HAWAII STATE ENERGY OFFICE
STATE OF HAWAII

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LT. GOVERNOR

MARK B. GLICK
CHIEF ENERGY OFFICER

235 South Beretania Street, 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 451-6648
Web: energy.hawaii.gov

Testimony of
MARK B. GLICK, Chief Energy Officer

before the
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

Thursday, April 11, 2024
9:00 AM
State Capitol, Conference Room 325 and Videoconference

In Support of
SCR 97, SD1

REQUESTING THE HAWAII STATE ENERGY OFFICE TO CONVENE A RENEWABLE LIQUID FUELS WORKING GROUP TO STUDY LOCAL PRODUCTION, DEVELOPMENT, AND INCENTIVES FOR RENEWABLE LIQUID FUELS.

Chair Lowen, Vice Chair Cochran, and members of the Committee, the Hawai‘i State Energy Office (HSEO) supports, with amendments, SCR 97, SD1, requesting HSEO to convene a renewable liquid fuels working group to study local production and potential incentives for renewable liquid fuels for use in the transportation sector.

Hawai‘i’s energy strategy seeks to establish an affordable, clean, resilient, and diversified energy resource portfolio. Locally-produced renewable fuels should play a vital role in the energy mix needed to decarbonize the transportation sector and contribute to Hawai‘i’s 100% renewable portfolio. However, land availability severely limits the amount of local production towards Hawai‘i’s economic, energy and agricultural objectives. HSEO agrees with the merit of convening local experts to identify potential opportunities, synergies, and barriers for these fuels.

Renewable liquid fuels have the potential to decrease carbon emissions from transportation, especially in aircraft and medium and heavy-duty vehicles. However, the Decarbonization Report prepared by HSEO pursuant to Act 238 (2022) and submitted to the Hawai‘i Legislature in December of 2023 pointed out that renewable liquid fuels

have widely varying environmental and cost profiles, depending on a variety of factors.[1] The proposed working group could bring together the appropriate energy stakeholders to meaningfully engage in a review of resource base potential and the most appropriate approaches, strategies, realistic quantities, and associated incentives and recommendations for local production of renewable liquid fuels.

HSEO notes that the scope for this unfunded, multi-part evaluation, involving numerous parties, is very broad. In order to provide a more focused evaluation, consistent with the stated objectives of the resolution and with a greater chance of reportable results within the timeframe, HSEO recommends narrowing the scope; providing for an interim report, with recommendations, by January; and providing a final report twelve months later. This way, any topics that are still under discussion in the first phase can be presented in draft form, at least, by January, including supporting information as it exists at the time.

In support of this, HSEO respectfully recommends the following changes to the measure.

To narrow the scope to focus on fuels for the transportation sector, HSEO recommends removing the text on page 3, lines 4 through 9:

~~(3) A representative from Hawaiian Electric;~~
~~(4) A representative from Hawaii Gas;~~
~~(5) A representative from the Kauai Island Utility Cooperative;~~

To further clarify and narrow the scope, HSEO recommends that the working group topics (1) and (2) be combined, (3) be revised, and (4) be deleted from this measure due to time and resource constraints. Beginning on page 3, starting on line 25, the new item would read as follows:

[1] Hawai‘i State Energy Office (2023). Hawai‘i Pathways to Decarbonization Report to the 2024 Hawai‘i State Legislature Act 238 (SLH 2022). Available at: https://energy.hawaii.gov/wp-content/uploads/2022/10/Act-238_HSEO_Decarbonization_FinalReport_2023.pdf pages 105 and 113

BE IT FURTHER RESOLVED that the working group is requested to:

(1) [~~Facilitate~~] Identify potential feedstock and production technologies suitable for the local production of renewable liquid fuels, including renewable diesel, naphtha, and sustainable aviation fuels;

(2) [~~Identify potential feedstock and production technologies suitable for production and use within the State;~~] Identify costs, benefits, and risks of local renewable liquid fuel production; and

(3) Evaluate existing and potential new [~~tax~~] incentives for the development and utilization of renewable liquid fuels in the State[~~; and~~

~~(4) Evaluate the adoption of a clean fuel standard to incentivize the use of renewable liquid fuels~~];

To enable the production of an interim report with recommendations by January, including supporting information as it exists at the time, HSEO recommends the following insertion on page 4, line 5:

BE IT FURTHER RESOLVED that the working group is requested to submit to the Governor and Legislature [~~a~~]:

(1) A report providing an update of its work and progress no later than January 1, 2025; and

To ensure time for report production, HSEO recommends the following revision to page 4, lines 5-7:

(2) A final report of its findings and recommendations, including any proposed legislation, no later than January 1, 202~~5~~6; and

Finally, for consistency with the focus on transportation, HSEO recommends the following deletions on page 4, beginning on line 16:

~~President and Chief Executive Officer of Hawaiian Electric;~~
~~President and Chief Executive Officer of Hawaii Gas; and~~
~~President and Chief Executive Officer of Kauai Island Utility Cooperative.~~

HSEO is committed to the near-term development of effective solutions for renewable liquid fuels that foster affordability, lower carbon intensity of our existing fuel mix, and energy security and access to capital to move forward Hawai‘i’s energy transition. HSEO looks forward to supporting this sector of the energy economy.

Thank you for the opportunity to testify.

P.O. Box 253, Kunia, Hawai'i 96759
Phone: (808) 848-2074; Fax: (808) 848-1921
e-mail info@hfbf.org; www.hfbf.org

April 11, 2024

HEARING BEFORE THE
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

TESTIMONY ON SCR 97, SD1
REQUESTING THE HAWAII STATE ENERGY OFFICE TO CONVENE A RENEWABLE LIQUID FUELS WORKING GROUP TO STUDY LOCAL PRODUCTION, DEVELOPMENT, AND INCENTIVES FOR RENEWABLE LIQUID FUELS

Conference Room 325 & Videoconference
9:00 AM

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

I am Brian Miyamoto, Executive Director of the Hawaiʻi Farm Bureau (HFB). Organized since 1948, the HFB is comprised of 1,800 farm family members statewide and serves as Hawaiʻi's voice of agriculture to protect, advocate, and advance the social, economic, and educational interests of our diverse agricultural community.

The Hawaiʻi Farm Bureau supports SCR 97, SD1, which requests the Hawaiʻi State Energy Office to convene a renewable liquid fuels working group to study local production, development, and incentives for renewable liquid fuels.

Renewable energy production using biofuels can play a critical role in helping Hawaiʻi reach the goal of one hundred percent renewable energy by 2045, help to diversify Hawaiʻi's economy and agricultural sector, reduce greenhouse gas emissions, and reduce our dependence on imported oil.

HFB supports the production of dedicated energy crops, crop residues, and agricultural wastes into economically and environmentally sustainable biofuels and value-added byproducts such as livestock feed.

Finding viable uses for agricultural lands that will encourage environmental sustainability and produce positive economic cash flow for Hawaiʻi 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. Growing biofuel feedstocks locally helps to create new agricultural jobs, encourages food production, and does not compete with food crops when using oil seed cover crops. HFB 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.

Thank you for the opportunity to comment on this measure.

P.O. Box 1459
Kahului, Hawaii 96733
Phone (808) 877-3144
Fax (808) 877-5030
www.biodiesel.com

April 9, 2024

TESTIMONY ON SCR 97 SD1

SUPPORT

Rep. Nicole E. Lowen, Chair
Rep. Elle Cochran, Vice Chair
Committee on Energy & Environmental Protection

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

Pacific Biodiesel supports, with amendments, SCR 97 SD1 REQUESTING THE HAWAII STATE ENERGY OFFICE TO CONVENE A RENEWABLE LIQUID FUELS WORKING GROUP TO STUDY LOCAL PRODUCTION, DEVELOPMENT, AND INCENTIVES FOR RENEWABLE LIQUID FUELS.

We are the oldest and most successful local producer of second-generation biodiesel in Hawaii. Our business model puts the environment, local economy, and energy independence first, and we have proven to be a stable business partner for the State and local utilities. For that reason, we request an amendment specifically naming Pacific Biodiesel Technologies, Inc as a participant in the working group.

> "**A representative from Pacific Biodiesel Technologies, Inc**."

Further we request the flowing amendment to correct the unintended exclusion of biodiesel from the list of liquid fuels.

> "BE IT FURTHER RESOLVED that the working group is requested to:
>
> (1) Facilitate the local production of renewable liquid fuels, including **biodiesel,** renewable diesel, naphtha, and sustainable aviation fuels;"

Major investments are needed in firm renewable energy to meet Hawaii's mandate to reach 100% renewable energy by 2045.

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

B. 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.

C. 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.

Our locally produced 2nd Generation biodiesel is produced from recycled used cooking oil from Hawaii and recycled used cooking oil from the mainland. Increasing production using locally grown or recycled feedstock is our goal, and that goal is becoming reality at our new project on Kauai. Pacific Biodiesel and other companies need this incentive to increase local production with from local feedstock over the next 20 years. That is how we achieve energy independence.

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

Mahalo,

Sincerely,

Robert A. King, President
Pacific Biodiesel Technologies, LLC

April 11, 2024

TESTIMONY IN SUPPORT TO SCR97 / SR82 REQUESTING THE HAWAII STATE ENERGY OFFICE TO CONVENE A RENEWABLE LIQUID FUELS WORKING GROUP TO STUDY LOCAL PRODUCTION, DEVELOPMENT, AND INCENTIVES FOR RENEWABLE LIQUID FUELS.

House Committee on Energy & Environment Protection
The Honorable Nicole Lowen, Chair
The Honorable Elle Cochran, Vice Chair
Thursday, April 11, 2024, 9:00 am
VIA VIDEOCONFERENCE &
Conference Room 325
State Capitol
415 South Beretania Street

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

Island Energy Services (IES) supports the intent of SCR97 / SR82 to convene a Renewable Liquid Fuels Working Group to study the local production, development and incentives for renewable liquid fuels. IES believes the input from the "Working Group" is a critical step at this time to set in motion a smooth transition to the stated policy of reducing and ultimately eliminating the use of hydrocarbon-based liquid fuels by 2045. Determining the appropriate steps along an orderly pathway, with the least amount of disruption, will require a concerted effort from a broad range of in-state stakeholders likely informed by experiences from outside of Hawaii. Recognizing that the production of the necessary replacement liquid fuels in sufficient quantities cannot be achieved in its entirety via local production, importation will be paramount to any plan to achieve a fossil-free energy system. As a major local fuel supplier, and Hawaii's premier importer of liquid fuels, IES believes the formation of a Renewable Liquid Fuels Working Group is the right step and looks forward to contributing to the effort going forward.

IES is a locally managed and headquartered integrated logistics and retail fuel supplier providing over 20% of the liquid energy needs of the State of Hawai'i. Our operations extend across all islands with major assets on Oahu, Maui, Kauai, and Hawaii Island. At IES, our local workforce of 285 employees takes tremendous pride in serving our customers safely, environmentally responsibly, reliably, efficiently with cost competitive products and services. Whether you and or your goods are moving by air, land, or sea, IES is there to support island

residents now and into the future. As for the future, IES is collaborating with other partners to transition Hawai'i's energy supply to ever cleaner sources of energy including, biofuels such as renewable fuels for electrical power generation, ground and marine transportation and sustainable aviation fuel (SAF) for airplanes.

We thank the House Energy & Environment Protection Committee for hearing this bill and thank you for the opportunity to testify.

Albert D.K. Chee, Jr.
Vice President

Par Hawaii

April 11, 2024

TESTIMONY IN SUPPORT OF SCR 97
REQUESTING THE HAWAII STATE ENERGY OFFICE TO CONVENE A RENEWABLE LIQUID FUELS WORKING GROUP TO STUDY LOCAL PRODUCTION, DEVELOPMENT, AND INCENTIVES FOR RENEWABLE LIQUID FUELS.

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

Thursday, April 11, 2024, 9:00 AM
Conference Room 325 & Videoconference
Hawaii State Capitol; 415 South Beretania Street

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

Thank you for the opportunity to provide testimony in support of SCR 97.

Par Hawaii supports SCR 97 and appreciates the Legislature taking the lead to initiate a Renewable Liquid Fuels Working Group to study local production, development, and incentives, convened by the Hawai‘i State Energy Office. We support the resolution and offer the following comments.

This working group will be critical to accelerating our state’s adoption of renewable liquid fuels to reduce our dependency on fossil fuels and the carbon intensity of the transportation sector. The working group will enable Hawai‘i to keep pace with other forward-looking states that have adopted incentives to support the production and use of renewable liquid fuels, including sustainable aviation fuel (SAF) and renewable diesel.

As noted in the resolution, the transportation sector, particularly aviation, contributes significantly to greenhouse gas emissions. A coalition of local companies - Par Hawaii, Hawaiian Airlines and Pono Pacific, working with a broad range of stakeholders, is making headway to decarbonize air transportation, an area of vital importance to our local economy.

We offer the following suggested amendments:

1. We ask the committee to consider adding a working group representative from Par Hawaii. As the state’s local fuel provider, and the only company capable of producing SAF and renewable diesel locally, we believe it is vital that Par Hawaii is included in the Working Group.
    a. We suggest that local biofuel producer Pacific Biodiesel also be named to the Working Group.

2. The composition of the working group currently proposes to include a "representative from local feedstock producers." Par Hawaii believes it is necessary to include Pono Pacific to the working group as a local feedstock producer. Par Hawaii, Hawaiian Airlines, and Pono Pacific are boldly committed to developing local sources of plant-based feedstock to facilitate the production of SAF and other renewable fuels to reach our state's net zero greenhouse gas emission goal. Oil crop field trials are already underway with land and farming partners on Hawaii Island, Kauai, Maui and Oahu, [with Molokai to start later this year].

Thank you for the opportunity to share our input and comments on the Renewable Fuels Working Group.

April 10, 2024

TESTIMONY IN SUPPORT OF SCR 97 SD1
REQUESTING THE HAWAII STATE ENERGY OFFICE TO CONVENE A RENEWABLE LIQUID FUELS WORKING GROUP TO STUDY LOCAL PRODUCTION, DEVELOPMENT, AND INCENTIVES FOR RENEWABLE LIQUID FUELS

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

Thursday, April 11, 2024, 9:00 AM
Conference Room 325 & Videoconference
Hawaii State Capitol; 415 South Beretania Street

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

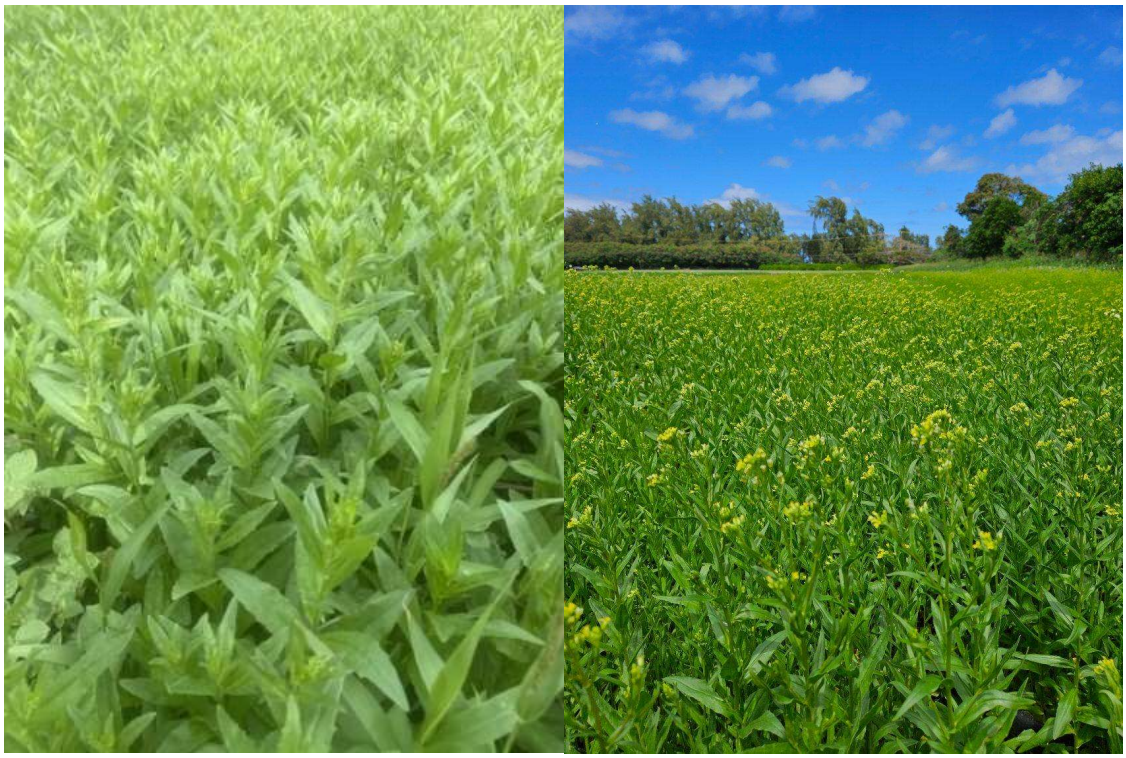
Thank you for the opportunity to provide testimony in SUPPORT of SCR 97 SD1. Pono Pacific supports the creation of a Renewable Liquid Fuels Working Group to study local production, development, and incentives, convened by the Hawai'i State Energy Office. We support this resolution and offer the following comments.

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 Hawaii 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, provide much needed local animal feed, and help put idle lands to work.

Pono Pacific is currently conducting, or will soon be conducting, field trials of Camelina at four sites, including Kuilima Farm on Oahu's North Shore, as well as with partner farmers Mahi Pono on Maui, Meadow Gold Dairies Hawaii on Hawaii Island, and Aloun Farms on Kauai. Our intention is to determine the viability of growing Camelina as a source of locally-produced renewable fuel, including SAF, in different geographic locations and growing conditions. Pono Pacific worked with the Hawaii Natural Energy Institute (HNEI) to assess land areas throughout the State and create a model identifying ideal production sites based on zoning, slope, rainfall, and temperature data. Using this information, we sought out and established relationships with key landowners to begin crop trials. Through our trials, we

are gathering data on methodology, crop management, yield, costs, and mechanization to scale for Camelina production. Seed produced through these trials will be provided to Par Hawaii for quality analysis. Biomass produced will be tilled back into the soil at trial sites to improve soil health and tested for any potential positive impacts to soil conditions, as well as potentially used as animal feed with our crop trial partner Meadow Gold Dairy.

Pono Pacific has gained substantial experience through its ongoing self-performed Camelina crop trials, which we have been working on for a year and have completed several crop rotations. Photo of Camelina at the Kuilima Farm crop trial site:



Thank you for the opportunity to share our support and comments on the Renewable Fuels Working Group.

Mahalo,

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

April 10, 2024

Testimony on SCR 97 SD1

REQUESTING THE HAWAII STATE ENERGY OFFICE TO CONVENE A RENEWABLE LIQUID FUELS WORKING GROUP TO STUDY LOCAL PRODUCTION, DEVELOPMENT, AND INCENTIVES FOR RENEWABLE LIQUID FUELS.

COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

Rep. Nicole E. Lowen, Chair
Rep. Elle Cochran, Vice Chair

Conference Room 325
State Capitol
415 South Beretania Street

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

Thank you for the opportunity to provide supportive comments on SCR 97 SD1. Airlines for America® (A4A) is the principal trade and service organization of the U.S. airline industry[1]. 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). 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 qualified to the relevant ASTM standards for alternative jet fuel. 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.

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

[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.

firmly believe that any production pathway that can meet robust technical and sustainability requirements should be eligible for incentive programs.

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. And, we also recognize the unique fiscal challenge the State of Hawai‘i is currently facing. A4A and our member airlines value our partnership with the state and believe there is a unique opportunity to jointly develop a market for cost competitive SAF.

Thank you again for the opportunity to provide our support to this effort. Please do not hesitate to contact us if you have any questions.

Sincerely,

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

April 11, 2024

TESTIMONY IN SUPPORT OF SCR 97 SD1
REQUESTING THE HAWAII STATE ENERGY OFFICE TO CONVENE A RENEWABLE LIQUID FUELS WORKING GROUP TO STUDY LOCAL PRODUCTION, DEVELOPMENT, AND INCENTIVES FOR RENEWABLE LIQUID FUELS.

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

April 11, 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 SUPPORT of SCR 97 SD1.

SCR 97 SD1 requests the Hawaii State Energy Office to convene a renewable liquid fuels working group to study local production, development, and incentives for renewable liquid fuels in Hawaii. We support the creation of this working group, which contemplates representation from diverse stakeholders, including airlines, fuel producers, utilities, agriculture and state government, to evaluate existing and potential new incentives for the development and utilization of renewable liquid fuels in Hawaii. We appreciate the opportunity for the airline industry, represented by Airlines for America or one of its member carriers, to have a seat at the table on this working group and contribute to the advancement of this important topic.

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.

In line with the broader aviation industry, we view sustainable aviation fuel (SAF) 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 proven, drop-in fuel, meaning that it is certified for use in 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. The State of Hawaii has established an ambitious target to achieve economy-wide net-zero emissions by 2045, and aviation emissions comprise about 50 percent of Hawaii's transportation emissions. If Hawaii wants to attract supply of SAF to address its aviation emissions, it will need incentives that are competitive with other U.S. states. As long as there is scarcity of supply, volume will go to the markets which provide the most value.

SCR 97 SD1 is opportunity to bring together diverse stakeholders and align industry and government on the development of incentives needed to decarbonize our economy in Hawaii, particularly in the aviation sector which has been deemed a 'hard to decarbonize' sector, while supporting economic development in our state.

Thank you for the opportunity to provide testimony in SUPPORT of this resolution.

Mahalo,

Alanna James
Managing Director, Sustainability Initiatives
Hawaiian Airlines

AIRLINES COMMITTEE OF HAWAII

Daniel K. Inouye International Airport
300 Rodgers Blvd., #62
Honolulu, Hawaii 96819-1832
Phone (808) 838-0011
Fax (808) 838-0231

Representative Nicole Lowen, Chair
Representative Elle Cochran, Vice Chair
Committee on Energy & Environmental Protection

Thursday, April 11, 2024; 9:00 a.m.
Conference room 325 & Videoconference

RE: SCR 97 SD1 Requesting the Hawaii State Energy Office to Convene a Renewable Liquid Fuels Working Group to Study Local Production, Development, and Incentives for Renewable Liquid Fuels – IN SUPPORT, REQUEST AMENDMENT

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

The Airlines Committee of Hawaii (ACH), comprised of 20 signatory air carriers that serve the State of Hawaii, appreciates the opportunity to offer testimony in support of SCR 97 SD1 - Requesting the Hawaii State Energy Office to Convene a Renewable Liquid Fuels Working Group to Study Local Production, Development, and Incentives for Renewable Liquid Fuels.

As the ACH represents both domestic and international carriers, and sustainable aviation fuel initiatives are a priority of our industry, we would like to request an amendment to include a representative from the ACH be invited to participate in the working group.

Thank you for the opportunity to submit testimony. We ask for your favorable consideration in passing this resolution with our requested amendment.

Sincerely,

Airlines Committee of Hawaii Executive Committee

Brendan Baker | Mark Berg | David Sellers

Randall Fiertz | Richard Ide

**ACH members are Air Canada, Air New Zealand, Alaska Airlines, All Nippon Airways/Air Japan, Aloha Air Cargo, American Airlines, China Airlines, Delta Air Lines, Federal Express, Fiji Airways, Hawaiian Airlines, Japan Airlines, Korean Airlines, Philippine Airlines, Qantas Airways, Southwest Airlines, Sun Country, United Airlines, United Parcel Service, and WestJet.*

LATE *Testimony submitted late may not be considered by the Committee for decision making purposes.

Comments before April 11, 2024
House Committee on Energy and Environmental Protection

OPPOSING
Senate Concurrent Resolution 97
Relating to Renewable Liquid Fuels

Mike Ewall, Esq.
Founder & Director
Energy Justice Network
215-436-9511
mike@energyjustice.net
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 who first sought our support in 2015. Since mid-2022, we have supported residents in forming the Hawai'i Clean Power Task Force and Kōkua nā 'Āina to address numerous energy and waste issues in the state.

We must stand in opposition to SCR 97 because it promotes dirty combustible fuels in the name of clean alternatives to fossil fuels. It puts industries with a clear conflict of interest in charge of paving the way for self-serving taxpayer subsidies for burnable fuels they would create or use. These fuels, in many ways, are as bad as, or worse than, the status quo. We object to wasting taxpayer money that could better be spent on clean, non-burn energy solutions that are cheaper and safer.

Cost: Both Pono Pacific and PAR Refinery admitted in their testimony on a related bill that these fuels are quite costly. PAR states: "the cost to produce these fuels is significantly higher than the cost of fossil fuels." If the environmental and health impacts of "renewable" fuels were not so high, perhaps the cost would be worth it. That is not the case.

Alternatives are a better deal: As Hawaiian Airlines' points out in testimony on a related bill, renewable diesel is likely to eat up the subsidy, because aviation fuel cannot compete. If fuels are going to end up in land-based vehicles and in HECO's oil-burning power plants, that investment simply diverts resources that could be going to non-burn alternatives that are already readily available. And if the fuels were actually going to go into aircraft, it's still a waste of resources since more climate, health and environmental impacts can be reduced by completing the job of cleaning up the other energy sectors that are still largely running on oil. See our recommendations on the next page for converting SB 3360 to a study bill to look at how $80 million per year can be better spent.

Biotech crops and trees: The biotechnology industry's trade association is supporting these dirty "clean fuels" bills for a reason. It's bad enough that the state suffers from many invasive species. However, inviting genetically modified crops and trees to be monocropped for fuel production is asking for trouble. On top of the normal concerns with monocrop agriculture – water and soil depletion, herbicides, fertilizer runoff, etc. – biotech crops and trees risk increasing chemical use, and more rapid resource depletion when designed for quick growth.

Food vs. fuel: Hawaii is already highly dependent on food imports, with very little grown in the state for local consumption. Attempts to address this will be aggravated when land is increasingly used for fuel production. Pono Pacific argued in testimony on related bills that agrofuels do not compete with food crops when using oil seed cover crops. However, the need for easy harvesting to reduce costs does not lend itself to a cover crop approach. It demands an industrialized monocrop approach.

Waste-based fuels: This policy supports turning municipal solid waste (trash) and industrial wastes into burnable fuels. There is 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. It was first used by Nazi Germany, then by South Africa's Apartheid regime.

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).

These technologies also have been unable to operate at commercial scale, usually relegated to unregulated 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 – because, as they present to waste industry conferences, of "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, BioEnergy Hawaii LLC, Hawaii Federated Industries / Feather Fuels / Shake Energy Collaborative PBC, Next Level Solutions Group, Simonpietri Enterprises, 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 available.

RECOMMENDATION: convert SCR 97 to push for a study to evaluate how taxpayer funds can best be used to reduce greenhouse gas emissions from the energy sector, as SCR 134 would have done. As classified by the U.S. Energy Information Administration, 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). HB 2786 / SB 2102 aim to clean up the RPS by first removing solid fuel combustion sources, which will speed up implementation of solar, wind, and 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 if replacing a combustion system.

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 non-burn solutions to long-distance air travel, let's focus on clean solutions already in hand:

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.

PROPOSAL: study what taxpayer investments could do if applied to each of the following sectors:

- Conservation and efficiency in the electricity sector
- Conservation and efficiency in the heating sectors (residential, commercial, and industrial)
- Conservation and efficiency in the transportation (land, sea, air) sectors
- Wind, solar, and storage to decarbonize the electricity sector
- Electrifying transportation (land, sea, inter-island air)
- Electrifying heating (residential, commercial, and industrial)
- Burnable liquid fuels

We expect that most of the first six options will fare better than investing in burnable liquid fuels, and will also have lower health, climate, and environmental impacts because combustion is being avoided, along with the need to have production systems that extract and burn up resources.

Finally, it's important to evaluate systems not just on the basis of climate impacts (greenhouse gas emissions), but on the other impacts that they have in terms of other consequences for land, sea, and air. And when evaluating biofuels systems, the conventional assumptions around carbon neutrality need to be challenged, based on the science from the past 15 years showing that biomass is not "carbon neutral."

Mahalo nui loa for your willingness to rethink whether shifting to different burnable fuels is the right move.