

**TESTIMONY OF
THE DEPARTMENT OF THE ATTORNEY GENERAL
KA 'OIHANA O KA LOIO KUHINA
THIRTY-SECOND LEGISLATURE, 2024**

ON THE FOLLOWING MEASURE:

H.B. NO. 2296, RELATING TO RENEWABLE FUEL.

BEFORE THE:

HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION

DATE: Tuesday, January 30, 2024 **TIME:** 9:00 a.m.

LOCATION: State Capitol, Room 325 and Videoconference

TESTIFIER(S): Anne E. Lopez, Attorney General, or
Cynthia M. Johiro, Deputy Attorney General

Chair Lowen and Members of the Committee:

The Department of Attorney General provides the following comments regarding this bill.

This bill proposes to: (1) establish an income tax credit for the import of renewable fuel, sunseting on December 31, 2035; and (2) update the renewable fuels production tax credit established by section 235-110.32, Hawaii Revised Statutes.

Taxpayers who produce renewable fuel may claim an income tax credit for fuels with lifecycle greenhouse gas emissions of an unspecified percent below that of fossil fuels. Page 4, lines 3 through 7. Taxpayers are provided an additional credit value of \$1 per gallon for renewable fuels produced from locally-sourced renewable feedstock. Page 13, lines 16 through 18 (emphasis added). "Locally-sourced renewable feedstock" is defined as "renewable feedstock that is grown, produced, or processed within five hundred miles of the delivery of fuel into the vehicle, vessel, or fuel storage tank of the end user." Page 23, lines 5 through 8.

Similarly, taxpayers who produce sustainable aviation fuel within the State, that is produced and sold for consumption for flights originating from and within the State, may also take an additional credit value equal to \$1 per gallon. Page 13, lines 19 through 21; page 14, lines 1 through 2.

This bill could be subject to challenge as violating the Commerce Clause of the United States Constitution, which provides that Congress shall have the power to

"regulate Commerce . . . among the several States." U.S. Const. art. I, § 8, cl. 3.

"Though phrased as a grant of regulatory power to Congress, the Clause has long been understood to have a 'negative' aspect that denies the States the power unjustifiably to discriminate against or burden the interstate flow of articles in commerce." *Or. Waste Sys., Inc. v. Dep't of Env'tl. Quality*, 511 U.S. 93, 98 (1994). This negative aspect of the Commerce Clause is known as the Dormant Commerce Clause; this doctrine prohibits states from "advancing their own commercial interests by curtailing the movement of articles of commerce, either into or out of the state," *Fort Gratiot Sanitary Landfill, Inc. v. Mich. Dep't of Nat. Res.*, 504 U.S. 353, 359 (1992) (internal brackets omitted), to address "economic protectionism," i.e., "regulatory measures designed to benefit in-state economic interests by burdening out-of-state competitors." *Dep't of Revenue of Ky. v. Davis*, 553 U.S. 328, 337 (2008).

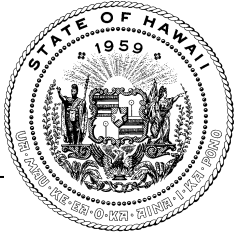
A tax credit may violate the Dormant Commerce Clause if it is "facially discriminatory, discriminatory in effect, or discriminatory in purpose." See *DIRECTV v. Utah State Tax Comm'n*, 364 P.3d 1036, 1040 (Utah 2015). For example, in *Bacchus Imports Ltd. v. Dias*, 468 U.S. 263 (1984), the United States Supreme Court struck down an exemption from the liquor tax for sales of okolehau and fruit wine brewed in Hawaii from locally grown products upon finding that the exemption bestowed a commercial advantage on locally produced products; see also *New Energy Co. of Ind. v. Limbach*, 486 U.S. 269 (1988) (holding that ethanol tax credit for each gallon of ethanol sold, but only if ethanol produced in Ohio, violated Dormant Commerce Clause).

Similar to the situation in *Bacchus Imports*, the proposed tax credit may be challenged under the Commerce Clause because it could be construed by a court as bestowing a commercial advantage on products using "locally-sourced renewable feedstock" insofar as the credit encourages and incentivizes the purchase and use of such products versus products manufactured with the same ingredients grown outside of the State.

Based on the foregoing, we respectfully ask that these concerns be addressed. Accordingly, we recommend deleting the wording on page 13, lines 16 through 18, and page 23, lines 5 through 8, that reference "locally-sourced renewable feedstock."

Additionally, we also recommend deleting the wording on page 13, lines 19 through 21, and page 14, lines 1 through 2, providing taxpayers who produce sustainable aviation fuel within the State an additional \$1 per gallon tax credit. These changes would resolve the Department's constitutional concerns.

Thank you for the opportunity to provide comments.



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Testimony of
MARK B. GLICK, Chief Energy Officer

before the
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

Tuesday, January 30, 2024
9:00 AM
State Capitol, Conference Room 325 and Videoconference

Providing Comments on
HB 2296

RELATING TO RENEWABLE FUEL.

Chair Lowen, Vice Chair Cochran, and members of the Committee, the Hawai'i State Energy Office (HSEO) offers comments on HB 2296, that (1) establishes a tax credit of up to \$50 million per year for the import of renewable fuel; (2) increases the overall funding available for the renewable fuels production tax credit from \$20 million to \$100 million dollars; (3) modifies the existing renewable fuels production tax credit to allow an increased credit for sustainable aviation fuel; and (4) makes several other changes to the existing renewable fuels production tax credit.

HSEO appreciates the intent of this bill to promote the use of non-petroleum fuels, but is concerned about the cost implications generated by this proposal and has serious reservations about the State of Hawai'i subsidizing fuel imports. HSEO notes that imports of ethanol fuel are estimated at over 40 million gallons per year.¹

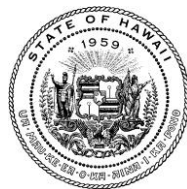
HSEO also notes that changing the filing and certification deadlines from 30 calendar days to 60 calendar days puts the date for process completion out to the second of May, which is beyond the State tax return deadline of the 20th day of the fourth month following the close of the tax year.

¹ United States Energy Information Administration, Table F25: Fuel ethanol consumption estimates [by state], 2021.
https://www.eia.gov/state/secds/data.php?incfile=/state/secds/sep_fuel/html/fuel_use_en.html&sid=US&sid=HI

Thank you for the opportunity to testify.

JOSH GREEN M.D.
GOVERNOR

SYLVIA LUKE
LT. GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TAXATION

Ka 'Oihana 'Auhau
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GARY S. SUGANUMA
DIRECTOR

KRISTEN M.R. SAKAMOTO
DEPUTY DIRECTOR

**TESTIMONY OF
GARY S. SUGANUMA, DIRECTOR OF TAXATION**

TESTIMONY ON THE FOLLOWING MEASURE:

H.B. No. 2296, Relating to Renewable Fuel.

BEFORE THE:

House Committee on Energy & Environmental Protection

DATE: Tuesday, January 30, 2024

TIME: 9:00 a.m.

LOCATION: State Capitol, Room 325

Chair Lowen, Vice-Chair Cochran, and Members of the Committee:

The Department of Taxation ("Department") offers the following comments regarding H.B. 2296 for your consideration.

H.B. 2296 amends chapter 235, Hawaii Revised Statutes, (HRS), by creating a new Renewable Fuels Import Tax Credit (RFITC). The bill also makes significant changes to the existing Renewable Fuels Production Tax Credit (RFPTC) in section 235-110.32, HRS.

The amount of the new RFITC is set at an unspecified number of cents per gallon of renewable fuel costs incurred by a taxpayer, with a provision requiring that 1) lifecycle greenhouse gas emissions are at least an undetermined percent below that of fossil fuels, and 2) the renewable fuel is consumed in the State. The credit has a separate amount for sustainable aviation fuel, set at one hundred cents (\$1) per gallon of fuel consumed by flights originating from and within the State. Only one taxpayer may claim the credit for any specific purchase of renewable fuel. "Lifecycle greenhouse gas emissions," "renewable fuels," and "sustainable aviation fuel" would all have the same meaning as those terms are defined in section 235-110.32, HRS.

The new RFITC would require taxpayers to complete and file an independent, third-party certified statement with the Hawaii State Energy Office (HSEO), detailing information including the type and quantity of fuel used, the credit amounts sought, and taxpayer's numbers of employees and locations throughout the State, as well as the lifecycle greenhouse gas emissions for each type of fuel and the lifecycle greenhouse gas emissions that the taxpayer reported to the U.S. Department of the Treasury, if those amounts are different. The statement must be filed no later than sixty days from the close of the calendar year; within sixty days of that deadline, HSEO must acknowledge receipt of the statement and issue a certificate to the taxpayer detailing the amount of renewable fuels imported and sold, the amount of credit that the taxpayer is entitled to claim under for the previous calendar year, and the cumulative amount of the tax credit during the previous calendar year. The taxpayer will file this certificate when they file their income tax return with the Department; the Director of Taxation is empowered to audit and adjust the certification for correctness, if necessary.

The bill also sets an annual aggregate cap of \$50,000,000 on the new tax credit, with a provision that if the value of credits claimed exceeds the cap for all eligible taxpayers in any given calendar year, the \$50,000,000 shall be allocated proportionally to each eligible taxpayer. To the extent this proportional allocation reduces the amount of a taxpayer's credit, the taxpayer may carry the amount of that reduction forward to be used as a credit in the next subsequent calendar year, but not thereafter. Although the credit is generally nonrefundable, taxpayers may elect to make the credit refundable if all of their income is from a public retirement system or a pension, and thus not subject to income tax, or if the taxpayer's adjusted gross income is \$20,000 or less (or \$40,000 or less if married filing jointly).

H.B. 2296 also makes significant changes to the RFPTC by amending section 235-110.32, HRS, to: increase the credit amount from 20 cents to 35 cents per 76,000 British thermal units (BTUs) of renewable fuels produced and sold for distribution in the State; restrict the credit only to fuels with lifecycle greenhouse gas emissions at least an unspecified percentage below that of fossil fuels; add an additional \$1 to the credit amount per gallon of renewable fuels produced from locally-sourced renewable feedstock; and extend both the taxpayer and the HSEO's certification deadlines from 30 days to 60 days after the close of the calendar year and taxpayer's submission due date, respectively. The bill also eliminates the \$3,500,000 cap that may be claimed by a taxpayer in a taxable year and increases the aggregate cap from \$20,000,000 to \$100,000,000. The bill also provides that if a taxpayer's credit is reduced because of the aggregate cap, the taxpayer may claim a credit for the amount reduced in the subsequent year. Any credits carried forward and claimed in the subsequent year will be subject to the aggregate cap for that subsequent year and subject to proportional allocation if required to meet the annual maximum. The bill also expands the RFPTC's definition of renewable feedstocks and renewable fuels, and adds new definitions for

"lifecycle greenhouse gas emissions," "locally-sourced renewable feedstock," and "sustainable aviation fuel."

H.B. 2296 applies to taxable years beginning after December 31, 2024, with the new RFITC in section 2 being repealed on January 1, 2036.

First, the Department notes that as currently drafted, both of these income tax credits would have a refundable option. The Department generally prefers that credits be made nonrefundable, as nonrefundable credits are less susceptible to waste, fraud, and abuse.

Next, with respect to both the new RFITC in section 2 and the changes to the RFPTC in section 3, the Department defers to HSEO regarding its ability to certify these credits under the provisions set forth by this measure. However, the Department respectfully requests that these certification requirements be maintained. The Department does not have the subject-matter expertise in renewable energy necessary to certify these credits, nor does it have the administrative capability to track the aggregate caps.

Relatedly, with respect to the RFPTC, the Department notes that section 235-110.32(g), HRS, on page 17 of the bill, deletes the provision that "[i]n no instance shall the total dollar amount of certificates issued exceed \$20,000,000 per calendar year." It is unclear whether the deletion of this provision is intended to require that the Department, instead of the HSEO, be responsible for administering the aggregate cap.

Because it would be difficult for the Department to administer the aggregate cap, the Department requests that section 235-110.32(g) be amended to reinstate language that the total dollar amount of certificates issues shall not exceed the aggregate cap: "In no instance shall the total dollar amount of certificates issued exceed \$100,000,000 per calendar year." The Department also requests that similar language be added to subsection (f) of the new HRS section that establishes the RFITC, on page 6, line 18 to page 7, line 12, as follows: "In no instance shall the total dollar amount of certificates issued exceed \$50,000,000 per calendar year."

Additionally, the Department suggests adding language to section 235-110.32(g), HRS, and subsection (f) of the new HRS section that if a taxpayer is authorized to claim a credit in the subsequent year because the aggregate cap was reached, that the HSEO will provide a certificate to the taxpayer in the subsequent year, reporting the amount of

credit that was carried forward and that the taxpayer may claim, and that the taxpayer shall file the certificate with the taxpayer's tax return.

Thank you for the opportunity to provide comments on this measure.

TAX FOUNDATION OF HAWAII

126 Queen Street, Suite 305

Honolulu, Hawaii 96813 Tel. 536-4587

SUBJECT: INCOME TAX; Tax Credit for Importing Renewable Fuel or Sustainable Aviation Fuel

BILL NUMBER: HB 2296, SB 2574

INTRODUCED BY: HB by LOWEN, COCHRAN, EVSLIN, GATES, LA CHICA, MARTEN, PERRUSO, TODD, WOODSON; SB by LEE

EXECUTIVE SUMMARY: Establishes a tax credit for the import of renewable fuel. Updates the renewable fuels production tax credit.

SYNOPSIS: Adds a new section to chapter 235, HRS, to establish the renewable fuels import tax credit.

The amount of the credit is ___ cents per gallon for a taxpayer importing renewable fuel where the lifecycle greenhouse gas emissions are at least ___% below that of fossil fuels and the renewable fuel is consumed in the State. For a taxpayer importing sustainable aviation fuel, the credit is \$1.00 per gallon.

No later than 60 days following the close of the taxable year, a taxpayer intending to claim this credit is to submit relevant information to the Hawaii State Energy Office and obtain certification from that office. That certification is to be filed with the taxpayer's income tax return.

A \$50 million aggregate cap is established for the credit.

The taxpayer is to provide written notice of intention to begin import of renewable fuels to the Department of Taxation and the Energy Office prior to the start of importation.

The taxpayer is to provide another written notice to the Department of Taxation and the Energy Office within 30 days following the start of importation.

Information received by the Energy Office is to be made publicly available.

The credit is nonrefundable but may be carried forward until exhausted. A taxpayer is also given an election to make the credit refundable by giving up 30% of it. A taxpayer all of whose income is exempt under section 235-7(a)(2) or (3) (relating to pensions) or a taxpayer whose adjusted gross income is \$20,000 or less (\$40,000 if married filing jointly) may make the refundable election at no cost.

All claims for the credit are to be filed on or before the end of the twelfth month following the close of the taxable year, or the credit is waived.

Defines "Lifecycle greenhouse gas emissions," "Renewable fuels," and "Sustainable aviation fuel" by cross-reference to section 235-110.32.

Amends section 235-110.32, HRS, to raise the credit from 20 to 35 cents per 76,000 BTU of renewable fuels produced and sold for distribution in the State. Removes the \$3.5 million aggregate cap on the credit but specifies that fuels are to have lifecycle greenhouse gas emissions at least ___% below that of fossil fuels. Adds a \$1 per gallon credit for renewable fuels produced from locally sourced renewable feedstock. Adds a \$1 per gallon credit for production of sustainable aviation fuel within the State and produced and sold for consumption by flights originating from and within the State. Increases the time within which the Hawaii State Energy Office is given to respond to a request for certification from 30 to 60 days. Raises the aggregate credit cap from \$20 million to \$100 million.

Makes other technical changes.

EFFECTIVE DATE: July 1, 2024, applicable to taxable years beginning after December 31, 2024; provided that section 2 shall repeal on January 1, 2036.

STAFF COMMENTS: Act 202, SLH 2016, enacted a renewable energy production credit with a five-year life. The credit sunset on December 31, 2021. The credit was revived by Act 16, SLH 2022 with an aggregate cap of \$20 million.

While the idea of providing a tax credit to encourage such activities may have been acceptable a few years ago when the economy was on a roll and advocates could point to credits like those to encourage construction and renovation activities, what lawmakers and administrators have learned in these past few years is that unbridled tax incentives, where there is no accountability or limits on how much in credits can be claimed, are irresponsible as the cost of these credits goes far beyond what was ever intended. Instead, lawmakers should encourage alternative energy production through the appropriation of a specific number of taxpayer dollars. The State could directly purchase energy, or it could give a subsidy to developers. Then, lawmakers would have a better idea of what is being funded and hold the developers of these alternate forms of energy to a deliberate timetable or else lose the funds altogether. A direct appropriation would be preferable to the tax credit as it would: (1) provide some accountability for the taxpayers' funds being utilized to support this effort; and (2) not be a blank check.

Digested: 1/26/2024



January 29, 2024

Representative Nicole E. Lowen, Chair
Representative Elle Cochran, Vice Chair
State Capitol
415 South Beretania Street
Honolulu, HI 96813

Re: HB 2296

Dear Representatives Lowen and Cochran:

Airlines for America[®] (A4A), the principal trade and service organization of the U.S. airline industry,¹ supports HB 2296. A4A and its members have a strong climate change record and are committed to working across the aviation industry and with government leaders in a positive partnership to achieve net-zero carbon emissions by 2050, which parallels the Biden administration's goal to achieve net-zero greenhouse gas emissions in the aviation sector by 2050.

Airlines, governments and other aviation stakeholders have recognized that achieving net-zero aviation emissions by 2050 will require a very rapid transition from conventional (fossil) jet fuel to sustainable aviation fuel (SAF).

Achieving this rapid transition to SAF requires industry and government to work in partnership, at both the federal and state levels, to expand SAF production capacity across the country. A4A and our members strongly support tax incentives – in particular the SAF Blenders Tax Credit (BTC) – needed to catalyze SAF production. The Biden administration also strongly advocated for the enactment of these kinds of incentives, and we are thankful for the critical support the administration provided to ensure enactment of the SAF-BTC and Clean Fuels Production Credit (CFPC) – as well as other tax incentives like the Clean Hydrogen Credit – that will provide support vital to successfully engendering exponential growth in domestic SAF production through 2030.

A4A greatly appreciates that the State of Hawai'i is considering legislation to provide this critical support. If enacted, this proposal will complement the policy mechanisms being put in place at the federal level under the *Inflation Reduction Act*, the SAF Grand Challenge and other existing programs through the U.S. Department of Energy, the U.S. Department of Agriculture, the U.S. Department of Transportation and the Environmental Protection Agency.

¹ A4A's members are: Alaska Airlines, Inc.; American Airlines Group Inc.; Atlas Air, Inc.; Delta Air Lines, Inc.; Federal Express Corporation; Hawaiian Airlines, Inc.; JetBlue Airways Corp.; Southwest Airlines Co.; United Airlines Holdings, Inc.; and United Parcel Service Co. Air Canada, Inc. is an associate member.

Ensuring the sustainability and environmental integrity of feedstocks and the production technology pathways is critical to the continued recognition and acceptance of SAF to achieve the carbon emissions reduction ambitions of aviation. We support establishing strong and robust sustainability and technical requirements based on objective criteria and the latest scientific research. A4A and its members are feedstock and technology neutral for SAF production, we firmly believe that any production pathway that can meet robust technical and sustainability requirements should be eligible for incentive programs, such as this proposal.

A4A and our member airlines value our partnership with the State of Hawai'i and believe there is a unique opportunity to jointly develop a market for cost competitive SAF. Thank you for your consideration of our feedback. Please do not hesitate to contact us if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Sean Williams', is positioned below the word 'Sincerely,'.

Sean Williams
Vice President, State and Local Government Affairs
swilliams@airlines.org



January 30, 2024

**TESTIMONY IN SUPPORT OF HB 2296
RELATING TO RENEWABLE FUELS**

House Committee on Energy and Environmental Protection
The Honorable Nicole E. Lowen, Chair
The Honorable Elle Cochran, Vice Chair

January 30, 2024, 9:00am
Conference Room 325
State Capitol 415 South Beretania Street

Chair Lowen, Vice Chair Cochran, and members of the Committee,

Thank you for the opportunity to provide testimony in STRONG SUPPORT of HB 2296, Relating to Renewable Fuels.

Aviation emissions represent a very small part of overall global carbon emissions. Nonetheless, aviation represents a higher proportion of Hawaii's fossil fuel usage, given our unique dependence on air transportation and relatively limited utilization of road fuel. Within Hawaii, it is worth noting that aviation fuel usage is driven predominantly (estimated about 90%) by long-haul travel; with its short flight distances, the intrastate flying on which our community depends drives relatively little fuel consumption. In order to address the existential threat of human-caused climate change, airlines in the U.S. have all committed to reach net-zero in the decades to come.

At Hawaiian Airlines, we are committed to achieving net-zero carbon emissions by 2050. As Hawaii's airline, we see firsthand the impact of climate change on our home community, and feel a deep sense of urgency to take pragmatic action to address it. In 2023, we published our roadmap to net-zero, which highlights how we currently expect the various drivers of decarbonization will contribute to our 2050 net-zero goal. In line with the broader aviation industry, we view sustainable aviation fuel (SAF) as the most promising technology to advance aviation decarbonization. Many U.S. airlines, including Hawaiian Airlines, have committed to replacing 10% of conventional jet fuel with SAF by 2030. SAF is a drop-in fuel, meaning that it works with existing aircraft engines, pipelines, and storage infrastructure, as long as it is blended up to 50% with conventional jet fuel. SAF can bring meaningful reductions in aviation carbon emissions, with lifecycle emissions intensity up to 50 to 80% lower than conventional jet fuel.

The reality is that while promising alternatives to jet engines lie beyond the horizon, the commercial aviation industry's excellent safety record relies on incremental adoption of new technology. The advantage of SAF is that it is already being used in today's aircraft and engines, which makes it one of the only credible means of reaching decarbonization goals between now and 2050.

The challenge with SAF is that it is not yet commercially viable, and it is not available at scale, and therefore incentives are needed to drive adoption in the near term. Objective economic analyses have demonstrated that the higher cost of SAF vs. jet fuel today is driven by two factors: (1) the maturity of manufacturing technologies, and (2) the lack of scale in production. Incentives and



credits, therefore, are not a perpetual need but a bridge to get biofuel production to maturity and scale, when it can compete successfully against traditional petroleum-based fuels.

Other U.S. states, such as California, Oregon, Washington, Illinois and Minnesota, provide state-level incentives to advance SAF in their states. Given the scarcity of supply of SAF, if Hawaii wants to attract supply of SAF, it will need competitive incentives. As long as there is scarcity of supply, volume will go to the markets which provide the most value.

At Hawaiian Airlines, we are actively sourcing SAF in those U.S. West Coast markets that provide incentives, investing in technologies to scale SAF, and working to advance SAF here in Hawaii. In 2023, we entered into a long-term offtake agreement with biofuel company Gevo for 50 million gallons of SAF delivered over five years in California, starting in 2029. We also made a strategic investment in United Airlines Ventures Sustainable Flight Fund, an investment fund focused on investing in technologies to scale SAF. And here in Hawaii, back in 2022, we established a partnership with Par Hawaii to explore the viability of locally produced SAF. As part of our partnership with Par Hawaii, we engaged outside consultants to evaluate the different policy options to support SAF in Hawaii. We are also one of the founding members of a broad coalition of organizations from diverse sectors who believe that it is important to advance the dialogue around renewable fuels in Hawaii.

HB 2296 proposes a strategic set of tax incentives tailored to incentivize both the local production and import of renewable fuels, including SAF, into Hawaii. These incentives will empower us to cultivate energy independence, foster economic growth, address aviation decarbonization through the expansion of SAF in Hawaii, and create a sustainable future for our islands.

Highlights of the bill include:

- Credit for both locally produced and imported renewable fuels, with higher values for local production; while local production benefits our economy through economic development and job creation, given the land constraints in our islands, imported renewable fuels must also be part of the solution
- Additional value if the feedstock is locally sourced; this is intended to spur economic activity in the agricultural sector and lead to new, green jobs for our state
- Additional value for SAF compared to other renewable fuels in order to 'level the playing field' between SAF and other renewable fuels; SAF is less profitable for producers than other renewable fuels, and therefore this additional value is needed in order to ensure some production volume is allocated to SAF
- A lifecycle greenhouse gas emissions intensity reduction threshold that must be met in order to qualify for the tax credit
- Increase annual cap for local production of renewable fuels to \$100 million and imported renewable fuels to \$50 million; these levels should support meaningful volumes of renewable fuels to contribute to Hawaii's decarbonization targets
- Removal of restrictive cap per producer and modification of first come / first serve mechanism to a pro-rated concept to enable more equitable distribution of the credit among multiple producers/importers

We believe state-level tax credits, in combination with existing federal incentives, will be the most effective mechanism to drive meaningful volumes of renewable fuels in Hawaii in the near term. We acknowledge that the cost is significant, but it represents a realistic estimate of what is needed



to drive decarbonization in our economy, and particularly in aviation, which has been deemed a 'hard to decarbonize' sector. Offset against this cost are: (1) the benefits to the state's economy from developing an industry and creating jobs in biofuel and feedstock production, and (2) major steps forward in reaching our state's carbon reduction goals.

We have demonstrated in recent years that we are willing and able to use our buying power as an airline to drive adoption of sustainable aviation fuels – committing to purchase millions of gallons of SAF up to a decade into the future. Where cost-competitive SAF can be supplied, airlines will choose SAF over conventional jet fuel. It is vitally important to us to be able to make these investments in our home state as well. The proposed legislation provides the necessary support to drive adoption of sustainable fuels in Hawaii and drive meaningful progress toward the state's decarbonization goals. We believe this is not only a major step forward in combating climate change, but also a benefit to our energy independence, agricultural and industrial jobs, and a more balanced, diversified state economy.

Mahalo,

Alanna James
Managing Director, Sustainability Initiatives
Hawaiian Airlines



January 30, 2024

**TESTIMONY IN STRONG SUPPORT OF HB 2296
RELATING TO RENEWABLE FUELS**

House Committee on Energy and Environmental Protection (EEP)
The Honorable Nicole E. Lowen, Chair
The Honorable Elle Cochran, Vice Chair

January 30, 2024, 9:00am
House Conference Room 325
State Capitol 415 South Beretania Street

Chair Lowen and Vice Chair Cochran, and members of the Committee,

Thank you for the opportunity to provide testimony in **STRONG SUPPORT** of HB 2296, Relating to Renewable Fuels.

Hawaii has made significant progress to decarbonize our economy over the past 15 years since the Hawaii Clean Energy Initiative launched in 2008. Yet, there is much work still to be done. Transportation emissions account for over 50% of Hawaii's GHG emissions.¹ Electrifying the vehicle fleet will reduce emissions as the electric grid becomes greener. However, there are limited options available to address emissions with trucks and other heavy vehicles. The aviation sector faces particular challenges.

States on the US West Coast have started to address these challenges by introducing incentives for the use of low carbon fuels. In California, as reported by the California Air Resources Board, over 50% of diesel demand is now met by Renewable Diesel (RD). RD is a low-carbon fuel produced by processing used cooking oil, animal fats and vegetable oils. Similarly, there are small but growing volumes of renewable fuels for the aviation sector. This product is called Sustainable Aviation Fuel (SAF), and it is produced in a similar process and from the same feedstocks as RD².

These liquid renewable fuels are critical to meeting Hawaii's clean energy goals. This was a key finding in the recent Act 238 Hawaii Decarbonization Pathway Study which calls for

¹ https://health.hawaii.gov/cab/files/2023/05/2005-2018-2019-Inventory_Final-Report_rev2.pdf (Pages 26-27 document Transportation sector emissions of 10.68 MT of CO2 equivalent in the most recent reporting period of 2019. Total net emissions were 19.42 MT CO2 equivalent.)

² RD and SAF are produced from the same feedstocks as biodiesel but have superior properties including serving as drop-in replacements for traditional diesel and jet fuel.

RD and SAF to be a significant part of Hawaii's fuel supply beginning later this decade.³ See the chart in Appendix A.

The good news is that Hawaii companies are stepping up to meet the need for these fuels. However, the cost to produce these fuels is significantly higher than the cost of fossil fuels, and additional financial incentives are required to initiate and sustain the production of these fuels. States on the U.S. West Coast have had success in bringing renewable fuels to the market, but it has required state-level financial incentives of up to \$1.00-2.00 per gallon. Without action, these renewable fuels will be produced and delivered to other markets including the West Coast.

Together with Hawaiian Airlines and Pono Pacific, a Hawaii-based land conservation and management company, we have developed a proposal that will foster the production of renewable fuel in Hawaii. HB 2296 significantly expands the existing Hawaii renewable fuels production tax credit to provide the incentives needed to bring these fuels to market in Hawaii. The key revisions are as follows:

- Increases base credit amount from 20 cents to 35 cents.
- Adds \$1.00 per gallon credit for fuel produced from Hawaii sourced feedstock, providing a boost to local agriculture.
- Adds \$1.00 per gallon credit for SAF, to account for the additional costs to produce SAF as compared to RD.
- Increases aggregate annual cap from \$20 million to \$100 million to reflect the significant volume of renewable fuel that is needed to meet Hawaii's clean energy goals.
- Provides a credit for imported renewable fuels at a lesser value than locally produced fuel.

The production of RD and SAF also creates opportunities for agriculture in Hawaii. We and our partner, Pono Pacific, are working with several landowners in Hawaii to develop oil-yielding crops that produce feedstock for RD and SAF. We are particularly focused on "cover crops" that restore soil nutrients, reduce erosion and have other important benefits.

We are excited to advance this important initiative that will reinforce Hawaii's commitment to a clean energy future. HB 2296 will ensure access to affordable, reliable, and renewable fuels for consumers and industry in the State of Hawaii.

Mahalo for allowing Par Hawaii to share our strong support for HB 2296.

³ <https://energy.hawaii.gov/what-we-do/clean-energy-vision/decarbonization-strategy/>

Appendix A

Act 238 Hawaii Decarbonization Pathway Study

- December 2023 Act 238 Pathways to Decarbonization Study modeled 3 scenarios
- **Study finds that renewable liquid fuels are critical to Hawaii reaching its decarbonization goals**
- Recommends an expansion of renewable fuels production tax credit

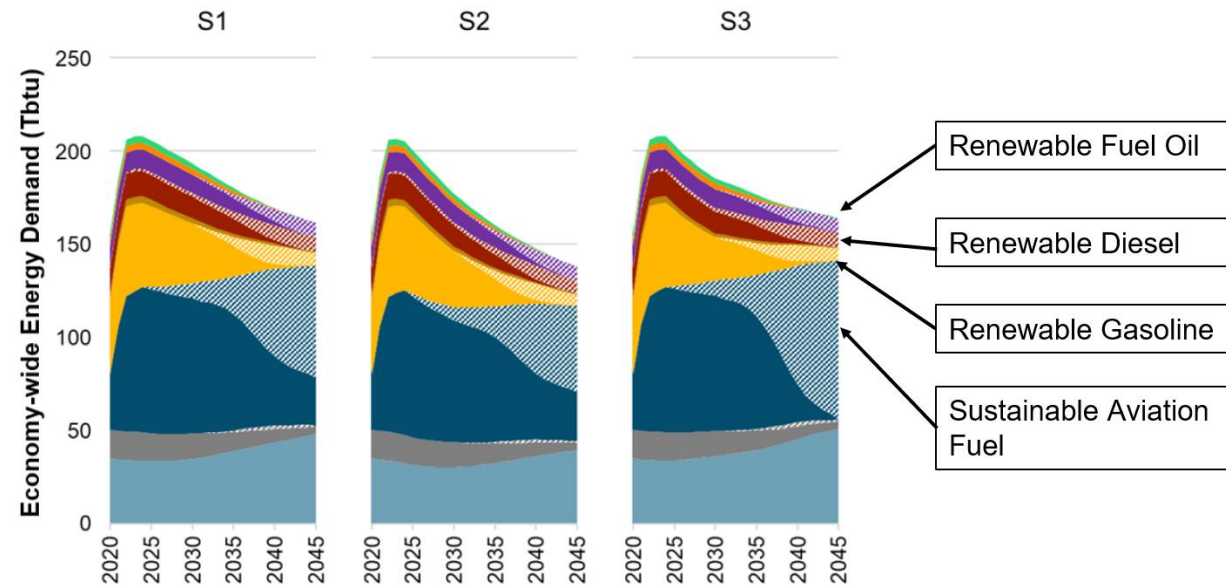


Figure 54 Economywide energy demand from 2020 through 2045 (excludes fuels combusted for electricity generation)



January 29, 2024

**TESTIMONY IN SUPPORT OF HB 2296
RELATING TO RENEWABLE FUELS**

House Committee on Energy and Environmental Protection (EEP)
The Honorable Nicole E. Lowen, Chair
The Honorable Elle Cochran, Vice Chair

January 30, 2024, 9:00am
House Conference Room 325
State Capitol 415 South Beretania Street

Chair Lowen and Vice Chair Cochran, and members of the Committee,

Thank you for the opportunity to provide testimony in STRONG SUPPORT of HB 2296, Relating to Renewable Fuels. We believe that the proposed legislation presents a win-win opportunity for our state, our environment, and our agricultural sector.

Pono Pacific is the state leader in land management with over 20+ years of experience across the Hawaiian Islands with an emphasis on conservation lands, agriculture, and renewable energy. Pono Pacific has partnered with Par to develop a supply of locally grown feedstocks for biofuel production. Locally grown feedstocks will provide farmers with a viable economic commodity to supply the refinery and help put idle lands to work. HB 2296 will help Hawaii farmers compete against imported feedstocks by providing an additional credit of \$1 per gallon for renewable fuels produced from locally sourced renewable feedstocks.

Finding viable uses for agriculture lands that will encourage sustainability in our environment and that produce positive economic cash flow for Hawaii is a critical need. Locally grown biofuel feedstocks offer significant benefits for our farmers. These crops can thrive on marginal land, improving soil health and reducing erosion. They require less water and fertilizer than traditional row crops. By creating a demand for these crops, the renewable fuels industry can revitalize rural communities, create new jobs, and diversify farm income streams.

Par Hawaii has publicly committed to spend significant capital retrofitting its Kapolei refinery to produce renewable fuels, including sustainable aviation fuel (SAF). Transitioning to SAF, derived from renewable sources like energy crops, presents a crucial step towards



decarbonizing air travel. SAF can bring meaningful reductions in aviation carbon emissions, with lifecycle emissions intensity up to 50 to 80% lower than conventional jet fuel. Investing in local SAF production is not just economically sound, it's an environmental imperative.

Hawaii needs to be competitive with other states that have already adopted tax credits for SAF and other renewable fuels and provide local production and consumption with the necessary advantages to succeed, especially as the industry is just starting to get off the ground. Initially to be competitive, local SAF production will need government support.

Growing biofuel feedstocks locally helps to create new agricultural jobs, encourage food production through infrastructure synergies, and does not compete with food crops when using oil seed cover crops. Pono Pacific believes these feedstocks will be able to provide a quality biofuel product and usable byproducts (such as animal feed) to help support Hawaii's sustainability goals, and agricultural, ranching and dairy sectors of the local economy.

The production and distribution of SAF is not just about farms; it is about building a robust green energy infrastructure within our state. From biofuel refineries to logistics companies, the entire chain creates high-paying jobs, attracts investment, and boosts Hawaii's overall economic output. Investing in local SAF production positions us as a leader in the burgeoning clean aviation fuel market, attracting further investment and innovation.

Renewable fuels face a financial hurdle and cost more to produce than conventional alternatives. This bill proposes a strategic set of tax incentives tailored to incentivize local renewable fuel production and imports of renewable fuels into Hawaii. These incentives will empower us to cultivate energy independence, foster economic growth, and create a sustainable future for our islands. Incentives and credits, therefore, are not a perpetual need but a bridge to get biofuel production to maturity and scale when it can compete successfully against traditional petroleum-based fuels.

The proposed tax incentives for local renewable fuel production are not just an economic stimulus package; they represent a strategic investment in Hawaii's future. By supporting our farmers, fostering clean energy innovation, and building a more sustainable aviation industry, we can secure a brighter future for generations to come.

We urge you to pass this legislation and unlock the immense potential of locally produced SAF. Together, we can build a cleaner, more prosperous future for all. Thank you for your time and consideration.

Mahalo,



Chris Bennett
Vice President of Sustainable Energy Solutions
Pono Pacific Land Management, LLC



January 30, 2024

**TESTIMONY IN SUPPORT OF HB 2296
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Chair Lowen and Vice Chair Cochran, and members of the Committee,

Thank you for the opportunity to provide testimony in STRONG SUPPORT of HB 2296, Relating to Renewable Fuels.

Hawaii has made significant progress to decarbonize our economy over the past 15 years since the Hawaii Clean Energy Initiative launched in 2008. As a state, we have witnessed a steady increase in the adoption of solar energy over the years to help reduce our dependence on fossil fuels. And while alternative pathways for reducing on-road transportation-sourced emissions are becoming increasingly available, there are few viable, near-term options for reducing aviation emissions which is a disproportionately important source of our transportation emissions, given Hawaii's geography and unique dependence on air service for our economy and connection to the world.

Hawaii stands at a critical juncture in its clean energy journey. We are poised for a pivotal leap forward: **local production of reliable, resilient, and renewable fuels** for power generation, heavy duty road transportation, marine fuel, and aviation. This shift toward renewable fuels holds the key to diversifying our energy portfolio, ensuring grid stability, advancing transportation decarbonization, and propelling us toward our audacious 100% renewable energy and economy wide net-zero carbon goals by 2045.

Liquid renewable fuels, which are not dependent upon weather conditions, will round out Hawaii's renewable energy portfolio and supplement intermittent energy provided by photovoltaic panels. This will enable our state to have a more reliable energy supply to meet



the needs of communities across our islands and move the state closer to its goal of using 100% renewable energy by 2045.

Sustainable aviation fuel (SAF) is widely viewed as the most promising technology to advance aviation decarbonization. The U.S. airline industry has pledged to work with government leaders and other stakeholders to make 3 billion gallons of cost-competitive SAF available to U.S. aircraft operators in 2030. SAF is a drop-in fuel, meaning that it works with existing aircraft engines, pipelines, and storage infrastructure, as long as it is blended up to 50% with conventional jet fuel, and work is underway to approve uses up to 100% SAF. SAF can bring meaningful reductions in aviation carbon emissions, reducing lifecycle emissions intensity of fuel up to 80% compared to conventional jet fuel today, with future pathways having potential for 100% reductions.

The reality is that while promising alternatives to jet engines lie beyond the horizon, the commercial aviation industry's excellent safety record relies on incremental adoption of new technology, improving overall fuel efficiency by more than 135 percent between 1978 and year-end 2019. The advantage of SAF is that it is already being used in today's aircraft and engines, which makes it one of the only credible means of reaching decarbonization goals between now and 2050.

However, renewable fuels face a financial hurdle and cost more to produce than conventional alternatives. This bill proposes a strategic set of tax incentives tailored to incentivize local renewable fuel production and imports of renewable fuels into Hawaii. These incentives will empower us to cultivate energy independence, foster economic growth, and create a sustainable future for our islands. Objective economic analyses have demonstrated that the higher cost of SAF vs. jet fuel today is driven by two factors: (1) the maturity of manufacturing technologies, and (2) the lack of scale in production. Incentives and credits, therefore, are not a perpetual need but a bridge to get biofuel production to maturity and scale, when it can compete successfully against traditional petroleum-based fuels.

In the global race for renewable fuel production, attracting investment hinges on competitive incentives. Other states, like Washington, which offers a robust up to \$2-per-gallon tax credit for SAF, are setting the bar. To secure our place in this critical market, we must offer comparable or even more compelling incentives. Highlights of HB 2296 include:

- Credit for both locally produced and imported renewable fuels, with higher values for local production; while local production benefits our economy through economic



development and job creation, given the land constraints in our islands, imported renewable fuels must be part of the solution

- Additional value if the feedstock is locally sourced; this is intended to spur economic activity in the agricultural sector and lead to new, green jobs for our state
- Additional value for SAF compared to other renewable fuels in order to 'level the playing field' between SAF and other renewable fuels; SAF is less profitable for producers than other renewable fuels, and therefore this additional value is needed in order to ensure some production volume is allocated to SAF
- A lifecycle greenhouse gas emissions intensity reduction threshold that must be met in order to qualify for the tax credit
- Increase annual cap for local production of renewable fuels to \$100 million and imported renewable fuels to \$50 million; these levels should support meaningful volumes of renewable fuels to contribute to Hawaii's decarbonization targets
- Removal of restrictive cap per producer and modification of first come / first serve mechanism to a pro-rated concept to enable more equitable distribution of the credit among multiple producers/importers

We believe state-level tax credits, in combination with existing federal incentives, will be the most effective mechanism to drive meaningful volumes of renewable fuels in Hawaii in the near term. We acknowledge that the cost is significant, but it represents a realistic estimate of what is needed to drive decarbonization in our economy, and particularly in aviation, which has been deemed a 'hard to decarbonize' sector. Offset against this cost are: (1) the benefits to the state's economy from developing an industry and creating jobs in biofuel and feedstock production, and (2) major steps forward in reaching our state's carbon reduction goals.

Investing in local renewable fuel production is not just an economic decision; it's a defining moment for our future. By embracing this opportunity and empowering this bill, we can secure energy independence, boost our economy, and pave the way for a cleaner, brighter future for generations to come. As we see increasingly clear impacts of climate change on our community, the urgency has never been greater to invest in sustainable fuel alternatives – reducing our carbon emissions, increasing our resilience and energy independence, and creating jobs.

Mahalo,

Par Hawaii, Hawaiian Airlines, Pono Pacific, Airlines for America (A4A), Hawaii Farm Bureau, and Japan Airlines, on behalf of the Hawaii Renewable Fuels Coalition



Testimony of
ALASKA AIRLINES

before the
HOUSE COMMITTEE ON ENERGY AND ENVIRONMENTAL PROTECTION

Tuesday, January 30, 2024, 9:00 a.m.
Hawai'i State Capitol, Room 325

in consideration of
HB2296
RELATING TO RENEWABLE FUELS

Aloha Chair Lowen, Vice Chair Cochran, and Members of the Committee,

My name is Jacob Aki, and I am the Public Affairs Manager for Alaska Airlines in Hawai'i. We are writing to express our strong support for [House Bill 2296](#), with particular emphasis on implementing an import tax credit for renewable fuels and increasing the current renewable fuels production tax credit.

At Alaska Airlines, we are committed to reaching our goal of achieving net zero carbon emissions by 2040. We have concrete milestones, including near-term targets for 2025, to maintain carbon-neutral growth from our 2019 baseline. These targets reflect our dedication to being the most fuel-efficient U.S. airline and to halving the climate emissions from our ground service equipment. Our commitment extends beyond our flights: we lead an industry-recognized recycling program, are transitioning to more sustainable packaging for inflight service, and are balancing our water use with ecological investments.

House Bill 2296 is a critical piece of legislation that will support our efforts to meet our goals by providing financial mechanisms that make sustainable aviation fuels accessible and economically viable.

The introduction of a tax credit for importing renewable fuels marks a pivotal step towards reducing Hawai'i's reliance on fossil fuels. For air carriers like Alaska Airlines, this policy significantly **lowers economic barriers to acquiring cost-competitive sustainable aviation fuel (SAF)**, aligning with our commitment to environmental stewardship. The

enhancement of the current production tax credit for renewable fuels is equally critical, incentivizing investment in local renewable fuel production.

This increased cap ensures that the incentives are sufficiently attractive to foster significant growth in the renewable fuel sector, thus aiding in the creation of a robust, self-sustaining industry in Hawai'i. Moreover, this increase in tax credit not only **supports the development of a local industry but also promotes energy independence and job creation within the state.**

Focusing specifically on SAF recognizes the unique challenges and opportunities in the aviation sector. As an airline operating in Hawai'i, having access to competitively priced, locally produced SAF is crucial for us to meet our environmental and sustainability goals. These tax incentives synergize economic and environmental objectives, reducing the cost gap between renewable fuels and traditional fossil fuels and accelerating the adoption of cleaner energy sources.

This proposed legislation aligns with our sustainability goals, as well as those of the broader aviation industry. The enactment of this bill is crucial as it will significantly strengthen our efforts to achieve and possibly exceed Hawai'i's environmental goals. Moreover, it positions Hawai'i as a leader in sustainable aviation, a vital move in an industry where joint efforts are essential for meaningful environmental advancement.

Therefore, we strongly urge the committee to pass this bill, paving the way for substantial environmental improvements and economic opportunities. It is not just beneficial; it is essential for propelling Hawai'i and the entire aviation industry toward a greener, more innovative future.

Mahalo for the opportunity to testify on this measure.



Jacob Aki
Public Affairs Manager – Hawai'i
Alaska Airlines

HB-2296

Submitted on: 1/29/2024 9:29:56 AM

Testimony for EEP on 1/30/2024 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Gene Harrington	Biotechnology Innovation Organization	Support	Written Testimony Only

Comments:

The Biotechnology Innovation Organization strongly supports HB 2296 and respectfully urges a 'Yes' vote on the legislation.



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

COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
Rep. Nicole E. Lowen, Chair
Rep. Elle Cochran, Vice Chair

DATE: Tuesday, January 30, 2024
TIME: 9:00am
PLACE: Conference Room 325

HB 2296 RELATING TO RENEWABLE FUEL. Please Hold

Aloha Chair Lowen, Vice Chair Cochran, and members of the Committee

My name is Olivia Chang and I am interning as a climate analyst with Life of the Land, Hawai'i's own energy, environmental and community action group advocating for the people and `aina for 53 years. Life of the Land's mission is to preserve and protect the life of the land through sound energy and land use policies and to promote open government through research, education, advocacy and, when necessary, litigation.

The bill provides a tax credit for importing sustainable aviation fuel (SAF). The lifecycle greenhouse gas emissions must be at least X per cent below that of fossil fuels and the renewable fuel is consumed in the State. The taxpayer "shall complete and file an independent, third-party certified statement, at the taxpayer's sole expense, with and in the form prescribed by the Hawaii state energy office, providing the... feedstock used for each type of qualified fuel... [and] the number and location of all renewable fuel production facilities within and outside of the State."

Summary

- Similar to California's Low Carbon Fuel Standard, **the bill could implement a tax credit proportional to a given fuel's well-to-wake (WtWa) GHG emissions reduction.**
 - The bill should provide minimal tax incentives to fuels with CORSIA's minimum threshold of 10% emissions reductions and greatly incentivize fuels that have at least 70% reduction in GHG (similar to EU's RED II).
- The current bill would incentivize importing 1st-generation palm oil, which has devastating social and environmental consequences and can result in WtWa emissions *greater than* petroleum jet fuel. Instead, the bill should:
 - Specify that the measured GHG emissions **include induced land-use change (ILUC) and displacement risk emissions.**
 - Instead of employing the Argonne GREET model (which generally undercounts ILUC emissions) to evaluate GHG emissions, evaluate fuels by the ICAO CORSIA model, which more accurately evaluates ILUC emissions.
 - Create **incentives for the use of 2nd-generation biofuels**, and create caps on the use of 1st-generation biofuels. The EU has already put this in practice.
 - Create stringent safeguards against passing off virgin feedstocks as waste.
 - Require that fuels **meet a robust set of sustainability criteria** such that imported fuel is not being produced through forced labor, child labor, or other human rights abuses¹.
- Similarly, e-fuels only provide GHG reductions when produced with renewable energy that does not displace renewable demand from other sectors. The bill should create incentives **for e-fuels to be produced using a minimum threshold of additional, renewable electricity**, not grid-standard electricity.
- The pathway to 1.5C requires a decreased demand for aviation. While alternative jet fuel (AJF) is necessary for Hawai'i, Hawai'i should not view AJF as a magical decarbonization solution. **Incentives for AJF must be coupled with policies that significantly reduce the demand for aviation.**

Background

- Aviation is currently ~50% of Hawai'i's petroleum use².
- HECO's decarbonization plan relies heavily on SAF to decarbonize Hawai'i—it expects to eliminate emissions from aviation by 2045 through decarbonized fuel use and some electrification³.
- Alternative jet fuel (AJF), also known as sustainable aviation fuel (SAF), is made from biofuels or electrofuels (e-fuels).
- AJFs are currently a miniscule share of the global jet fuel consumption (0.15% of global jet fuel volume in 2023⁴). Flights using AJFs are a small percentage of current flights⁵.

- To stay on track for 1.5C, International Energy Agency projects that AJFs must exponentially increase to 10% global jet fuel supply in 2030, and 33% in 2050⁶.
- **Biofuels are currently 2-5 times more expensive than fossil jet fuel.** Government subsidies are necessary for AJFs to scale up in any meaningful way⁷.
- **AJF is appealing for the aviation and fossil fuel industry because it is “drop-in”**—compatible with existing aircraft and fuel production infrastructure.
- AJFs are blended with fossil jet fuel. Depending on the feedstock and pathway, blends are limited to 10-50% AJF⁸.
- There are several different technical pathways for AJF production that are approved through the ASTM D7566 standard⁹.
- Biofuel AJFs can be produced through many different feedstocks, including vegetable oils, waste fats, oils and greases (FOGs), sugar crops, lignocellulosic crops, residues, and wastes, and starchy and sugary crops¹⁰.
- Aside from economic factors like supply and price, feedstocks vary by difficulty of production processes, energy loss during production, direct GHG emissions, and indirect GHG emissions.
- E-fuels are produced using hydrogen generated from electrolysis and CO₂. The process is extremely energy-intensive¹¹.
- **How much do AJFs reduce GHG emissions?**
 - The aviation industry frequently claims that AJF can reduce GHG emissions by up to 80%¹². Actual GHG emissions reductions vary greatly by feedstock and measurement method^{13,14}.
 - The UN International Civil Aviation Organization (ICAO)’s Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) estimates GHG reductions by feedstock, using a lifecycle analysis (LCA).

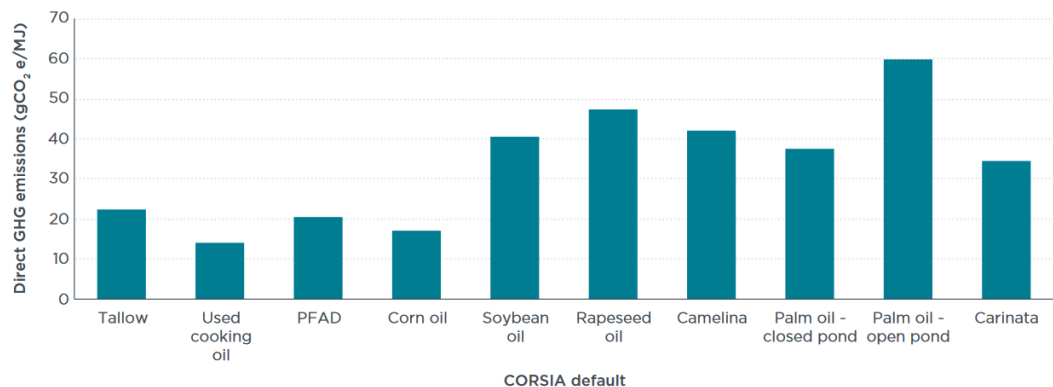
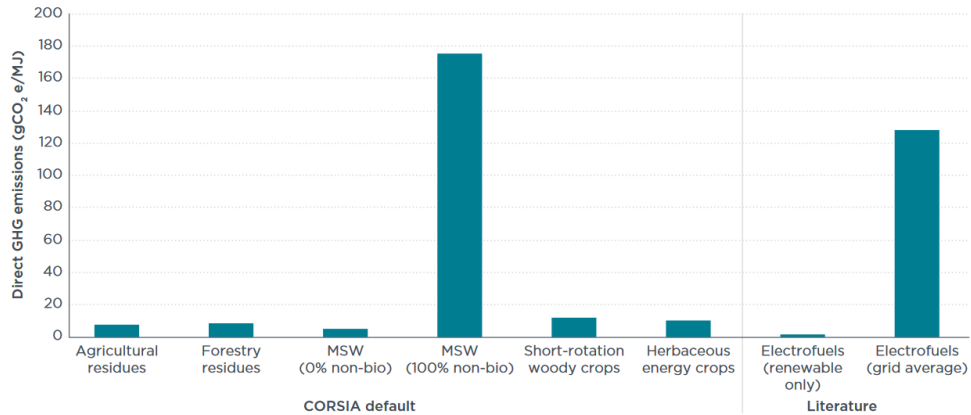


Figure 1: Summary of direct LCA emissions for HEFA SAF production pathways. HEFA emissions may differ based on additional processing and allocation methodology. Camelina and carinata have had their direct LCA emissions assessed, but their ILUC emissions have not been estimated by the ICAO.

○



-
- GHG emissions reductions should be compared to a baseline of approximately 89 CO₂e/MJ for fossil jet fuel¹⁵.
- **How much of a GHG emissions reduction is required for a fuel to be “sustainable”?** The EU’s RED II requires a GHG reduction of 70% for a fuel to be classified as sustainable (but this only applies to direct LCA emissions), whereas CORSIA only requires a 10% GHG reduction¹⁶.
- **Tradeoff between GHG emissions and energy efficiency:** Low GHG feedstocks can be very energy intensive. In general, a given *direct* GHG reduction potential is achieved at a cost of higher energy expended per fuel unit¹⁷.
 - 2nd-generation biofuels are promising from a GHG reduction perspective, but their overall energy efficiency is relatively poor for some of the production pathways. They are also more difficult to procure because their supply is small compared to total demand.
 - While e-fuels approach carbon-neutrality when produced with additional renewable electricity, if produced from grid-average electricity, they may have higher GHG than petroleum¹⁸.
- However, **typical life-cycle analyses (LCA) of GHG reductions usually exclude ILUC and displacement risk. When ILUC and displacement risk emissions are factored in, some fuels that appear to have great direct GHG emissions end up no better than petroleum**¹⁹.
 - Induced land use changes (ILUC): when high carbon-stock forests, natural lands, or pastures are converted to agriculture to grow energy crops, the disturbed biomass and soil creates indirect emissions.
 - Displacement risk: if low-supply feedstocks are used for AJF, other sectors that use those feedstocks may end up using alternative (higher emissions) energy sources in their place²⁰.
 - E.g. palm fatty acid distillates (PFAD) is a by-product of palm oil production and classified as a residue, but is almost entirely consumed by oleochemical industry (soap, cosmetics, etc). It is not truly a residue, as oleochemical industry which would be forced to use palm oil instead if biofuels diverted the supply of PFAD²¹.
 - Animal fats, corn oil, PFADs, and tall oil used for biofuels all pose displacement risk because other industries may substitute virgin vegetable oils or fossil fuels in their place.

there is “substantial risk and little long-term benefit to supporting vegetable oil HEFA fuels”.

- Due to concerns about ILUC emissions, the **EU’s RED II has begun to limit the use of 1st-generation biofuels and promote the use of 2nd-generation biofuels**²⁷.
- The fuels with highest GHG reductions are those produced via gasification-FT pathway with low energy inputs and low risk of displacement, for example agricultural and forestry residues, and biogenic MSW. Additionally, used cooking oil has one of highest GHG reductions (84%) and no indirect emissions, and in EU is truly a waste with no other uses (although used as livestock feed in US)²⁸.
- Given that palm oil is a relatively cheap vegetable oil and provides relatively high *direct* GHG emissions reductions, palm oil is the most credible feedstock for aviation biofuels, despite its high ILUC emissions and devastating social and environmental consequences²⁹.
- E-fuels will not be able to generate meaningful GHG reductions without corresponding protections to ensure they are produced using additional, renewable electricity³⁰.

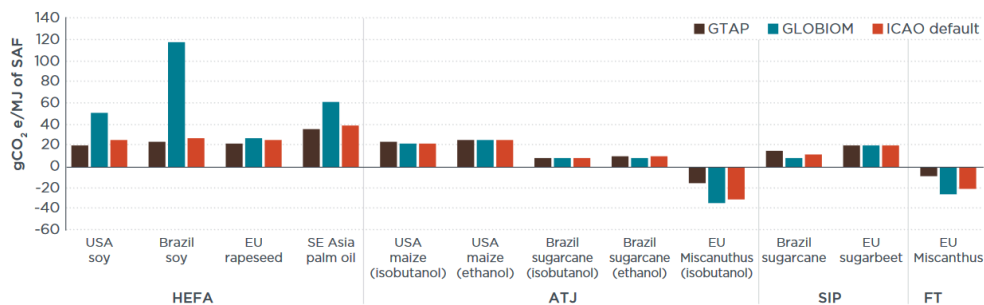
Takeaway: Some feedstocks, such as palm oil, appear to have reasonable direct emissions reductions but does not provide emissions reductions once ILUC and displacement emissions are factored in. AJFs should be evaluated by true WtWa GHG emissions reductions.

California’s Low-Carbon Fuel Standard

- High-carbon fuel producers have to acquire LCFS credits. Low-carbon fuel producers produce credits that they can sell, creating an incentive to produce low-carbon fuel.
- LCFS credits trade between 100 to 200 per metric ton of CO₂ (although current price has been below \$80 for the last year³¹).
- California’s LCFS was initially enacted for road transport but was amended by the California Air Resources Board in 2018 to include aviation fuels as an “opt-in” pathway³².
- **AJF generates LCFS credits based on lifecycle carbon intensity and proportionally to their GHG emissions reduction**, as assessed by the CA-GREET model.
- If LCFS credit is about \$150 per metric ton, jet fuel produced from waste oils (e.g. that produced by World Energy in CA) that provide ~80% reduction in GHG will get \$1.25 in policy value per jet-equivalent gallon.
- However, because the opt-in pathway means that fossil jet fuels don’t create deficit generation (i.e. fossil jet producers don’t need to buy LCFS), biofuel refineries are less incentivized to produce AJF (as opposed to renewable diesel).
- Berkeley’s Center for Law, Energy and the Environment (CLEE) notes this is an arguably inequitable way to achieve an energy transition: gas is primary high-carbon fuel in LCFS market. Since gas producers need LCFS credits and will often obtain credits from AJF, they will pass the cost of LCFS credits to consumers. Gas for car travel is consumed by wide range of incomes, whereas AJF for air travel benefits the disproportionately wealthy.
- CLEE recommends that California Air Resources Board regulate fossil jet fuel under LCFS to create an aviation-specific market that preferences AJF over fossil jet fuels and limits trading across road and aviation.

Bill Analysis

- "Lifecycle greenhouse gas emissions" is defined as "the aggregate attributional core lifecycle greenhouse gas emissions values utilizing the most recent version of Argonne National Laboratory's Greenhouse Gasses, Regulated Emissions, and Energy Use in Technologies Model, *inclusive of agricultural practices* and carbon capture and sequestration." Does "inclusive of agricultural practices" indicate ILUC emissions? It's unclear whether "aggregate attributional core lifecycle greenhouse gas emissions" includes ILUC emissions, and it implies excluding displacement risk emissions.
- If they do include ILUC emissions, the calculations will utilize the GREET model to calculate ILUC emissions.
- ILUC calculations depend on the economic model and modeler's assumptions, resulting in high uncertainty and academic debate³³.
 - The ICAO uses two different models calculating ILUC emissions on the most common feedstocks:
 - Global Trade Analysis Project (GTAP-BIO) - general equilibrium model that simulates global economy
 - Global Biosphere Management Model (GLOBIOM) - partial equilibrium model focused on agricultural, livestock, forestry sectors
 - GTAP-BIO which has significantly lower ILUC emissions estimates compared to the GLOBIOM, US Renewable Fuel Standard, California's LCFS, and CORSIA. This is particularly pronounced for HEFA feedstocks:



○ Figure 5: Summary of ILUC emissions for food crop-derived SAF production pathways.

- The ICAO's CORSIA uses a method of combining GTAP-BIO and GLOBIOM, reflecting the high uncertainty.
- However, the GREET model *only* uses the GTAP-BIO method of calculating ILUC, which does not reflect continued uncertainty in calculating ILUC emissions within the scientific modeling community.
- The GREET model is generally preferred by the aviation biofuels industry.

Takeaway: the bill is vague about whether emissions includes ILUC emissions, and likely does not include displacement risk emissions. Even if it does include ILUC emissions, using the GREET model means ILUC emissions are significantly undercounted. Using this vague definition of LCA emissions and the GREET model means certain fuels may appear to have significantly greater GHG emissions reductions than they actually do.

Conclusion

To decrease GHG emissions from the aviation sector, the current options are electrified aircraft (currently not technologically feasible), alternative jet fuel, and decrease in demand.

HECO's goal to eliminate aviation emissions by 2045 without any reduction in demand seems incredibly—almost impossibly—ambitious given that the *most ambitious* scenarios expect 68% reduction in *direct* GHG from aviation (i.e. not including ILUC or displacement emissions) by 2050 with huge, government-subsidized scaling up of AJF³⁴, and electrified aircraft is nowhere near technologically ready. **At least some, if not most, of those reductions need to come from decreased demand.**

Considering aviation is currently artificially cheap given substantial government subsidies, and that aviation largely benefits more well-off consumers that can afford air travel, we should be hesitant to recommend policies that subsidize aviation, and generally look towards policies that stem and reverse the growth in aviation.

However, completely eliminating aviation demand in Hawai'i is unrealistic compared to other places given that Hawai'i is uniquely dependent on aviation. Therefore, **Hawai'i should incentivize production of AJF if the fuel in question achieves genuine WtWa emissions reductions.** Because palm oil is really the only economically and technologically credible feedstock, if the bill only considers direct GHG emissions reduction, it would incentivize importing AJF made from palm oil, which is (1) associated with devastating social/environmental impacts and human rights abuses and (2) has WtWa emissions similar to or sometimes worse than petroleum jet fuel. This means that the method to measure GHG emissions is critical—typical LCA emissions estimates are not enough.

Those criteria might seem like the bare minimum, but given current technology, **this would mean that most feedstocks will still be prohibitively expensive because they either:**

- (1) do not provide meaningful WtWa reductions, like palm oil or e-fuels made with grid-standard electricity
- (2) provide meaningful reductions, but have limited supply, like used cooking oil
- (3) provide meaningful reductions, but are cost prohibitive because they are extremely energy inefficient to produce, like straw.

It's also important to note that cover crops like camelina (that Pono Pacific hopes to produce) have not had their ILUC emissions yet estimated by CORSIA. Locally produced feedstocks will likely have different ILUC emissions and displacement risk than globally-applicable ILUC estimates.

The bill currently only considers “sustainability” in the lens of GHG emissions reductions. We should not incentivize production of fuels that are associated with significant human rights violations. Even if palm oil were to provide meaningful WtWa GHG emissions reductions (which it does not), the ethical and social impacts of associated with palm oil production are not factored into this evaluation of what is “sustainable”. Therefore, **the bill should also ensure that the feedstock supply chain is not associated with human rights violations.**

It is true that many of the renewables currently incentivized are made through supply chains with significant human rights violations (lithium, cobalt, bauxite, graphite from lithium ion batteries for example). But preventing the bill from indirectly incentivizing human rights violations seems like a bare minimum to me.

Biofuelwatch believes GHG standards for biofuels are inherently ineffective to address negative impacts of bioenergy³⁵. There are no credible ways of addressing major indirect impacts of bioenergy through standards, and no regulatory mechanism for monitoring/enforcing compliance with standards. Standards can't address "sustainability of demand". For example, excessive demand for agricultural products and wood has led to deforestation; incentivizing SAF production will increase demand for aviation. Moreover, the WTO and trade agreements exert strong pressures against genuinely meaningful standards. In addition, Biofuelwatch believes that **explicitly banning palm oil, including PFAD, would "almost certainly" prevent large scale uptake of biofuels for planes altogether because palm oil is the only price-competitive and technologically credible feedstock.**

Ultimately, **AJF is not a real solution to decarbonize** the aviation industry given the current state of the technology. The aviation industry cannot use AJF as a crutch that allows it to pretend to decarbonize as it keeps growing, and instead should pay for their pollution. Subsidies for AJF keep flying artificially cheap, resulting in more air traffic and emissions than if the industry were to pay the costs themselves. **We should not stake our future on technologies that do not yet exist. This bill should be coupled with policies that equitably curb aviation's growth³⁶.**

Glossary of Acronyms

- AJF = alternative jet fuel
- CORSIA = Carbon Offsetting and Reduction Scheme for International Aviation
- FOG = fats, oils, greases
- GLOBIOM = Global Biosphere Management Model, the other primary ILUC emissions model
- GTAP-BIO = Global Trade Analysis Project, one of the models for estimating ILUC emissions
- GREET = Argonne National Laboratory's Greenhouse Gasses, Regulated Emissions, and Energy Use in Technologies Model, for estimating
- HEFA = hydroprocessed esters and fatty acid
- HVO = hydrotreated vegetable oil
- ICAO = International Civil Aviation Organization
- ILUC = induced land use change
- LCFS = California's low-carbon fuel standard
- MSW = municipal solid waste
- RED II = the EU's renewable energy directive
- SAF = sustainable aviation fuel
- WtWa = well to wake (GHG emissions)

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January 29, 2024

TESTIMONY ON HB 2296, RELATING TO TAXATION

SUPPORT

Representative Nicole E. Lowen, Chair
Representative Elle Cochran, Vice Chair
Committee on Energy & Environmental Protection
Hearing: January 30, 2024, at 9AM, Conf Room 325

Aloha Chair Lowen, Vice Chair Cochran and Members of the Committee,

Pacific Biodiesel supports HB 2296 and a related bill, HB 2767, which update the renewable fuels production tax credit.

New investments are needed to incentivize existing producers to increase production of firm renewable energy and to encourage new producers to begin production. The production tax credit gives a very important incentive to invest further in firm renewable fuel production in Hawaii. Past investments in the renewable fuels production tax credit succeeded in promoting local investments in cleaner fuels and moving us closer to energy independence and security. Continuing this credit sends the correct signal for new and continued investments in this firm renewable energy.

We believe that increased incentives must be justified by increased benefits to the State; therefore, we recommend amending HB 2296 to include language from HB 2726 that creates a tiered system of tax credits that incentivizes: 1) renewable fuels produced from renewable feedstock **locally grown or recycled in the State of Hawaii** and 2) renewable fuels produced with lifecycle greenhouse gas emissions at least **75% below that of fossil fuels**.

- Amend Subsection 235-110.32(a), Hawaii Revised Statutes, to provide an additional credit value of \$1.00 per gallon for renewable fuels produced with lifecycle greenhouse gas emissions at least 75 per cent below that of fossil fuels.
- Amend Subsection 235-110.32(d), Hawaii Revised Statutes, to require the Hawaii state energy office to determine whether the lifecycle greenhouse gas emissions for each type of qualified fuel produced is 75 per cent lower than that of fossil fuels.

Hawaii's utility companies rely on and need more of Pacific Biodiesel's locally produced firm renewable energy. HRS section 269-92(a) requires each electric utility company that sells electricity for consumption in the State to establish a renewable portfolio standard of forty percent of its net electricity sales by December 31, 2030, seventy percent of its net electricity sales by December 31, 2040, and one hundred percent of its net electricity sales by December 31, 2045. In order for electric utility companies to meet the required renewable portfolio standards by 2045, an indispensable component of the electric utility companies' renewable

renewable • sustainable • community-based

portfolio standard must include sufficient locally sourced firm renewable energy sources to offset the intermittent nature of wind and solar power renewable energy.

A 20-year plan ensures that Hawaii’s firm energy needs can be met with firm renewable energy by 2045. To ensure sustainable inventories of locally sourced firm renewable energy for electric utility companies’ renewable portfolio standards, long term planning that includes incentives, are essential for investment and development of locally sourced firm, renewable energy production. With twenty years remaining to reach the mandate that one hundred percent of our electricity be generated by renewable sources of energy by 2045, **we must update the renewable fuels production tax credit with a 20-year plan to ensure that our firm energy needs can be met with renewable firm energy by 2045.**

- Amend Subsection 235-110.32(o), Hawaii Revised Statutes, to define the credit period as twenty consecutive years instead of ten consecutive years.

Speaking for the liquid biofuels industry, it is well known that the cost to move from 70% to 100% renewables will be extremely expensive using any other technology. Biodiesel can cost effectively optimize battery sizing by providing firm renewable power, quickly dispatched at any time. Fast-start, efficient diesel engines – when fueled with clean biodiesel – are enabling higher penetration of intermittent PV and wind assets while maintaining grid stability.

Biodiesel allows for an immediate reduction of greenhouse gas emissions. Our biodiesel is a 100% renewable Advanced Biofuel that is a crucially important firm renewable power source in Hawaii to back up other renewables on the grid. And, more importantly now than ever, Hawaii’s locally produced biodiesel is supporting energy security in our island state and reducing reliance on imported fossil fuel. **It is a direct replacement for petroleum diesel fuel that can be used right now in any diesel engine without modification, helping to reduce greenhouse gas emissions by 86% compared to petroleum diesel.** The diesel engine is NOT the problem. Petroleum diesel FUEL – fossil fuel – used in efficient diesel engines is the problem. **Biodiesel has one of the lowest carbon footprints of any fuel.** A California Air Resources Board (CARB) report* shared findings that total greenhouse gas (GHG) reductions from biomass-based diesel were three times the total reductions from electric vehicles. In Hawaii, where the carbon intensity of our electricity grid is significantly higher than the US average, the assumption would be an even greater GHG reduction with the use of 100% biodiesel compared to EVs charged by an electricity grid that is currently only 30% powered by renewables.

Unfortunately, Hawaii is rushing to support electrification while ignoring the many environmental and economic benefits of biofuels. We cannot and should not sit back and wait for a 100% zero emission future. The State must get serious, soon, about requiring a lifecycle GHG reduction analysis on its “zero emission” strategies before Hawaii spends millions on electrification.

The further we move towards our goal of 100% renewable, the more critical firm energy like liquid biofuel sources will be. At Pacific Biodiesel’s refinery on Hawaii Island, we produce 6 million gallons per year of premium distilled biodiesel – the equivalent of 220 MWh per DAY of 100% renewable energy for Hawaii. **But, building up the supply is a long process. We must accelerate implementation and support additional local production now to meet expanding demand in the future and to ensure that our firm energy needs can be met with firm renewable energy by 2045.**

Pacific Biodiesel

Testimony - SUPPORT HB 2296

January 29, 2024

Page 3 of 3

Mahalo,

Sincerely,

A handwritten signature in black ink that reads "Robert A. King". The signature is written in a cursive style with a large initial 'R' and 'K'.

Robert A. King, President
Pacific Biodiesel Technologies, LLC