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Governor

SYLVIA LUKE
Lt. Governor



SHARON HURD
Chairperson, Board of Agriculture

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December 26, 2024

The Honorable Ronald D. Kouchi,
President and Members of the Senate
Thirty-Third State Legislature
State Capitol, Room 409
Honolulu, Hawai'i 96813

The Honorable Nadine K. Nakamura,
Speaker, and Members of the House
of Representatives
Thirty-Third State Legislature
State Capitol, Room 431
Honolulu, Hawai'i 96813

Dear President Kouchi, Speaker Nakamura, and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the Report on the State's Progress Toward Meeting the Milestones and Objectives of the Energy Feedstock Program as required by Act 159, SLH 2007. In accordance with Section 93-16, Hawaii Revised Statutes, I am also informing you that the report may be viewed electronically at <https://hdoa.hawaii.gov/meetings-reports/legislative-reports/>.

Sincerely,

Sharon Hurd
Chairperson, Board of Agriculture

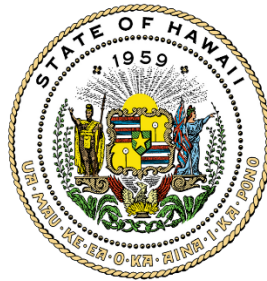
Attachments



**REPORT TO THE THIRTY-THIRD LEGISLATURE
2025 REGULAR SESSION
STATE OF HAWAII**

**REPORT ON THE STATE'S PROGRESS TOWARD MEETING THE MILESTONES AND OBJECTIVES OF
THE ENERGY FEEDSTOCK PROGRAM**

PURSUANT TO ACT 159, SESSION LAWS OF HAWAII'I 2007



Prepared by:

**THE STATE OF HAWAII
DEPARTMENT OF AGRICULTURE**

DECEMBER 2024

ENERGY FEEDSTOCK PROGRAM

Annual Report to the Legislature for Calendar Year 2024

Legislative Background

Section 141-9, Hawaii Revised Statutes, enacted pursuant to Act 159, Session Laws of Hawaii 2007, provides in full as follows:

[§141-9] Energy feedstock program. (a) There is established within the department of agriculture an energy feedstock program that shall:

- (1) Maintain cognizance of actions taken by industry and by federal, state, county, and private agencies in activities relating to the production of energy feedstock, and promote and support worthwhile energy feedstock production activities in the State;
- (2) Serve as an information clearinghouse for energy feedstock production activities;
- (3) Coordinate development projects to investigate and solve biological and technical problems involved in raising selected species with commercial energy generating potential;
- (4) Actively seek federal funding for energy feedstock production activities;
- (5) Undertake activities required to develop and expand the energy feedstock production industry; and
- (6) Perform other functions and activities as may be assigned by law, including monitoring the compliance provisions under section 205-4.5(a)(16).

(b) The chairperson of the board of agriculture shall consult and coordinate with the chief energy officer of the Hawaii state energy office under chapter 196 to establish milestones and objectives for the production of energy feedstock that is grown in the State. The chairperson and the chief energy officer of the Hawaii state energy office shall report the State's progress toward meeting such milestones and objectives annually to the legislature.

(c) The chairperson of the board of agriculture shall also consult and coordinate with research programs and activities at the University of Hawaii that will assist in the further growth and promotion of the energy feedstock production industry in Hawaii.

(d) The chairperson of the board of agriculture may employ temporary staff exempt from chapters 76 and 89. The board may adopt rules pursuant to chapter 91 to effectuate the purposes of this section. [L2007, c 159, §5; am L 2012, c 329, §2; am L 2019, c 122, §3]

Energy Feedstock Program Milestones and Objectives: Reportable Activities for the period of January 1, 2024 - December 31, 2024.

While we currently import approximately 90% of our fuel, we also import approximately the same percentage of food. Renewable energy development in the form of energy feedstock production is essential to Hawaii's energy security, but its promotion should be done in a manner does not adversely affect access to agricultural lands by agricultural operations that contribute to Hawai'i's food self-sufficiency.

It is also important to note that approvals of special use permit applications for solar energy facilities on agricultural land have been increasing over the past fifteen years. While not considered "energy feedstock" solar energy facilities serve a similar purpose and are required by law to make an effort to

establish "compatible agricultural activities" that, to date, have been primarily small animal livestock whose purpose is to reduce the cost of weed control.

This report is in five sections. Part 1 of the report discusses relevant legislative measures related to energy feedstock production. Part 2 discusses related research in the field of energy feedstock production. Part 3 discusses the dissemination of energy feedstock production to potential producers. Part 4 discusses actions taken by the government and industry that affect energy feedstock production. Part 5 discusses program limitations.

1. Related Legislative Measures Enacted in 2024.

There were no legislative measures enacted during the 2024 legislative session relating to energy feedstock production.

2. Related Research.

The Hawai'i Department of Agriculture and the University of Hawai'i College of Tropical Agriculture and Human Resilience (CTAHR) are collaborating on a Black Soldier Fly Hatchery where thousands of pounds of food waste are converted into biodiesel, chicken feed and compost by utilizing food waste from on-site food centers on the University of Hawai'i Campus dining halls. The fly eats five times its body weight and produces 35% of their bodies filled with oil that has the potential for processing into biodiesel. The bodies are 42% protein and 5% calcium pressed for oil and ground up for chicken feed product.

On Kauai, the Green Energy Team, LLC (GET) in year 2022 sold its 7.5MW tree-burning biomass-to-energy facility to Mahipapa, LLC (a project of Pacific Current which is a subsidiary of Hawaiian Electric Industries). Mahipapa, LLC continues to harvest invasive Albizia trees on land managed by the ADC in Kalepa, Kauai and on other privately held lands and planted 2,000 acres of non-invasive hardwoods on the Kalepa and other lands to ensure its long-term fuel supply. Mahipapa, LLC leases 1,123 acres on Kalepa. Mahipapa, LLC has a 20 + 10-year power sales agreement with the Kauai Island Utility Cooperative (KIUC), KIUC purchases energy from Mahipapa, LLC that constitutes over 8% of the County's renewable energy portfolio.

The Hawaii Natural Energy Institute continues researching pongamia seed (*Milletia pinnata*) suitability as a resource for alternative fuel production, and published findings characterizing the fuel properties of Hawaii-grown pongamia seeds and pods in April of 2021.

3. Dissemination of Energy Feedstock Information to Potential Producers.

HDOA and the ADC continued to meet with individuals and companies seeking information about State and privately-owned agricultural lands, water, and agricultural labor. Additionally, HDOA remains in contact with Pacific Biodiesel who manages biodiesel plants in Hawaii and Oregon. Pacific Biodiesel provides engineering, equipment, contracting, and laboratory services needed for production of quality biodiesel from various feedstocks.

4. Maintain Cognizance of Actions Taken by Government and Industry.

The Energy Feedstock Program requires both the Hawaii State Energy Office (HSEO) and HDOA to "maintain cognizance of" local developments in the area of energy feedstocks and report to the Legislature. HSEO continues to inform the HDOA of activities by the public and private interests that include local production of energy feedstock.

Energy feedstock activities in Hawai'i for Fiscal Year (FY) 2024 included work on aviation fuel, crop research, economic feasibility, and land suitability studies by the Hawaii Natural Energy Institute; feedstock demonstrations and crop trials by Pono Pacific; planning for a renewable fuel unit at Par Hawai'i's Kapolei refinery; feedstock work, fuel production, and fuel distribution by Pacific Biodiesel; use of biomass for power production by the Mahipapa, LLC power plant on Kauai; and continued production of oilseeds by Terviva.

The Hawai'i Natural Energy Institute continued work on numerous alternative fuels projects, including as a member of the Federal Aviation Administration's (FAA) Aviation Sustainability Center (ASCENT) team, conducting research on feedstocks and technologies for the production of sustainable aviation fuels (SAF). Potential feedstocks include construction and demolition waste streams, leucaena, eucalyptus, pongamia, kukui, kamani, sorghum, banagrass, jatropha, and others. Pongamia shows promise and was studied further. Technical production potentials were calculated, by island, and compared with annual jet fuel demand (as of 2018). The highest potential was (generally) from trees, with the technical SAF potential on Maui at nearly 20%; on Kauai, over 40%; Hawaii, 100%; and Oahu, less than 2%.

The Hawaii Natural Energy Institute also provided analysis on potential in-state production of plant-based oils by Pono Pacific for use in the local production of Sustainable Aviation Fuel by Par Hawaii, in a partnership with Hawaiian Airlines to improve the sustainability and local sourcing of jet fuel.

Energy feedstock activities by Pono Pacific Land Management included feedstock research for use in refining liquid renewable fuels, crop trials and data collection, economic feasibility, and land suitability studies focused on the oilseed crop *Camelina Sativa*. Crop trials were conducted on Hawaii Island, Maui, Oahu and Kauai with a variety of farming partners including Meadow Gold Dairy, Mahi Pono, Kuilima Farm and Aloun Farms Hawaii. Locally grown feedstocks would be used by Par Hawaii to produce locally refined biofuels.

In FY 2024, Par Hawai'i committed to invest \$90 million in a project to upgrade their diesel hydrotreater to a renewable hydrotreater in Kapolei. In 2025, Par Hawai'i will become the state's largest liquid renewable fuels manufacturing facility. The project will diversify the facility's existing array of biofuels and will be able to produce more than 60 million gallons of renewable fuel per year.

The only biodiesel renewable fuel producer in the state, Pacific Biodiesel, uses a combination of used cooking oil and oils from sustainable agriculture to support its annual production of nearly 6 million gallons of biodiesel on Hawai'i Island. At the Hawai'i Agriculture Conference in November 2024, Pacific Biodiesel shared its vision for Pacific Biodiesel's refineries in Hawai'i to be locally producing a minimum of 16 million gallons per year of biodiesel from 100% Hawaii-sourced feedstock, using a total of 75,000 acres by 2040, to support the State's energy objectives.

In early 2024, Pacific Biodiesel announced its expansion of agriculture operations to Kaua'i as part of a federally funded project to develop a model for the production in Hawaii of biofuel from multiple locally

grown oilseed cover crops in rotation with other food crops. The project is expected to produce culinary oils and other value-added food products, meal for animal feed, biodiesel, and co-products such as glycerin and potassium salt-cake (non-petroleum fertilizer) in a regenerative agriculture system. According to Pacific Biodiesel, 2024 harvests included 35-acres of sunflowers from its founders' 115-acre Maui farm as well its first 100 acres of sunflowers in Kaumakani, Kaua'i. The company continues to use regenerative practices including efficient center-pivot irrigation utilizing surface water, low-till practices, rotational cover cropping (to sequester carbon and improve soil health), and no application of herbicides or pesticides.

The Mahipapa, LLC biomass-to-energy facility on Kaua'i is owned by Pacific Current and is powered 100% by eucalyptus wood chips sourced from plantations established and under the control of the owner. According to the U.S. Energy Information Administration (EIA), in calendar year 2023, the facility used 77,000 tons of biomass to generate 42 gigawatt-hours of electricity.

Renewable natural gas continues to be produced by Hawai'i Gas at its renewable natural gas facility using biomethane from the City and County of Honolulu's Hono'uli'uli wastewater treatment plant. Renewable gas produced at the facility is injected into the existing Hawai'i Gas pipeline and mixed with synthetic natural gas (from petroleum naphtha). Hawai'i Gas continued in 2023 to work with partners to identify a suitable energy crop.

In 2024, Simonpietri Enterprises made progress on its Aloha Carbon project to convert demolition debris and other solid wastes generated on O'ahu into renewable fuel for use by customers on O'ahu. The Aloha Sustainable Materials Recovery & Fertilizer Facility will convert biowastes including invasive plant and other vegetation using a gasification technology. The technology turns organic matter into gas that can be used to generate electrical power and ash that is converted to fertilizer.

Recent articles and postings also indicate continued progress by Terviva in developing Pongamia (*Millettia pinnata*) for use in food production. Locally-available oils are a potential fuel feedstock.

Lastly, many other projects and discussions occurred regarding crops and wastes that could be directed to the production of energy.

5. Program Limitations

Monitoring

HDOA does have staff experienced in land use permit review that will be used to evaluate applications for biofuel processing facilities and agricultural-energy facilities and their respective appurtenances as currently permitted on lands within the Agricultural District. HDOA is on the alert for policies, projects, and programs, including subsidies, that support growing energy feedstock on currently productive or potentially productive agricultural lands in Hawaii and to include impact analyses of the effect this competition for agricultural land will have on the State's priorities to increase food self-sufficiency.

Staffing

While the Energy Feedstock Program was authorized to employ temporary staff, the Legislature did not provide any funding for the positions in FY 2008 or subsequent years. As a result, HDOA has focused its

efforts on maintaining an awareness of actions taken by government and industry and supporting the efforts and activities of the HSEO, and meeting with organizations interested in growing feedstock for processing into biofuel on agricultural land. HDOA is especially interested in the development of byproducts from biofuel production that can be used to replace imported animal and fish feed and fertilizer. Pacific Biodiesel has been very active in this area.

Grant Writing

No federal grants were sought during the reporting period due to lack of funding for staff.