always stay where they are planted. There is a history of them contaminating nearby farms of organic farmers, for example. Since the GMO crops are patented intellectual property, there is a brutal history of Monsanto suing farmers whose farms were contaminated with their seed, as if the farmer was stealing the company's property.

Far more disturbing, however, is the biotech industry's other main motivation for supporting biofuels bills. They have long been experimenting with genetic modification of bacteria, algae and enzymes. Algae biofuels have been explored extensively, and have been a huge failure, whether genetically modified or not. Please review the reports in footnote 43 for details. Enzymes have been a part of efforts to make cellulosic ethanol viable... an industry that aims to convert everything from corn husks to pizza boxes to trash into liquid fuels. This industry has also been riddled with failed attempts for 2-3 decades. Genetically modifying bacteria is also linked to biofuels production. Given how impossible it is to contain microbes, and how quickly they can reproduce, having unnatural versions of microbes out in the wild could have unintended and disastrous consequences.<sup>48</sup>

A European company has developed a GMO variety of *Klebsiella planticola* (KP), one of the most common bacteria on the planet, designing it to make alcohol out of plant matter. The idea was to make use of wheat straw, stalks and leaves. A researcher at University of Oregon tested it to see if it could survive in the wild, and found that it readily killed the plant in his experiment while the non-GMO variety did not.<sup>49</sup> If microbes like this were to be able to survive in the wild, the ecological consequences could be unthinkable.

### Waste-based fuels

Some companies are pushing to use gasification or pyrolysis technologies to make burnable fuels from trash, construction and demolition (C&D) debris, and other waste streams. This is toxic and polluting, quite expensive, and has not worked at commercial scale. Please see our comments on the Maui Aloha Aina Project that seeks to turn trash into fuels to barge to O'ahu.<sup>50</sup> As we discuss in our testimonies on "clean fuels" bills,<sup>51</sup> the toxic hazards associated with pyrolysis or gasification of C&D waste are serious, especially where wood treated with copper, chromium and

<sup>47</sup> <https://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-united-states>;  
<https://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-united-states/recent-trends-in-ge-adoption>

<sup>48</sup> Szyjka, S. et al. (2017). Evaluation of phenotype stability and ecological risk of a genetically engineered alga in an open pond production. *Algal Research*, 24. <http://www.sciencedirect.com/science/article/pii/S2211926417300024>

<sup>49</sup> <https://www.sciencedirect.com/science/article/abs/pii/S0929139398001292> (bypass paywall [here](#)); See also:  
<https://www.gmwatch.org/en/latest-listing/1-news-items/8951-full-story-of-the-dr-elaine-ingham-controversy-over-klebsiella-p>;  
<https://www.saynotogmos.org/klebsiella.html>;  
<https://web.archive.org/web/20071219095433/http://www.purefood.org/ge/klebsiella.cfm>

<sup>50</sup> The project is described here: [https://files.hawaii.gov/dbedt/erp/Doc\\_Library/2025-06-23-MA-DEA-Maui-Aloha-Aina-Project.pdf](https://files.hawaii.gov/dbedt/erp/Doc_Library/2025-06-23-MA-DEA-Maui-Aloha-Aina-Project.pdf) and our comments on this Environmental Assessment are here: <https://www.energyjustice.net/hi/MauiWTFcomments.pdf>

<sup>51</sup> [https://www.capitol.hawaii.gov/sessions/session2025/Testimony/HCR70\\_HD1\\_TESTIMONY\\_TRN\\_04-01-25\\_.PDF#page=9](https://www.capitol.hawaii.gov/sessions/session2025/Testimony/HCR70_HD1_TESTIMONY_TRN_04-01-25_.PDF#page=9)

arsenic is present. For example, Aloha Carbon's plan to try to gasify C&D waste in Campbell Industrial Park on O'ahu would inevitably involve handling treated wood which the Hawaii Natural Energy Institute documented to have 200 times as much arsenic as clean wood.<sup>52</sup>

### Green Hydrogen

Half of the ten fuel pathways involve "green hydrogen" (SAF, eSAF, e-Methanol, e-Ammonia, and green hydrogen itself). Hydrogen is typically extracted from fossil gas, but can come from other hydrocarbons. Green hydrogen involves electrolyzing water to split it with renewable energy into hydrogen and oxygen, which recombine when used in a fuel cell or burned.

Green hydrogen production is very inefficient, and will never be truly "green" until there is excess wind or solar on the grid. Until then, wasting 50-80% of the clean wind or solar energy in the process of splitting water and using the hydrogen fuel makes no sense because it would be better to use that clean energy to displace oil directly on the grid instead of displacing a much smaller amount of oil in a vehicle.

The plan ought to be careful not to over-claim, such as stating that there is no associated carbon emissions from production of green hydrogen if made from renewable sources. After all, burning trash, trees, and other sorts of biomass, biofuels or biogas are all renewable, and all have significant carbon emissions.

There are many other issues with hydrogen. Please review the top articles linked from our <https://www.energyjustice.net/hydrogen> page for good overviews. Also, newer evidence shows that hydrogen can be an indirect greenhouse gas when it inevitably leaks (it's tiny and hard to contain and can embrittle steel pipe).<sup>53</sup>

Long-distance aviation and some industrial heating applications are the only sectors that may need green hydrogen, and both are outside of the scope of this settlement. Prematurely allowing "green" hydrogen in the plan just means more oil burning to make up for the electricity wasted making hydrogen.

### Electrofuels

Direct air capture is another inefficient and wasteful scheme some aim to combine with other energy-wasting ideas (green hydrogen) to make "sustainable aviation fuel" which is specifically promoted in the settlement. Like green hydrogen, it makes no sense to use before the electric grid is 100% powered by non-combustion renewable energy sources and has extra wind and solar to spare. Doing so would release about as much or more CO<sub>2</sub> than it would capture, either directly by using oil-fired power, or indirectly by using up renewables that could be displacing oil-fired power.

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<sup>52</sup> See pages 2-3 in their testimony here:

[https://www.capitol.hawaii.gov/sessions/session2025/Testimony/HB976\\_TESTIMONY\\_EEP\\_01-28-25\\_PDF#page=42](https://www.capitol.hawaii.gov/sessions/session2025/Testimony/HB976_TESTIMONY_EEP_01-28-25_PDF#page=42)

<sup>53</sup> <https://www.canarymedia.com/articles/enn/scientists-warn-a-poorly-managed-hydrogen-rush-could-make-climate-change-worse;>  
[https://www.dnv.com/article/is-hydrogen-a-greenhouse-gas--243214/;](https://www.dnv.com/article/is-hydrogen-a-greenhouse-gas--243214/) <https://www.cleanegroup.org/initiatives/hydrogen/areas-of-concern/>

## Leaky pipelines

Transportation of hydrogen and methane in existing, leaky gas pipelines risks ongoing GHG releases and should not be allowed.

## **Electrify**

In order to get away from burning things, we need to electrify the transportation sector, and ensure there are zero greenhouse gases from the electricity sector. (The transportation sector cannot become zero emission if it relies on an electricity sector that is still powered, in part, by GHG-emitting combustion sources.) Currently, the state's combustion sources of electricity generation are 66% from oil-burning, plus another 4% from "renewable" burning of trash, trees, and biofuels... all of which need to be eliminated to reach a zero GHG emissions target.

It is not enough to rely on the state's Renewable Portfolio Standard, which requires 100% "renewable" electricity by 2045, since this law includes the burning of "biomass" (trash, trees and other solid waste and crops), liquid biofuels, and biogas (toxic landfill gases and anaerobic digester gas). These fuels have carbon emissions worse than fossil fuels. Several corporations are aiming to expand use of these "bio" fuels, which will undermine the state's climate goals. The state's Renewable Portfolio Standard (RPS) law must be fixed to remove combustion so that these fuels no longer qualify.

It is possible to electrify ground transportation, and sea and air interisland transportation, while decarbonizing the electricity sector, in a clean way that focuses on conservation, efficiency, solar, wind, and energy storage. This can be done reliably, more cheaply, and with fewer environmental impacts than the false solutions in the draft plan.

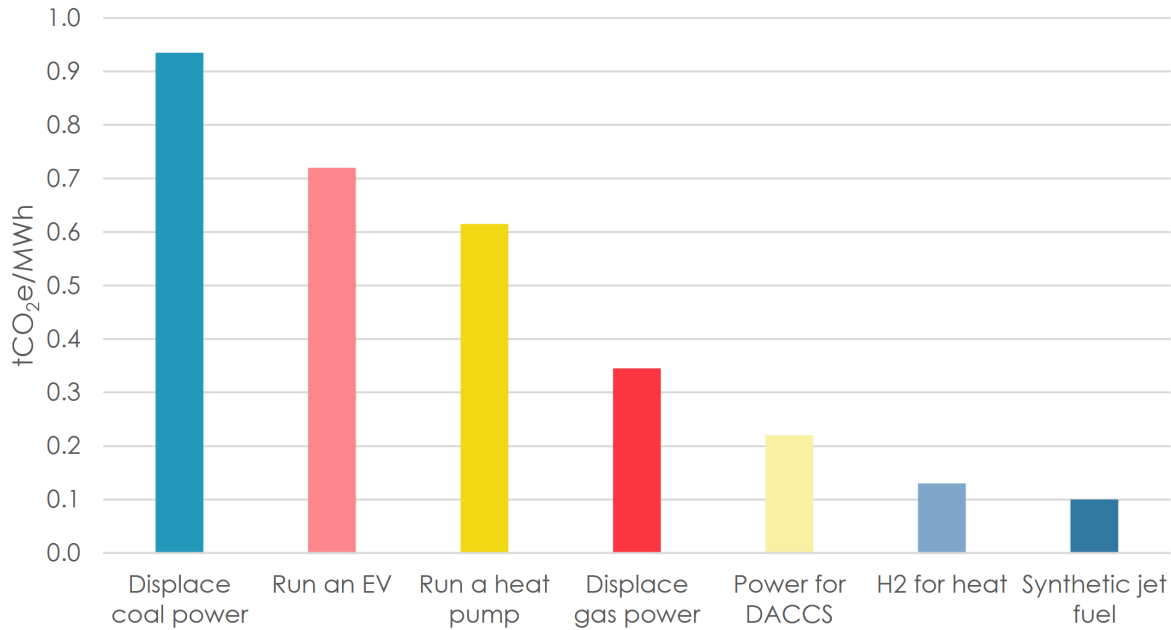
HECO is 64.2% oil generation and 3.3% waste/biofuels as of 2024. Clean (non-combustion) renewable electricity must displace this 67.5% combustion power before wasting energy on "green hydrogen" or electrofuels for planes. Otherwise, you're keeping the grid dirtier and contributing to more GHGs.

HDOT's plan should focus on ensuring an adequate supply of clean electricity by speeding up the process of cleaning up the electric grid while expanding clean renewable generation.

As the chart on the next page demonstrates, it's far more efficient to displace coal or gas power on the grid (oil would be in between those two) than to use clean energy to make hydrogen or jet fuel.<sup>54</sup>

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<sup>54</sup> See page 24 in [https://www.aef.org.uk/uploads/2023/11/Cerology\\_Alternative-fuels-in-aviation\\_Part-3-decarbonisation\\_Oct2023-1.pdf](https://www.aef.org.uk/uploads/2023/11/Cerology_Alternative-fuels-in-aviation_Part-3-decarbonisation_Oct2023-1.pdf)



**Figure 4 Emission avoidance with 1 MWh of zero carbon electricity in example applications**

Clearly, cars and small trucks can be electrified. Heavy trucking, planes and boats are the areas that are less common. However, aside from long-distance air travel, all the rest can be electrified today, and the technology exists.

The plan says, on page 24, that “EVs may not meet the operational needs for some heavy-duty truck applications.” This is outdated information. There are now EV trash trucks and long-haul trucks long enough to do any land distance in Hawai‘i. The longest likely heavy truck trip possible in the state would probably be a trash truck going as much as 130 miles for the longest routes to the West Hawaii Sanitary Landfill from the east side of Hawaii Island. EV semi trucks have ranges of 150-500 miles as of this 2023 article.<sup>55</sup> Specific to trash trucks, Waste Today Magazine writes: “Designed for commercial and residential refuse collection, the Model 520EV can handle up to 1,100 trash bins on a single charge.”<sup>56</sup>

### Avoiding Fraud / Double-Counting

There are plenty of ways to game the system, and not enough safeguards in place. With a state mandate for 100% “renewable” electricity by 2045 and a concurring mandate for zero GHG emissions from the transportation sector by 2045, it could be attractive to allow the same “renewable” electricity (which could be burning trash or trees or could be real renewables like wind and solar) to serve both at the same time. However, this is generally considered double-counting and some states and regional grids have protections against that sort of fraud. HDOT ought to work with the PUC and legislature to ensure that there is no double counting of electrons

<sup>55</sup> <https://www.eesi.org/papers/view/fact-sheet-the-future-of-the-trucking-industry-electric-semi-trucks-2023>

<sup>56</sup> <https://www.wastetodaymagazine.com/news/peterbilt-delivers-ev-trucks-to-waste-connections-of-new-york/>

or emissions attributes when developing any parallel mandate that will inevitably draw on renewable electricity to some degree.<sup>57</sup>

## Reduce demand

Demand reduction in both the electricity and transportation sectors must be a priority to help make it reasonable for both sectors to be clean and renewable by 2045. Conservation and efficiency strategies to reduce electricity waste would reduce the amount of new clean renewable energy generation capacity and storage that needs to be added to the grid in order to have enough excess clean electricity to power vehicles.

## The Elephant in the Air; Stay within the Scope

According to the pie chart on page 15 of the plan, 53% of the greenhouse gases from the state's transportation sector are from air travel. How much of that 53% is from flights to other U.S. states? HDOT is only required by HRS § 225P-8 and the *Navahine F.* settlement agreement to address interisland air transportation (but not military aviation, nor flights to and from Hawaii).

On page B-11, it states “[p]er the settlement agreement, international marine and aviation activities are not included in the calculations and strategies identified in this Plan, which is also consistent with the DOH GHG Inventory.” Note that it's not just international aviation, but interstate aviation is also excluded. The only marine or air travel that is in the scope is that which is within the state. This is not the time to broaden the scope, making a hard task even harder. Get this right, then once 2045 rolls around, perhaps there will be better options for long-distance air travel. Long-distance container shipping already has electrification piloted, but that's not for HDOT to worry about yet!

### Solving local air travel

Interisland air travel can be electrified through a combination of electric-powered ferries and seaglidors, as the Hawaiian Seaglider Initiative is exploring with the major airlines.<sup>58</sup>

Granted, seaglidors are fairly new, but they now exist and are being tested out. The Regent Seaglider<sup>59</sup> seats 12 people so far, which is 12-15 times fewer than the planes typically used. Hawaiian Airlines uses a Boeing 717 (128 passengers) and Southwest uses a Boeing 737 MAX8 (175 passengers).

To make this possible without congestion, there can be more departure and landing points. HDOT should be working to plan out infrastructure for this as part of this plan.

Also, since many of the flights are surely for tourists, there are many who may not be in such a rush and might opt for a ferry between islands, which would be slower, but likely cheaper. It would allow for whale and dolphin watching and will reduce the numbers who have to be in planes. Prior controversies over the Super Ferry can hopefully be avoided. After all, plenty of cruise ships and

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<sup>57</sup> See discussion of double-counting here: <https://www.aef.org.uk/2025/08/05/double-counting-risks-in-saf-global-supply-chain/>

<sup>58</sup> <https://www.hawaiiseaglider.org/april-press-release>

<sup>59</sup> <https://www.regentcraft.com/seaglidors/viceroy>; see also <https://www.youtube.com/watch?v=ggK0vlqiSV4>, <https://www.youtube.com/watch?v=QVMeSbgdOLQ>, and [https://www.youtube.com/watch?v=s-GP\\_0Cud98](https://www.youtube.com/watch?v=s-GP_0Cud98)

cargo ships already go between the islands. Some passenger ships shouldn't make a major difference.

Page 58 contains the plan's only mention of Electric Aircraft, which is a case study of a 3-passenger electric plane for "travel across the island of Maui." This may make sense for emergency medical transportation if electrifying a helicopter doesn't make more sense, but "enable faster and more frequent travel across the island of Maui" should not be a goal as it's simply increasing transportation use, and to what end? Let people drive an EV or take an electric bus. Electric aircraft are needed to get between islands, and the current electric options (sea gliders) can do 12 passengers, four times more than this case study. Why is that not featured in the plan instead?

### **Dangerous "Carbon Removal" Schemes**

Instead of trying to reach zero GHG emissions, as legally required, the plan assumes HDOT will fall short by 8-10%, and aims to make up for this with projects that purport to reduce emissions elsewhere.

Plans to burn trees and other organic material (biochar, BECCS) are also harmful and toxic, and carbon capture and storage technologies do not capture 100% of their CO2 emissions. Biochar (mentioned on page C-3) is an incineration technology (pyrolysis) that is toxic and problematic.<sup>60</sup>

Plans to filter seawater with membranes to remove CO2 would impact any other sea life that is caught up in the process.

"Enhanced rock weathering" would risk spreading metals into the environment while disturbing natural features.

Injecting CO2 into concrete can leak out over time.

Recycling plastic waste into roads (mentioned on page 33) is adding many toxic chemicals to asphalt, making it far more toxic than asphalt already is with the introduction of additives (catalysts, stabilizers, color pigments), PFAS and more.<sup>61</sup>

While not directly mentioned, several sections "pave" the way for Honolulu's plan to recycle toxic H-POWER trash incinerator ash into roads, which would spread toxic chemicals throughout our environment. While there is great controversy in O'ahu over the building of a new (double-lined) landfill over the aquifer, the City and County of Honolulu is pursuing plans to take the same waste (the toxic ash from the H-POWER trash incinerator) and build roads with it over the island. These would be linear unlined landfills, exposing people and the environment to dioxins and toxic metals in the ash. However, this will likely be framed as a strategy for "low carbon concrete."<sup>62</sup> In New York state, the state with the most trash incinerators (ten of them), the toxic chemical content of their incinerator ash is high enough that if placed on the land, it would meet the soil cleanup standards and would be required to be cleaned up.<sup>63</sup>

<sup>60</sup> <https://energyjustice.net/incineration/biochar.pdf>; <https://www.biofuelwatch.org.uk/wp-content/uploads/Biochar-briefing-2024.pdf>; <https://www.biofuelwatch.org.uk/category/reports/biochar/>

<sup>61</sup> <https://pmc.ncbi.nlm.nih.gov/articles/PMC12347778/>

<sup>62</sup> For info on incinerator ash testing, safety and "recycling," see [https://www.capitol.hawaii.gov/sessions/session2025/Testimony/SB438\\_HD2\\_TESTIMONY\\_JHA\\_04-02-25\\_PDF#page=45](https://www.capitol.hawaii.gov/sessions/session2025/Testimony/SB438_HD2_TESTIMONY_JHA_04-02-25_PDF#page=45) or pages 9-12 here starting half-way through page 9: <https://www.energyjustice.net/ny/Sullivan2025RFPCComments.pdf>

<sup>63</sup> <https://www.energyjustice.net/incineration/ashvssoilcleanup.pdf>

The last 8% is a violation of state law and the legal settlement, as it represents GHG emissions that will continue, but are to be compensated by supposed reductions elsewhere.

## **Policy solutions / Legal authority**

Page 3 states: “Establish a market-based mechanism to incentivize the use of clean marine fuels and discourage the use of fossil fuels.” In policy-making, avoid “market-based mechanisms” like carbon fees since they are not guaranteed to be strong enough or specific enough to meet a target. HDOT will not get to zero with policies like “discourage” rather than “ban.”

Page 36 states: “If every new vehicle sold in Hawai‘i was an EV starting in 2030, some gasoline vehicles could remain on the road in 2045.” If the legal authority exists to actually meet the goal of zero, then make this goal mandatory. Also, if it’s close enough to zero, will there really be gas stations left to service the rare people left with gasoline vehicles?

Page 3: “Increase the use of electric vehicles (EVs) statewide by expanding public charging infrastructure, converting transit vehicles to electric, and providing financial incentives for EV adoption.” Can the state set emissions standards? Can it ban sales of gasoline or diesel vehicles?

Page 56 discusses curtailing cruise ships. Will this run into interstate Commerce Clause challenges, or does the state really have the power to mandate it? It would be unrealistic to rely on cruise companies to voluntarily curtail their business.

There are discussions on pages 59 and F-16 on why the state cannot mandate SAF. If that’s the case, then what indirect ways can the state get people out of planes and into the seaglidars and ferries that can be fully electrified? Build it, and making it cheaper, more flexible, and attractive and they will come?

There are several areas in the plan that seem to have been written as if Trump is not president and as if the “One Big Beautiful Bill” had not passed. This includes page 35 where it says that “current federal regulations will spur increasing sales of EVs,” and page 41 where it talks about “securing federal grants” for electric fleets, page 84 where it says HDOT has applied for and received a Clean Materials Grant (is this secured or vulnerable to Trump admin cuts?). Page B-12 also talks about EPA CAFE standards. Were these not recently gutted?

## **Public Involvement**

Page 61 mentions that “HDOT will lead a statewide coalition of airlines, fuel producers, farmers, NGOs, and government agencies to build a shared roadmap for producing, importing, and using sustainable aviation fuel (SAF) in Hawai‘i.” This is mostly the fox in charge of the henhouse. Before involving all of these economic interests, how about revisiting whether SAF makes sense and whether HDOT plans to tackle interstate air travel, even though it’s beyond the scope of the state law and settlement agreement?

There must be more knowledgeable people with critical views involved in the inner circle as this work continues. The small circle of agency staff, industry interests, plaintiffs and youth have clearly not been sufficient to prevent this draft plan from being a laundry list of false solutions.

Page 61 states that in September 2025, a “first coalition meeting” will be held. Will these meetings be open to the public? Please answer this in time for us to participate.

Page 77 states “This strategy represents HDOT’s chosen approach to implement the strategies in this Plan. It is already underway with HDOT engaging key stakeholders to consult on this Plan prior to its release, and regularly communicating and collaborating with Earthjustice, Our Children’s Trust, and Hawai’i Youth Transportation Council.” Please regularly communicate with us as well. Being on the outside trying to look in has not been productive or collaborative.

Page 91 states: “HDOT plans to update the plan annually for the first 5 years after the issuance of the first plan. This will allow for additional analysis as needed, integration of new technologies as they become available, and will reflect progress made by HDOT.”

It’s good to see this. How do we become an integral part of the process rather than a once-per-year opportunity to comment on something already drafted?

## Errata

- Page 16: “four general aviation airports” should say five?
- Fig 3-4: “overacrching” and “aagressive”
- Pages 8 & 70: “Airport Carbon And Emission Reduction Tool” should be “Airport Carbon and Emissions **Reporting** Tool”
- Page F-13: “the climate benefit of renewable LNG hinge” - need ‘s’ on benefit or hinge

## Conclusion

There are many ideas in the HDOT plan that are decent and just need to be scaled up, especially every method to electrify transportation. Public transportation needs to be ramped up a lot, and be fare-free. Trash, recycling and composting collection should be one hauler going to all homes for curbside collection so that we don’t have people doing separate trips to transfer stations in the neighbor islands. Efforts to grow more food (not fuel!) on the islands will increase food security while reducing shipping. Let’s make this all happen... the right way, in the right order, without more combustion, please!

Mahalo nui loa,

Mike Ewall, Esq.  
Executive Director, [Energy Justice Network](#)  
Co-Chair, [Environmental Caucus of the Democratic Party of Hawai’i](#)  
215-436-9511  
[mike@energyjustice.net](mailto:mike@energyjustice.net)  
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Melodie Aduja  
Chair, [Kōkua nā ‘Āina](#)

Alan Burdick  
Co-Chair, [Environmental Caucus of the Democratic Party of Hawai’i](#)

**TESTIMONY ON SENATE BILL NO 2999 SD1, HD1 RELATING TO  
A CLEAN FUEL STANDARD**

Position: **Support**

To Representative Darius Kila, Chair; Representative Tyson Miyake, Vice Chair; and Members of the Committee on Transportation:

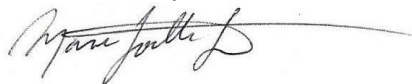
Simonpietri Enterprises LLC (SEL) **SUPPORTS** the intent to create a Clean Fuels Standard (CFS) for the state of Hawai'i.

SEL is an O'ahu-based small business developing innovative ways to recycle some of Hawai'i's most challenging wastes into renewable fuels and other beneficial recycled-material products for use in Hawai'i. For the last 6 years we have been designing the Aloha Carbon integrated plant in Campbell Industrial Park to divert over 2000 tons per day of construction & demolition (C&D) debris from landfilling to be converted into renewable natural gas starting with a small manufacturing plant – the Aloha Sustainable Materials Recycling and Fertilizer Facility (Aloha SMRFF) – which will serve as the pilot plant for Aloha Carbon. The Aloha SMRFF will divert over 200 tons per day of construction & demolition (C&D) waste from landfilling along with invasive and pest infested biomass to be converted into renewable fuel and other value-added products.

As a company whose technical expertise and innovation are focused in the areas of waste management, energy, fuels and the circular economy, we see a CFS as a valuable tool that can be successfully utilized to reach carbon emission reduction goals. A CFS helps to spark innovation from small businesses like ours while paving the way for investment in and expansion of necessary infrastructure to bring Hawai'i's energy sector up to date. This type of investment and expansion generally also leads to the creation of technical, engineering and construction jobs. In addition to the economic impact a CFS could have, we feel this measure also encourages better management of waste and environmental stewardship which align with our mission as company and we would like to see it advance.

We appreciate the opportunity to testify on this measure, and urge your support for **Senate Bill 2999 SD1, HD1**.

Sincerely,



Marie-Joelle Simonpietri  
President

*[About Simonpietri Enterprises LLC](#)*

Simonpietri Enterprises is a Kailua, Hawaii-based woman- and veteran-owned small business with ten employees, focused on technical innovation and first-of-kind project development of emerging clean and renewable technologies. Since founding in 2006, we have helped dozens of small and large industrial companies in Hawaii, the continental U.S., Australia, and Canada improve the environmental and economic sustainability of their operations through technical and business advice in renewable

energy conversion, waste reduction and re-use, and greenhouse gas lifecycle impact reduction. Simonpietri Enterprises' founder and employees have participated in the strategy, planning, design, financing, development, construction, and energy efficiency/greenhouse gas reduction/sustainability renovation for over \$400 million in new renewable and first-of-kind sustainable fuel projects over the past 15 years. Since launching the Aloha Carbon waste-to-fuel technical development process in August 2020, Simonpietri Enterprises is now developing renewable fuel production facilities in its own right, starting with the Aloha Sustainable Materials Recycling and Fertilizer Facility (SMRFF) in Kapolei, Hawaii to divert wastes generated in Honolulu from landfilling and transform it to renewable fuel, organic fertilizer, and recycled-material building products.



March 24, 2026

**TESTIMONY ON SB 2999 SD1 HD1  
RELATING TO A CLEAN FUEL STANDARD**

House Committee on Transportation  
Representative Darius K. Kila, Chair  
Representative Tyson K. Miyake, Vice Chair

Tuesday, March 24 at 9:00 a.m.  
State Capitol, Conference Room 430

Aloha Chair Kila, Vice Chair Miyake, and members of the Committee,

Thank you for this opportunity to submit written testimony offering **comments** on SB 2999 SD1 HD1, Relating to a Clean Fuel Standard. My name is Eric Wright and I serve as President of Par Hawaii. Par Hawaii is the largest local supplier of fuels, and we are currently commissioning a 60 million gallons per year sustainable aviation fuel and renewable diesel facility.

We respectfully request amendments to ensure that a clean fuel standard does not unintentionally raise fuel prices for Hawaii residents or negatively impact jobs in Hawaii.

Page 6, lines 12-14; move to page 4 under Section 2. (a):

(1) A cost containment mechanism designed to allow for sufficient compliance flexibility and **ensure that gasoline or diesel prices do not increase by [ ] cents per gallon in any year as a result of the clean fuels program;—maximum greenhouse gas reductions;**

**Rationale:** Ensure that the costs of the clean fuel standard do not impose significant costs on Hawaii consumers.

Add provision to page 6 under Section 2. (b):

**(x) A mechanism to ensure that local production of fuels are not disadvantaged relative to imported fuels, including safeguards to account for regional feedstock availability, transportation costs, and market access conditions;**

**Rationale:** Ensure that imports from foreign jurisdictions (with lesser environmental, safety and labor standards) do not crowd out local production of renewable fuels and/or negatively impact jobs and the economy in Hawaii.

Thank you for allowing Par Hawaii the opportunity to present these amendments for the Committee's consideration.



March 24, 2026

**House Committee on Transportation**  
The Honorable Darius K. Kila, Chair  
The Honorable Tyson K. Miyake, Vice Chair

**Senate Bill 2999, Relating to a Clean Fuel Standard**

Tuesday, March 24, 2026, 9:00 AM

**Position: Support with Amendments**

Chair Kila, Vice-Chair Miyake, and members of the committee:

Thank you for the opportunity to provide testimony on behalf of Tesla in support of SB 2999. We respectfully encourage the committee to consider amendments to ensure that Hawai'i's Clean Fuel Standard (CFS) captures and accelerates the benefits of electric vehicles (EVs).

A CFS can be a powerful tool for Hawai'i to reduce lifecycle emissions from transportation fuels, spur private investment, and improve energy resilience. We propose the following amendments to ensure these outcomes are achieved:

**1) Clarify that transportation electrification is an eligible credit pathway.**

SB 2999 should explicitly ensure that electricity used for transportation can generate credits on equal footing with other eligible fuels by:

- Including electricity within the program's eligible "alternative fuel" category; and
- Enabling participation by automotive manufacturers and EV charging providers.

**2) Allow capacity-based crediting to accelerate the buildout of public fast charging**

Hawai'i's charging needs will be met by a combination of charging technologies, including public fast charging. A capacity-based crediting option, designed by DOT through rulemaking, can help ensure immediate capacity to support EV adoption as the market matures.

**3) Ensure program integrity as the market evolves**

Including a mechanism that allows DOT to respond to market conditions, including potential credit oversupply, will ensure that the CFS keeps driving real emissions reductions over time.

SB 2999 will be best positioned to help Hawai'i reduce transportation emissions and accelerate cleaner mobility if it fully incorporates electrification and provides DOT clear and durable implementation authority. Tesla supports SB 2999 and respectfully encourages consideration of amendments consistent with the above-referenced goals.

Respectfully submitted,

Kevin George Miller  
Managing Policy Advisor  
Tesla, Inc.

March 24, 2026

House Committee on Transportation  
The Honorable Darius K. Kila, Chair  
The Honorable Tyson K. Miyake, Vice Chair

**Re: SB 2999 – Relating to a Clean Fuel Standard**

Dear Chair Kila, Vice-Chair Miyake, and members of the Committees:

The undersigned electric vehicle (EV) manufacturers and EV charging providers submit testimony in support of SB 2999 and respectfully request targeted amendments to ensure a Clean Fuel Standard in Hawai'i fully enables zero-tailpipe-emission transportation, including electricity used as a transportation fuel.

A well-designed Clean Fuel Standard can reduce lifecycle greenhouse gas emissions in Hawaii's transportation sector while driving investment, improving energy security, and delivering public health benefits. To achieve these goals in a technology-neutral, market-based manner, the program should allow all eligible pathways, **including electricity and EV charging**, to participate on clear and equal terms.

**Why these amendments are needed**

*1) Ensure electricity and EV charging can participate as credit-generating pathways.*

SB 2999 appropriately uses lifecycle carbon intensity and credit/deficit accounting to drive emissions reductions. However, absent explicit statutory clarity, electricity and EV charging can become administratively uncertain or treated as optional. This would slow private investment and delay the buildout of convenient, reliable charging.

*2) Support deployment of higher-powered public fast charging through capacity crediting.*

Public fast charging requires substantial up-front capital, often before utilization ramps. Capacity-based crediting for public fast charging is a practical mechanism to accelerate deployment of the higher-powered infrastructure needed for broad EV adoption, while still aligning incentives with emissions reduction outcomes.

*3) Ensure utility credit value delivers visible public benefit through reinvestment in transportation electrification.*

Where electric utilities receive credit revenue associated with EV charging, directing net proceeds into clearly defined transportation electrification projects helps ensure that program value supports infrastructure deployment, consumer adoption, and equitable access statewide.

## **Requested amendments**

We respectfully request the Committee to adopt the amendments attached as Attachment A, including: (i) clarifying electricity as an alternative fuel, (ii) defining “electric vehicle charging provider,” (iii) expressly enabling EV charging providers and automotive manufacturers to participate in crediting mechanisms, (iv) authorizing capacity-based crediting for public fast charging, (v) providing an automatic acceleration mechanism to protect against credit oversupply, and (vi) requiring reinvestment of utility credit revenue attributable to EV charging into transportation electrification projects.

## **Conclusion**

SB 2999 is a timely and important step toward reducing transportation emissions in Hawaii. With the amendments in Attachment A, the Clean Fuel Standard will more effectively accelerate EV adoption, unlock private investment in charging, and ensure program benefits flow to residents and communities throughout Hawai'i.

For these reasons, the undersigned respectfully requests a favorable report on SB 2999 with the amendments in Attachment A.

Respectfully,

Chris Bresee  
Director, State Government Affairs  
**NEMA**

Josh Cohen  
Head of Policy  
**SWTCH**

Michael Daft  
Public Policy Manager  
**Electrify America**

Emily Kelly  
Director, Public Policy  
**ChargePoint**

Kevin George Miller  
Managing Policy Advisor  
**Tesla**

Abigail Ramsden  
Senior State Policy Manager  
**Rivian**

## Attachment A: Proposed Amendments to SB 2999

### Section 2 (b) (2) at page 6 line 20 through page 7 line 4, insert the following:

(2) Mechanisms whereby an electric utility, an electric vehicle charging provider, automotive manufacturer, or an energy producer can generate credits for electricity ~~for or~~ gaseous fuels used in transportation; provided that the department of transportation shall develop these mechanisms based on best practices in use in other states and in consultation with industry stakeholders;

### Section 2(b) after page 8 line 20, insert the following:

(12) An automatic acceleration mechanism designed to tighten carbon intensity targets to mitigate the risk of credit oversupply.

(13) Mechanisms for electric vehicle charging providers to calculate and generate credits based on the capacity of public fast charging infrastructure to charge electric vehicles, consistent with mechanisms already approved in other states like California and Washington.

(14) Mechanisms that allow electric vehicle manufacturers to earn credits attributable to the charging of electric vehicles at residences.

(15) Mechanisms that allow entities to match EV charging activity with renewable electricity to achieve more substantial carbon intensity reductions.

(16) Requirement that electric utilities invest any credit revenue attributable to electric vehicle charging, less reasonable administrative expenses, in clearly defined transportation electrification projects that may include rebates for the purchase of electric vehicles or electric vehicle supply equipment.

### Section 2 (f) at page 10 line 7, insert the following:

"Alternative fuel" means any fuel that is not fossil fuel-based and is used for transportation purposes, including electricity.

### Section 2(f) at page 10 after line 20, insert the following definition:

"Electric vehicle charging provider" means a person or entity that sells, supplies, or dispenses electricity for use as a transportation fuel for electric vehicles.

**SB-2999-HD-1**

Submitted on: 3/20/2026 1:55:52 PM

Testimony for TRN on 3/24/2026 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Johnnie-Mae L. Perry	Individual	Support	Written Testimony Only

Comments:

I, Johnnie-Mae L. Perry, Support

2999 SB RELATING TO A CLEAN FUEL STANDARD.

EVERYONE ARE ENTITLED TO BREATH CLEAN AIR

To: Representative Darius K. Kila, Chair  
Representative Tyson K. Miyake, Vice Chair  
Committee on Transportation

From: Veronica Moore, Individual Citizen

Date: March 23, 2026

RE: Senate Bill 2999 SD1, HD1  
Measure Title: RELATING TO A CLEAN FUEL STANDARD.  
Report Title: Clean Fuel Standard; Alternative Fuels; Rules; Department of  
Transportation

To All Concerned,

My name is Veronica Moore and I support Senate Bill 2999 SD1, HD1. Your  
consideration is appreciated. Thank you.

Sincerely,

Veronica M. Moore

HOUSE OF REPRESENTATIVES  
THE THIRTY-THIRD LEGISLATURE  
REGULAR SESSION OF 2026

COMMITTEE ON TRANSPORTATION

Rep. Darius K. Kila, Chair  
Rep. Tyson K. Miyake, Vice Chair

Rep. Luke A. Evslin	Rep. Elle Cochran
Rep. Tina Grandinetti	Rep. Chris L. Muraoka
Rep. Lisa Kitagawa	Rep. Elijah Pierick
Rep. Trish La Chica	

HEARING

DATE: March 24, 2026  
TIME: 9:00 AM  
PLACE: VIA VIDEOCONFERENCE  
Conference Room 430

Public commentor: Ted Metrose - Opposed - Amendments Recommended

SD2999 – SD1 Empowers and requires HDOT to establish a clean fuel standard (CFS) for transportation fuels and sets carbon intensity targets to reduce GHG emissions within the State. Land based transportation fuels and marine fuels consumed within the State would be explicitly subject to the CFS. Interisland aviation fuel and fuel consumed during interstate travel by air or by sea would be allowed to earn marketable clean fuel credits, through voluntary participation in the CFS program but (but in contrast to land-based transportation fuels) would not be obligated by HDOT’s clean fuel standard.

Comments / Opposed pending Amendment:

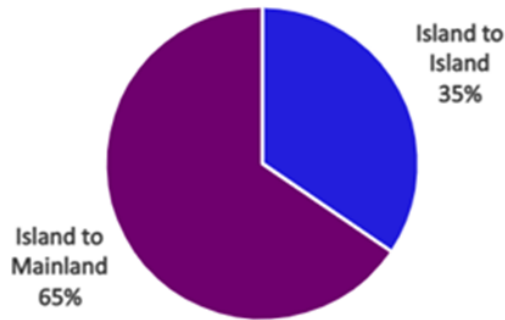
To advance the State's decarbonization goals for the transportation sector, SB2999 HD1 (like HB1986 HD2) directs HDOT to define a clean fuel standard (CFS) and establishes a regulatory framework for a clean fuel credit market. The CFS approach is conceptually sound, however the proposed bill has some structural flaws, and largely misses its mark.

The fundamental flaw with SB2999-HD1 is that aviation fuel (unlike marine fuel) consumed during travel between Hawaiian Islands is not explicitly subject to the CFS. The bill inexplicably provides an exemption for aviation fuel even though inter-island aviation fuel is fully within Hawaii's authority to regulate and the State is essentially obligated by HRS 225P-8 to reduce/eliminate GHG emissions from air travel within the State. Even though the CFS approach has been widely touted as one of the most cost-effective means of reducing GHG emissions (without public subsidies), this bill inappropriately exempts aviation fuels consumed in flights between islands, which according to the

HDOT, represents about 35% of the approximate 600 million gallons per year of domestic aviation fuel uplifted in Hawaii.

**Figure 2-4. Domestic Flight Fuel Consumption Distribution**

Domestic Flight Fuel Consumption Distribution



Inter-island aviation transportation is precisely the sector which could benefit the most from the innovation and cost-savings generated by a mandatory CFS program.

Advocates, including HDOT contend that GHG emissions from inter-island air travel, (as well interstate and international) travel can be reduced (and ultimately eliminated) by allowing the airlines and their fuel suppliers to participate in the CFS program on a voluntary basis. The bill proposes to use marketable clean fuel credits as a financial inducement to evoke participation. The airlines and/or their fuel suppliers would be able to earn marketable credits for clean fuels, but they would not be obligated to use clean fuels or electrification as a replacement for fossil fuels. Besides giving interisland air travel a free pass, SB2999-HD1 contains provisions (specifically financial incentives) that could expose the State to federal preemption risk, expand HDOT’s authority beyond what is authorized and required by HRS §225P-8, and will likely create implementation challenges that will be difficult to correct, with subsequent legislation.

By exempting inter-island aviation fuel from the CFS and by relying upon voluntary participation, the bill places the State and taxpayers at risk of bearing substantial costs—potentially hundreds of millions of dollars per year - to decarbonize inter-island air travel. Under the entirely voluntary structure that has been proposed (by and) for the aviation sector, the State would effectively be responsible for subsidizing or paying for the GHG emissions reductions that airlines and their suppliers decline to undertake without additional financial incentives. As clearly conveyed in their testimony on February 17th, 2026, principally to justify the airline industry’s demand for robust tax credits for sustainable aviation fuel (SAF), the airlines give their full support to the SB2999, providing of course that their participation in the CFS program is exempted and strictly voluntary,

Because Hawaii has limited authority to regulate, control or induce specific fuels on interstate travel, the State should mandate participation in the CFS for inter-island travel - not make credits available and participation in the CFS voluntary for all air travel. Allowing credits to be earned on interstate or international flights for the use of low-carbon fuels such as SAF would be extension of a financial incentive, that is violation of the Air Deregulation Act.

#### Premature and legally binding Carbon Intensity (CI) Targets established by SB2999/HB1986

Even in advance of establishing a baseline or completing the impact analysis this bill needlessly includes potentially legally binding carbon intensity (CI) targets for clean fuels for 2035 and 2045 which are poorly defined and arguably contradictory to existing decarbonization statutes. The CI targets should be developed in parallel with or after the clean fuel standards that are to be developed over the next two years and compared to the alternative of in-state mandates for clean fuels and electrification. Certainly, HDOT can as part of the CFS program proposal suggest targets, any legislative action to firmly establish CI targets (and make a market), however that should be after the scope, impact analysis and comparison has been completed, just as previously recommended in HDOT's Energy Security and Waste Reduction Plan. The initial CFS study findings have only been summarized by the HDOT (as part of their testimony) and not released to the public for comments. Despite optimistic representations, explicit projections for the aviation transportation sector under the CFS approach have not been provided to the public or the legislature.

#### Proposed Amendments

Attached is a targeted amendment package that identifies these issues and provides clean, committee-ready language for SD2999-HD1. I request and hope that TRN will endorse many if not all the proposed amendments.

The rationale provided for each of the amendments should make them readily acceptable. However, in the alternative if for some reason the TRN committee were to find them unacceptable, simply defer SD2999 and give HDOT more time, to consult with the AG and other influencers to get the CFS bill right for next year. Notably deferring this version of the CFS bill would not preclude HDOT from working on the CFS proposal, because neither SD2999 or HB1986 currently provide any additional funding for HDOT to conduct the study or administer the CFS program, even though supplemental funding is likely to be needed and requested in the future.

Again, thank you for the opportunity to comment on the proposed clean fuel standard.

# TARGETED AMENDMENT PACKAGE FOR HB1986 HD2 (TO BECOME SD1)

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## PREFATORY DESCRIPTION & JUSTIFICATION

This targeted amendment package ensures that Hawai‘i’s Clean Fuel Standard (CFS) is implemented strictly within the scope of the State’s regulatory authority while preventing unintended consequences such as federal preemption, market distortion, or double-subsidization. The amendments clarify that inter-island aviation, and marine fuels fall within the State’s jurisdiction under HRS §225P-8 and are therefore subject to the CFS. They also make explicit that fuels used in interstate or international transportation - whether aviation or marine - cannot generate CFS credits under any circumstance, including voluntary participation.

The package also addresses a structural flaw introduced in HB1986 HD2: the premature insertion of carbon-intensity (CI) targets. Although the bill purports to advance the goals of HRS §§225P-5, 225P-7, and 225P-8 “as quickly as possible,” the CI targets are expressed as reductions from 2019 statewide fuel carbon intensity without specifying which fuels are included. This ambiguity risks being misinterpreted as legislative authorization for HDOT to expand the CFS beyond the State’s jurisdiction, particularly into interstate aviation and marine fuels.

HDOT’s own Energy Security Plan outlines a logical sequence: first clarify the scope of the CFS, then evaluate program impacts, and only then develop appropriate CI targets.

HB1986 HD2 reverses this sequence by inserting CI targets before HDOT has completed the foundational work needed to determine which fuels are subject to the CFS and how the program will operate. This premature insertion risks creating statutory confusion, weakening the State’s zero-emissions mandate under HRS §225P-8, and enabling HDOT to use CI targets as a justification for jurisdictional overreach

To promote fiscal responsibility and prevent double-dipping, the amendments prohibit any fuel from receiving both a state tax credit and a CFS credit for the same unit of fuel. The Renewable Fuels Production Tax Credit (RFPTC) is phased out three years after CFS rules are adopted, aligning long-term incentives with the CFS framework and ensuring a coherent statewide policy. The amendments further clarify that only electricity supplied for transportation end uses may participate in the CFS, and that fuels burned by regulated electric utilities to generate electricity are not eligible for CFS credits.

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# KEY AMENDMENT OBJECTIVES

- Encourage and ensure the CFS (and resulting electrification) applies only to transportation modes within the State’s jurisdiction under HRS §225P-8
  - Prevent risk of federal preemption by prohibiting CFS credits for interstate or international aviation and marine fuel
  - Require inter-island aviation and marine fuel to participate in the CFS
  - Prevent double-subsidization by prohibiting fuels from receiving both State tax credits and CFS credits
  - Phase out the Renewable Fuels Production Tax Credit three years after CFS rules are adopted
  - Clarify that only electricity supplied for transportation end uses may generate CFS credits
  - Prevent utilities from generating CFS credits for fuels they are already required to use under the RPS
  - Remove premature carbon-intensity targets until HDOT completes scope clarification and program evaluation, preventing statutory conflict and jurisdictional overreach
- 

## DESCRIPTION AND RATIONALE FOR SPECIFIC AMENDMENTS

### SECTION 1 — Clarify the Existing Exemption Clause

Current bill text:

“Exemptions for diesel, gasoline, or other fuels used by aircraft, railroad locomotives, military vehicles, and interstate waterborne vessels.”

Proposed amendment:

Clarifies that the exemption applies only to interstate or international aviation and marine operations, consistent with federal jurisdiction.

Rationale:

This preserves the bill’s structure while ensuring that inter-island aviation and marine fuel remain subject to the CFS, consistent with HRS §225P-8. Clarifying the scope of the exemption also ensures that clean, low-carbon fuels are used within the State where the Legislature has clear authority to regulate.

### SECTION 2 — Require CFS Coverage for Inter-Island Aviation & Marine Fuel

Proposed amendment:

“(9)(A) Aviation fuel and marine fuel used exclusively for inter-island transportation shall not be exempt under paragraph (9) and shall be subject to the clean fuel standard, consistent with the State’s authority under section 225P-8, Hawaii Revised Statutes.”

Rationale:

This amendment ensures that the CFS applies to the transportation modes the Legislature is authorized to regulate. HDOT's Energy Security Plan identifies inter-island aviation fuel as approximately 35% of domestic jet fuel uplifted in Hawai'i and identifies the CFS as a key tool for reducing emissions from this sector. (See excerpt from HDOT's plan at the end.) Applying the CFS to inter-island aviation and marine fuel will align the program with the State's statutory mandate and treats inter-island transportation in a manner which is consistent with land-based transportation fuels.

### SECTION 3 — Close the Voluntary Participation Loophole

Proposed amendment:

“No credits, deficits, carbon-intensity adjustments, or other incentives may be generated, awarded, or applied to aviation fuel or marine fuel used for interstate or international transportation, whether mandatory or voluntary.”

Rationale:

This prevents HDOT from using voluntary participation to indirectly regulate interstate or international transportation — a core federal preemption risk. Case law is clear that financial inducements affecting interstate aviation or marine operations may be treated as regulatory burdens. Prohibiting CFS credits for interstate or international fuel ensures the program remains legally defensible, increases the availability of clean fuels for in-state use, and avoids creating incentives that the State cannot lawfully impose. This also corrects misinterpretations in HDOT's Energy Security Plan regarding the scope of the Navahine settlement, which does not require the State to regulate emissions outside its jurisdiction.

### SECTION 4 — Clarify Legislative Intent

Proposed amendment:

“The legislature finds that its authority under section 225P-8, Hawaii Revised Statutes, extends only to ground transportation and sea and air inter-island transportation. Interstate and international aviation and marine operations fall under exclusive federal jurisdiction. The clean fuel standard established under this Act is therefore intended to apply only to fuels used in transportation modes within the State's regulatory authority.”

Rationale:

This findings clause provides clear legislative direction, strengthens the legal foundation of the bill, and ensures that HDOT implements the CFS within the State's jurisdiction. Explicit legislative intent reduces preemption risk and guides rulemaking.

## SECTION 5 — Prevent Double-Dipping of State Subsidies and CFS Credits

Proposed amendment:

“No alternative fuel may generate credits under the clean fuel standard if the production of that fuel received any State tax credit, rebate, production incentive, or other State-funded financial support. The department shall adopt rules to verify that fuels generating credits under the clean fuel standard have not received State tax incentives for the same unit of fuel.”

Rationale:

This prevents double-subsidization, where the same gallon of fuel receives both a State tax credit and a CFS credit. Double-dipping undermines the purpose of the CFS, distorts the market, and increases fiscal exposure. This amendment ensures that the CFS rewards performance rather than stacking subsidies and helps maintain the program’s credibility and fiscal neutrality.

## SECTION 6 — Phase Out the Renewable Fuels Production Tax Credit (RFPTC)

Proposed amendment:

Repeals the RFPTC three years after CFS rules are adopted.

Rationale:

A three-year phase-out provides producers time to adjust while aligning long-term State incentives with the CFS. This avoids long-term subsidy stacking, reduces fiscal exposure, and ensures that the CFS becomes the State’s primary mechanism for rewarding low-carbon fuel production.

## SECTION 7 — Prohibit Utility Fuel Credits While Preserving Electrification

Rationale:

Utilities are already required to use renewable fuels under the Renewable Portfolio Standard and related mandates. Allowing those same fuels to generate CFS credits would create windfall credits for actions utilities are already obligated to take. This amendment:

- Prevents double counting and market distortion
- Keeps the CFS focused on transportation decarbonization
- Preserves full eligibility for electricity used in transportation
- Requires no new reporting burdens, as utilities already report fuel use to the PUC

## SECTION 8 - Defer Setting Carbon-Intensity Targets Until HDOT Completes Baseline Assessment and Program Effectiveness Evaluation

Strike the poorly defined carbon-intensity targets in Section 2(b)(1), HB1986 HD2, and direct HDOT to develop any future CI targets only after the department has fully evaluated the revised scope of the Clean Fuel Standard (CFS) and assessed the impacts of implementation.

### Rationale:

The carbon-intensity (CI) targets inserted into HB1986 HD2 are premature, ambiguous, and risk being misinterpreted as legislative authorization for HDOT to expand the CFS beyond the State's jurisdiction. Although the bill purports to advance the goals of HRS §§225P-5, 225P-7, and 225P-8 "as quickly as possible," the CI targets are expressed as reductions from a 2019 statewide fuel carbon intensity baseline without specifying which fuels are included. This ambiguity allows HDOT to argue that the Legislature intended the CFS to encompass all transportation fuels consumed in Hawai'i, including interstate and international aviation and marine fuels that fall under exclusive federal authority.

HDOT's own Energy Security Plan outlines a logical sequence: first clarify the scope of the CFS, then evaluate program impacts, and only then develop appropriate CI targets.

HB1986 HD2 reverses this sequence by inserting CI targets before HDOT has completed the foundational work needed to determine CI baselines and projections of how the program will operate. This premature insertion risks creating statutory confusion, weakening the State's zero-emissions mandate under HRS §225P-8, and enabling HDOT to use CI targets as a justification for jurisdictional overreach.

Deferring CI targets until after HDOT completes its scope clarification and program evaluation ensures that any future targets are:

- aligned with the State's actual regulatory authority,
- consistent with HRS §225P-8's zero-emissions requirement,
- based on accurate fuel-use data,
- will not create an unreasonable legislative mandate and become a legal liability,
- and developed through a transparent rulemaking process.

For these reasons, the CI targets should be removed from SD2999D1 and revisited only after HDOT has completed the necessary groundwork.

# PROPOSED STATUTORY AMENDMENTS

(All new statutory material is underscored; no material is deleted unless bracketed and stricken.)

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## SECTION 1.

Section 2(b)(1), HB1986 HD2, is amended to read as follows:

“(1) A schedule to phase in the implementation of the clean fuel standard for alternative fuels in manner that reduces the average carbon intensity at a rate [~~to enable the State to achieve the targets in sections 225P-5, 225P-7, and 225P-8, Hawaii Revised Statutes as quickly as possible, but beginning with targets no less than ten per cent below 2019 levels by 2035 and no less than fifty per cent below 2019 levels by 2045, including the establishment of annual carbon intensity standards for alternative fuels.~~] which is consistent with the State’s charge under section 225P-8, Hawaii Revised Statutes, and based on the department’s evaluation of program scope, fuel-use data, and implementation impacts;”

Section 2(b)(2), HB1986 HD2, is amended to read as follows:

(2) An implementation date for the clean fuel standard for diesel, ~~and~~ gasoline, and aviation and marine fuels sold and used exclusively for inter-island transportation, beginning January 1, 2029[.] ; provided that this implementation date shall apply only to fuels within the State’s regulatory authority under section 225P-8, Hawaii Revised Statutes.

---

## SECTION 2.

Section 2(a)(9), HB1986 HD2, is amended to read as follows:

(9) Exemptions for diesel, gasoline, or other fuels used by aircraft engaged in interstate or international flights, railroad locomotives, military vehicles, and interstate or international waterborne vessels;

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## SECTION 3.

Section 2(a), HB1986 HD2, is amended by adding four new paragraphs to follow paragraph (9) to read as follows:

(9)(A) Aviation fuel and marine fuel sold or delivered for use exclusively for inter-island transportation shall not be exempt under paragraph (9) and shall be subject to the clean fuel standard, consistent with the State’s authority under section 225P-8, Hawaii Revised Statutes.

(9)(B) No credits, deficits, carbon-intensity adjustments, or other incentives may be generated, awarded, or applied to aviation fuel or marine fuel used for interstate or international transportation, whether mandatory or voluntary.

(9)(C) The clean fuel standard shall not create, directly or indirectly, any financial inducement, credit mechanism, deficit obligation, or carbon-intensity requirement that affects the fuel choices, prices, routes, or services of interstate or international air carriers or marine carriers.

(9)(D) For purposes of paragraphs (9) through (9)(C), “inter-island” means transportation occurring wholly between points within the State, and “interstate or international” means transportation involving any point outside the State.

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## **SECTION 4.**

Section 2(b)(3), HB1986 HD2, is amended to read as follows:

(3) Mechanisms whereby exempt end-uses, such as aviation, marine, rail, and military, can opt in to the clean fuel standard to generate credits when using alternative fuel[.]; provided that no credits may be generated for fuels used in interstate or international transportation.”

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## **SECTION 5.**

Section 1, HB1986 HD2, is amended by adding a new paragraph at the end to read as follows:

The legislature further finds that its authority under section 225P-8, Hawaii Revised Statutes, extends to ground transportation and sea and air transportation wholly within the State. Interstate and international aviation and marine operations fall under exclusive federal jurisdiction. The clean fuel standards established under this Act is therefore intended to apply only to fuels used in transportation modes within the State’s regulatory authority.

---

## **SECTION 6.**

Section 2(a), HB1986 HD2, is amended by adding a new paragraph to read as follows:

(12) No credit may be generated under the clean fuel standard for any alternative fuel for which the producer or supplier has received a state tax credit, rebate, or other State-funded financial incentive for the production or sale of that same fuel. The department shall adopt rules to ensure that fuels receiving State tax incentives are not eligible to generate credits under the clean fuel standard.

## SECTION 7.

Section 235-110.31, Hawaii Revised Statutes, is amended by adding a new subsection to read as follows:

(g) Notwithstanding any law to the contrary, the credit established under this section shall be repealed on June 30 of the third calendar year following the adoption of rules establishing a clean fuel standard pursuant to Section 2 of this Act. No taxpayer may claim the credit for any fuel produced after that date.

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## SECTION 8.

No fuel used for the generation of electricity by a regulated electric utility shall be eligible to generate credits under the clean fuel standard. Only electricity supplied for transportation end uses may generate credits under the clean fuel standard.

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## SECTION 9.

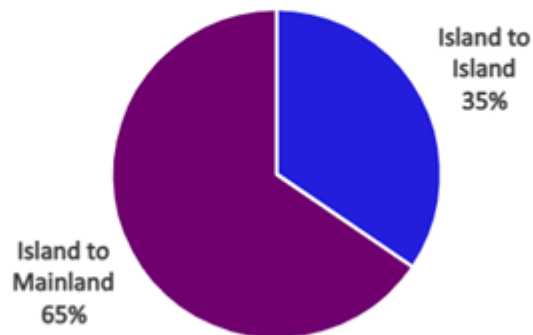
The department of transportation shall revise any draft rules, guidance documents, or program designs to conform to the amendments made by this Act.

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### HDOT's Energy Security and Waste Reduction Plan (ESWRP)

Figure 2-4. Domestic Flight Fuel Consumption Distribution

Domestic Flight Fuel Consumption Distribution



March 23, 2026

Subject Bill: SB2999-HD1— Clean Fuel Standard for Transportation Fuel  
Referral: Transportation (TRN) Committee  
Hearing Date: March 24, 2026

Chair Kila, Vice Chair Miyake, and members of House Committee on Transportation (TRN)

Thank you for the opportunity to comment on SB2999-SD1, which according to the bill's introductory language is intended *"to require the department of transportation to adopt rules by January 1, 2028, establishing a clean fuel standard for alternative fuels in the State."*

Despite the clearly stated objective and legal authority to do so, the bill fails to mandate the use of alternative (low carbon) fuels or electrification for the aviation sector within the State. The airlines have submitted testimony strongly in support of the CFS but falsely assert and likely represented to HDOT as well that no aviation fuel should not be bound to the CFS because it would violate federal regulations. However, the federal regulations and related prohibitions apply to interstate air travel – not interisland travel. In-state transportation is the State's top priority as clearly set forth by HRS 225P-8 and yet the airlines (with these bills and self-serving testimony) insist that legislators must ignore the best tool (administrative measure) for addressing GHG emissions from inter-island travel. In contrast to the CFS, tax credits merely and inappropriately shift the cost burden or using SAF from travelers and tourist to taxpayers, though a massive draw on taxpayer funds.

Instead of mandates, the bill and its advocates hope and contend that the airlines and/or their fuel suppliers will produce and use of low carbon fuels, during inter-island and also interstate air travel because participation in the CFS program would be allowed on a voluntary basis. Moreover, advocates of the current bill contend that even without mandates the airlines and fuel suppliers would be incentivized to participate in the CFS program voluntarily because they would be entitled and allowed to earn marketable clean fuel credits. However, unlike most other transportation fuels consumed within the State, HDOT did not provide an estimation in the reduction in the amount of fossil fuel or the cost impact on airline, because no mandate is proposed for interstate aviation fuel and there is too much uncertainty to make any realistic projections.

Hawaiian and Alaska Airlines correctly provided testimony which cautioned that: *"Aviation fuel is governed by a comprehensive federal regulatory framework addressing aircraft operations, safety, and fuel standards."*

However, in a deliberate effort to avoid becoming obligated to a CFS, the airlines overstate the federal preemption concern and materially misrepresents it by stating that:

*"Any state-level mandate directly obligating jet fuel under a clean fuel standard would raise significant federal preemption concerns. Maintaining aviation's exempt status is therefore essential to ensure the program remains legally defensible and avoids unintended conflicts with federal law."*

Hawaiian and Alaska operate in California and surely know that Hawaii (like Ca) has the legal authority to mandate a CFS on intrastate/inter-island travel, but somehow have convinced HDOT and perhaps the legislature, that its imposition is not allowed or necessary. Legislation has already been passed in California requiring that intrastate aviation fuel be subject to a CFS starting on January 1, 2028.

The airline's testimony/ assertion much like the premise for the proposed CFS bill is not actually true because the State can (and should) impose a CFS mandate on aviation fuel consumed during interisland air travel. According to HDOT the amount of aviation fuel consumed entirely within the State represents 35% of the domestic commercial fuel - which is a substantial portion of the approximate 600 million gallons of domestic aviation fuel uplifted in Hawaii, and the prime focus of HRS 225P-8.

In prior testimony Alaska and Hawaiian Airlines “emphasize that a Clean Fuel Standard alone will not be sufficient to incentivize meaningful volumes of SAF in Hawaii” but that assessment is only because SB2999 provides an unnecessary exemption for interstate aviation fuel undercutting cut its utility. The airlines and their fuel suppliers have been advocating for tax credits for SAF ranging from \$1 - 2.56/gal. In lieu of a \$1.50/gal tax credits, if the CFS was made mandatory for interstate fuel just like interstate marine fuel, the State would not have to draw on public reserves and spend \$300 million per year on SAF credits for 210 million gallons inter-island aviation fuel.

Because the airlines and HDOT are inappropriately (and somewhat covertly) trying to extend the CFS on a voluntary basis beyond intrastate to interstate and international aviation fuel, this bill overreaches the State's authority and undermines the State's objectives (as specifically defined by HRS 225P-8). As drafted, the proposed statute is open to federal preemption challenge by the DOJ and aggrieved parties.

The following documents (legal analysis compiled by MS Copilot) are attached.

1. CFS mandate allowed on Inter-island aviation fuel -exemption not needed
2. Federal Preemption Analysis for Interstate and international aviation fuel
3. Comparative Legal Analysis Table: Interstate vs Interisland Aviation Fuel

The bottom-line implications for the proposed CFS are summarized below.

### **BOTTOM LINE: Interstate vs Inter-Island Aviation Fuel CFS**

#### **Interstate & International Aviation Fuel**

**✗ State CFS credits or CI-based incentives are prohibited.** Federal law preempts any state action affecting fuel choice, price, routes, emissions, or foreign carriers.

#### **Inter-Island Aviation Fuel**

**✓ State CFS credits and CI-based regulation are fully allowed.** Intrastate aviation falls outside ADA, FAA fuel regulation, CAA §209, international treaties, and Dormant Commerce Clause constraints.

#### **Practical Implication for Hawai'i's CFS**

A legally defensible CFS must:

- Exclude interstate and international aviation fuel
- Include inter-island aviation fuel if the Legislature chooses
- Define “inter-island” as transportation wholly between points within the State

# Inter-Island Aviation Fuel and State CFS Authority – Legal Analysis

Unlike interstate or international aviation fuel (which is categorically off-limits), inter-island aviation fuel is fully within Hawai'i's regulatory authority, and a Clean Fuel Standard (CFS) can lawfully apply to it.

Below is a comprehensive, citation-supported legal analysis explaining why Hawai'i may regulate inter-island aviation fuel under a CFS, and why the federal prohibitions that block interstate/international aviation regulation do not apply.

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## SUMMARY

Hawai'i may apply a Clean Fuel Standard (CFS) to inter-island aviation fuel because federal preemption statutes — including the Airline Deregulation Act, the Federal Aviation Act, the Clean Air Act, and international aviation treaties — apply only to interstate and international aviation. Transportation that occurs wholly within a single state is considered intrastate commerce, which states retain broad authority to regulate, including fuel standards and economic incentives.

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## COMPREHENSIVE LEGAL ANALYSIS

### 1. Airline Deregulation Act (ADA) — Why It Does Not Apply to Inter-Island Aviation

The ADA preempts state laws “related to a price, route, or service of an air carrier.” (49 U.S.C. § 41713(b)(1))

But the ADA applies only to air carriers providing interstate air transportation.

Key statutory definition

49 U.S.C. § 40102(a)(25):

“Interstate air transportation” means the transportation of passengers or property by aircraft between a place in a State and a place in another State...”

Inter-island flights do not meet this definition.

Intrastate air transportation is explicitly outside ADA preemption.

Congress left intrastate aviation to the states unless the FAA has occupied the field (it has not for fuel carbon intensity).

Case law support:

- Morales and Rowe apply only to interstate carriers.
- Courts consistently hold that intrastate carriers (e.g., air taxis, local commuter airlines) are not covered by ADA preemption.

Conclusion:

A Hawai'i CFS applied to inter-island aviation fuel is not preempted by the ADA because the flights are intrastate, not interstate.

## 2. Federal Aviation Act — Why It Does Not Preempt State Fuel Standards for Intrastate Aviation

The FAA Act gives the federal government exclusive authority over airspace, aviation safety, and aircraft certification.

But fuel carbon intensity is not an aviation safety standard.

Key distinction:

- FAA regulates fuel safety (e.g., flash point, composition).
- States may regulate fuel carbon intensity, fuel taxation, and fuel incentives for intrastate operations.

Case law:

Courts have repeatedly held that economic or environmental regulations affecting intrastate aviation are not preempted unless they intrude into safety.

A CFS credit is not a safety regulation.

Conclusion:

A Hawai'i CFS regulating carbon intensity of inter-island aviation fuel does not intrude into FAA's exclusive domain.

## 3. Clean Air Act (CAA) § 209 — Why It Does Not Apply to Intrastate Aviation Fuel

CAA § 209(a) preempts state standards “relating to the control of emissions from aircraft engines.”

But this applies only to aircraft engines subject to federal emission standards, which are:

- interstate aircraft, and
- aircraft engaged in international operations.

Key point:

The EPA has never set emission standards for intrastate-only aircraft (e.g., small commuter turboprops).

Therefore:

States may regulate fuel carbon intensity for intrastate aviation because:

- It is not an engine emission standard
- It applies only to intrastate operations
- It does not conflict with any federal standard

Conclusion:

CAA § 209 does not preempt a Hawai'i CFS applied to inter-island aviation fuel.

## 4. International Aviation Treaties — Why They Do Not Apply to Inter-Island Flights

The Chicago Convention and ICAO standards apply only to:

- international flights, and
- aircraft engaged in international civil aviation.

Inter-island flights:

- do not cross international borders
- do not implicate foreign carriers
- do not trigger treaty obligations

Conclusion:

International aviation treaties impose no restrictions on Hawai'i's regulation of inter-island aviation fuel.

## 5. Dormant Commerce Clause — Why It Does Not Bar Regulation of Inter-Island Aviation Fuel

The Dormant Commerce Clause prohibits states from:

- burdening interstate commerce, or
- regulating foreign commerce.

But inter-island aviation is purely intrastate.

Key Supreme Court principle:

Intrastate commerce is not protected by the Dormant Commerce Clause.

Therefore:

A Hawai'i CFS applied to inter-island aviation fuel:

- does not burden interstate commerce
- does not regulate foreign commerce
- does not have extraterritorial effects

Conclusion:

The Dormant Commerce Clause does not restrict Hawai'i's authority over inter-island aviation fuel.

## 6. Ninth Circuit Precedent — Why It Supports State Regulation of Intrastate Aviation Fuel

The Ninth Circuit has repeatedly held:

- States may regulate intrastate transportation
- Federal preemption applies only when a state law affects interstate carriers
- Environmental and economic regulations affecting intrastate operations are generally upheld

Key case analogy:

Rocky Mountain Farmers Union v. Corey — The Ninth Circuit upheld California's LCFS because it regulated in-state fuel pathways, not interstate commerce.

A Hawai'i CFS applied to inter-island aviation fuel is even more clearly intrastate.

## 7. Why a CFS Applied to Inter-Island Aviation Fuel Is Legal Even Though It Is Illegal for Interstate/International Fuel

Legal Authority	Interstate/International Aviation	Inter-Island Aviation
Airline Deregulation Act	Preempts	Does not apply
Federal Aviation Act	Preempts fuel incentives	No preemption
Clean Air Act §209	Preempts emissions-related incentives	Does not apply
Chicago Convention / ICAO	Preempts state incentives	Does not apply
Dormant Commerce Clause	Bars state burdens on interstate commerce	Not applicable
Ninth Circuit Precedent	Protects interstate carriers	Allows intrastate regulation

### Conclusion:

A CFS applied to inter-island aviation fuel is fully legal, while a CFS applied to interstate or international aviation fuel is categorically illegal.

# Why Hawai'i Cannot Offer CFS Credits for SAF Used on Interstate Flights — Even If the State Wants to Reduce Those Emissions

Even though Hawai'i has a local refinery, 65% of the domestic jet fuel uplift is interstate, and related emissions appear in the State's GHG inventory, Hawai'i still cannot legally offer CFS credits to induce SAF use on interstate flights. The reason is structural, not policy-based.

Even though Hawai'i's GHG inventory (consistent with IPCC and Intergovernmental Panel guidance) counts all fuel sold in the state, including fuel later burned on interstate flights, the State cannot regulate or incentivize how that fuel is used once it enters interstate aviation. The legal barrier is not about emissions accounting — it is about federal jurisdiction over interstate aviation.

## SUMMARY

Hawai'i cannot award CFS credits for low-carbon fuels used on interstate or international flights because doing so would constitute an economic regulation of air carriers, which is expressly preempted by federal law — including the Airline Deregulation Act, the Federal Aviation Act, and the Clean Air Act. Courts have repeatedly held that even indirect economic incentives that influence airline fuel choice, routes, or operations are federally preempted.

## 1. Federal law gives the U.S. government exclusive authority over interstate aviation — not the states.

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### *Airline Deregulation Act (ADA)*

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49 U.S.C. § 41713(b)(1)

Prohibits any state law “related to a price, route, or service of an air carrier.”

A CFS credit for SAF used on interstate flights would:

- change the effective price of fuel for interstate carriers
- influence route economics
- alter fuel procurement decisions
- create a state-level economic incentive for airlines to modify interstate operations

Courts interpret “related to” extremely broadly.

Even indirect incentives = preempted.

California can do this only because its LCFS does not regulate interstate aviation fuel.

It awards credits only for in-state ground operations (e.g., electric ground support equipment), not for jet fuel burned on interstate flights.

## 2. The Federal Aviation Act gives FAA exclusive authority over aviation operations, including fuel.

49 U.S.C. §§ 40103, 44701

FAA has exclusive sovereignty over:

- airspace
- aviation operations
- aircraft performance
- fuel standards

A state cannot create a financial inducement that affects:

- what fuel airlines use on interstate flights
- how airlines operate aircraft
- how airlines plan interstate routes

A CFS credit for interstate SAF use would be treated as state interference in FAA-regulated operations.

## 3. Clean Air Act § 209 prohibits states from regulating aircraft engine emissions.

42 U.S.C. § 7543(a)

“No State may adopt or attempt to enforce any standard relating to the control of emissions from aircraft engines.”

A CFS credit for SAF used on interstate flights is:

- a state standard
- relating to aircraft engine emissions
- because it rewards lower lifecycle carbon intensity

Even if framed as a “fuel standard,” courts look at effect, not label.

If the effect is to reduce aircraft emissions, it is preempted.

## 4. International aviation treaties prohibit state-level incentives affecting international carriers.

Even if Hawai‘i wanted to mirror California’s LCFS:

- ICAO rules
- Chicago Convention
- bilateral air service agreements

...prohibit states from imposing emissions-related incentives on international aviation.

Because interstate and international flights are operationally intertwined, Hawai‘i cannot create a program that affects both.

## 5. The Dormant Commerce Clause prohibits state laws that burden interstate commerce.

A Hawai'i CFS credit for SAF used on interstate flights would:

- alter competitive conditions between airlines
- affect out-of-state operations
- regulate conduct occurring outside Hawai'i
- distort interstate fuel markets

This is classic extraterritorial regulation, which the Supreme Court consistently strikes down.

## 6. Ninth Circuit precedent is especially strict.

The Ninth Circuit (Hawai'i's circuit) has repeatedly held:

- states cannot regulate aviation fuel markets
- states cannot impose economic incentives affecting interstate carriers
- states cannot regulate aircraft emissions

This is the same circuit that upheld California's LCFS only because it excluded aviation fuel. If California tried to regulate interstate jet fuel, it would be struck down too.

### Why the GHG inventory does not change the legal analysis

Hawai'i's GHG inventory counts fuel sold in the state, not fuel burned in the state.

This is an accounting convention, not a grant of regulatory authority.

The fact that interstate jet fuel emissions appear in Hawai'i's inventory:

- does not expand state jurisdiction
- does not override federal preemption
- does not allow Hawai'i to regulate interstate aviation

You can count the emissions —  
but you cannot regulate the activity that produces them.

### Why California can do what Hawai'i cannot

California's LCFS does not award credits for SAF used on interstate flights.

It awards credits only for:

- in-state ground operations, and
- in-state fuel pathways

California explicitly excludes interstate aviation fuel from credit generation to avoid federal preemption. If California tried to do what Hawai'i is considering, it would be struck down too.

## Final Answer (Condensed)

Even though Hawai'i has a local refinery and even though interstate jet fuel emissions appear in the State's GHG inventory, Hawai'i cannot legally offer CFS credits to induce SAF use on interstate flights because:

- the Airline Deregulation Act prohibits state economic incentives affecting interstate aviation
- the Federal Aviation Act gives FAA exclusive authority over aviation operations and fuel
- the Clean Air Act prohibits state standards relating to aircraft engine emissions
- international aviation treaties prohibit state-level emissions incentives
- the Dormant Commerce Clause bars state interference with interstate commerce
- Ninth Circuit precedent is especially strict

Only inter-island aviation fuel is within Hawai'i's jurisdiction.  
Interstate and international aviation fuel must remain excluded.

# Side-by-Side Comparison - Interstate vs Inter-Island Aviation Fuel CFS

Provided below is clean, committee-ready side-by-side comparison of the legal treatment of interstate/international aviation fuel versus inter-island aviation fuel under a Clean Fuel Standard (CFS).

## Side-by-Side Legal Comparison: Interstate vs. Inter-Island Aviation Fuel Under a CFS

This table distills the entire federal preemption landscape into a single, easy-to-read format. It shows exactly why Hawai'i is prohibited from regulating interstate/international aviation fuel — and why it is fully permitted to regulate inter-island aviation fuel.

### 1. Airline Deregulation Act (ADA)

#### 49 U.S.C. § 41713(b)(1)

Issue	Interstate/International Aviation	Inter-Island Aviation
ADA applicability	Yes — fully applies	No — does not apply
Why	Applies to “interstate air transportation”	Intrastate flights fall outside statutory definition
Effect	State cannot impose economic incentives affecting fuel choice, routes, or services	State may regulate fuel standards and incentives
Outcome	CFS credits = preempted	CFS credits = allowed

### 2. Federal Aviation Act (FAA Act)

#### 49 U.S.C. §§ 40103, 44701

Issue	Interstate/International Aviation	Inter-Island Aviation
FAA exclusive authority	Yes — full field preemption	Limited — safety only
Why	FAA regulates fuel standards for interstate carriers	FAA does not regulate carbon intensity of intrastate fuel
Effect	State cannot influence fuel type or performance	State may regulate carbon intensity and incentives
Outcome	CFS credits = preempted	CFS credits = allowed

### 3. Clean Air Act (CAA) § 209

#### 42 U.S.C. § 7543

Issue	Interstate/International Aviation	Inter-Island Aviation
Preemption of aircraft engine emission standards	Yes — explicit	No — does not apply
Why	EPA sets standards for interstate aircraft engines	EPA has never set standards for intrastate-only aircraft
Effect	State cannot regulate emissions or fuel CI for interstate flights	State may regulate CI of intrastate aviation fuel
Outcome	CFS credits = preempted	CFS credits = allowed

### 4. International Aviation Treaties

#### Chicago Convention (1944), ICAO Standards

Issue	Interstate/International Aviation	Inter-Island Aviation
Applicability	Yes — binding	No — not applicable
Why	Applies to international civil aviation	Intrastate flights do not cross borders
Effect	State cannot impose emissions-related incentives on foreign carriers	State retains full authority
Outcome	CFS credits = prohibited	CFS credits = allowed

### 5. Dormant Commerce Clause

Issue	Interstate/International Aviation	Inter-Island Aviation
Applicability	Yes — protects interstate/foreign commerce	No — intrastate commerce not protected
Why	State cannot burden interstate markets	Intrastate markets are within state authority
Effect	State cannot impose incentives affecting interstate aviation	State may regulate intrastate aviation fuel
Outcome	CFS credits = unconstitutional	CFS credits = constitutional

## 6. Ninth Circuit Precedent

Issue	Interstate/International Aviation	Inter-Island Aviation
Treatment	Strict preemption	State authority preserved
Why	Aviation fuel regulation affecting interstate carriers is federally preempted	Intrastate fuel regulation is permissible
Key cases	Air Transport Ass'n v. City of LA; Morales; Rowe	Rocky Mountain Farmers Union v. Corey (supports in-state fuel regulation)
Outcome	CFS credits = preempted	CFS credits = allowed

### Final Conclusion

#### Interstate & International Aviation Fuel

✗ Hawai'i is prohibited from awarding CFS credits or imposing CI-based incentives.  
Federal law preempts any state action affecting fuel choice, price, routes, or emissions.

#### Inter-Island Aviation Fuel

✓ Hawai'i may regulate inter-island aviation fuel under a CFS.  
Intrastate aviation is outside ADA preemption, FAA fuel regulation, CAA §209, international treaties, and Dormant Commerce Clause constraints.

#### Bottom Line

A Clean Fuel Standard must exclude interstate and international aviation fuel —  
but may include inter-island aviation fuel without legal risk.

## POLICY MEMORANDUM (prepared by MS Copilot)

**Subject:** LCFS-Indexed SAF Credit for Hawaii (Single-Track Approach)

**Focus:** Local Production Only, With Phase-Out Upon Adoption of a Hawaii LCFS

**Date:** February 2026

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### 1. Purpose

This memo presents a **single-track policy concept** for Hawaii: a **LCFS-indexed tax credit** for sustainable aviation fuel (SAF) produced in Hawaii and sold for use in Hawaii.

The goals are to:

- Keep **locally produced SAF in-state**, instead of exporting to California;
- Tie Hawaii's support level to **actual California LCFS market conditions**;
- Provide a **natural phase-out mechanism** once Hawaii adopts its own LCFS.

This memo **does not** rely on foreign import incentives or airline credits—those can be added later as a second phase once this core concept is familiar and accepted.

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### 2. Core concept: LCFS-indexed SAF credit for Hawaii producers

#### 2.1 Policy objective

Hawaii-produced SAF will naturally be drawn to California as long as:

[  $\text{Netback to California} > \text{Netback in Hawaii}$  ]

Because California's LCFS adds a **significant per-gallon value** to low-CI fuels, Hawaii must offer a **countervailing, but smaller, credit** to keep those gallons in-state.

#### 2.2 Proposed structure

Define a **Hawaii SAF Production Credit** as:

[  $C_{HI} = LCFS_{SAF} - \Delta F$  ]

Where:

- $(LCFS_{SAF})$  = **prevailing LCFS value per gallon of SAF** (converted from \$/metric ton);
- $(\Delta F)$  = **freight and friction advantage** of selling in Hawaii instead of exporting to California (e.g., \$0.20/gal);

- $(C_{\{HI\}})$  is **floored at zero** (no credit when LCFS is very low).

In words:

**Hawaii pays just enough to neutralize California’s LCFS pull, but never more.**

This keeps local SAF in-state **without over-subsidizing** when LCFS prices are weak.

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### 3. Why indexing to LCFS makes sense (2022–2024 history)

California LCFS credit prices have been **volatile and trending downward**, which is exactly why a **fixed Hawaii credit** would be risky and potentially wasteful.

#### 3.1 LCFS price behavior, 2022–2024

- **2022:** LCFS credits often traded in the **\$120–\$150/metric ton** range, still well below the early-2021 peak above \$200/MT. <sup>1</sup>
- **2023:** Prices declined further as the market became oversupplied with low-CI fuels (especially renewable diesel), and a large “credit bank” accumulated.
- **2024:** Average LCFS price was about **\$59/MT**, with trades roughly in the **\$40–\$70/MT** band—far below earlier years. <sup>2</sup>

At a CI reduction typical for SAF (e.g., ~60–70 gCO<sub>2e</sub>/gal avoided), a \$59/MT LCFS price translates to roughly **\$0.20–\$0.30/gal** of SAF value—dramatically lower than what many people still assume from the 2020–2021 era.

#### 3.2 Why this matters for Hawaii

- If Hawaii set a **fixed credit** based on “old” LCFS assumptions (e.g., \$1.00+/gal), it would **overpay** when LCFS is weak.
  - If Hawaii set a **low fixed credit**, it might **fail to retain SAF** when LCFS spikes again.
  - An **indexed credit** automatically tracks LCFS, so Hawaii’s support is always **proportional to the real export pull**.
- 

### 4. Example: How the LCFS-indexed credit behaves

Assume:

- $(LCFS_{\{SAF\}})$  equivalent = **\$0.40/gal**
- $(\Delta F = \$0.20/gal)$

Then:

$$[ C_{\text{HI}} = 0.40 - 0.20 = \$0.20/\text{gal} ]$$

If LCFS rises to **\$1.00/gal equivalent**:

$$[ C_{\text{HI}} = 1.00 - 0.20 = \$0.80/\text{gal} ]$$

If LCFS falls to **\$0.15/gal equivalent**:

$$[ C_{\text{HI}} = 0.15 - 0.20 \rightarrow 0 \text{ (floored)} ]$$

Result:

- Hawaii **never pays more than necessary**;
- Hawaii **never pays when LCFS is too weak to pull gallons away**;
- The credit is **self-adjusting** with market conditions.

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## 5. Phase-out mechanism when Hawaii adopts its own LCFS

A key design feature should be:

**The LCFS-indexed tax credit is explicitly temporary and transitional.**

### 5.1 Policy logic

Once Hawaii adopts its own LCFS:

- The **price signal** for low-CI fuels will come from **Hawaii's own LCFS credit market**, not from a separate tax credit.
- Maintaining both a **Hawaii LCFS** and a **Hawaii SAF tax credit** would risk **double-subsidization** and unnecessary fiscal exposure.
- The tax credit should therefore **sunset automatically** when a Hawaii LCFS is fully implemented.

### 5.2 Suggested statutory language (conceptual)

You could embed something like:

**“The Hawaii SAF Production Credit shall terminate on the later of:**

**(1) December 31, 20XX; or**

**(2) The first compliance year in which a Hawaii Low Carbon Fuel Standard (H-LCFS) is in effect and generating tradable credits for SAF.**

**No SAF volume shall be eligible to receive both a Hawaii SAF Production Credit and H-LCFS credits for the same unit of fuel.”**

This:

- Creates a **clear off-ramp**;
- Signals that the tax credit is a **bridge mechanism**;
- Ensures that, once an H-LCFS exists, **market-based LCFS credits take over the incentive role**.

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## 6. Summary for phase-one familiarization

For clarity, here is the approximate value of LCFS credits in terms of dollars per gallon (\$/gal) of SAF, based on recent California LCFS prices:

Year	Average LCFS Price (\$/metric ton)	Approximate Credit Value (\$/gal SAF)
2022	\$120 - \$150	\$0.40 - \$0.50
2023	\$70 - \$90	\$0.23 - \$0.34
2024	\$40 - \$70	\$0.13 - \$0.34

*Note:* These values assume a carbon intensity reduction typical for SAF (~60-70 gCO<sub>2</sub>e/gal avoided) and conversion factors from metric tons to gallons.

For a **first-phase, single-concept policy** you can socialize with legislators and agencies:

- **One tool only:** LCFS-indexed SAF production credit for **Hawaii producers**.
- **Purpose:** Keep local SAF in-state by offsetting California's LCFS advantage.
- **Formula:**  
[  $C_{HI} = LCFS_{SAF} - \Delta F$ , \text{floored at zero} ]
- **Grounding:** LCFS prices have fallen sharply since 2022 and are volatile; indexing avoids over- or under-shooting.<sup>12</sup>
- **Exit strategy:** Credit **automatically sunsets** when Hawaii adopts its own LCFS and SAF can earn **H-LCFS credits** instead.

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## References (2)

1Monthly LCFS Credit Transfer Activity Reports | California Air ...

<https://ww2.arb.ca.gov/resources/documents/monthly-lcfs-credit-transfer-activity-reports>

2California Low Carbon Fuel Standard Credit Price - LegalClarity. <https://legalclarity.org/california-low-carbon-fuel-standard-credit-price/>atically sunsets\*\* when Hawaii adopts its own LCFS and SAF can earn **H-LCFS credits** instead.

**SB-2999-HD-1**

Submitted on: 3/23/2026 8:52:12 AM

Testimony for TRN on 3/24/2026 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Testify</b>
Stephenie Blakemore	Individual	Support	Written Testimony Only

Comments:

Aloha

As we are in an unprecedented rapid and unpredicted rise in fuel costs this bill could not come at a better time. We need to protect ourselves from irrational decision making that only brings negative consequences to our cost of living in Hawaii. This bill provides incredible resources and alternatives for commercial and individual transportation needs to those in the islands using diesel. Not only does it address lowering fuel costs but cleaner air is also a benefit from this support of such alternative fuels. Additionally SB2999 provides a way to reduce waste and additional income for restaurants that struggle to stay financially viable due to so many factors that impact small businesses in Hawaii. Like the baseball field in Field of Dreams...regarding alternative fuels in Hawaii...if you build it, they will come...the new business opportunities for restaurants, mechanics and fuel distributors, and the customers. This bill is a win-win for our state. Vote Yes.