



Hawaii Natural Energy Institute Research Highlights

Alternative Fuels; Energy Efficiency & Transportation

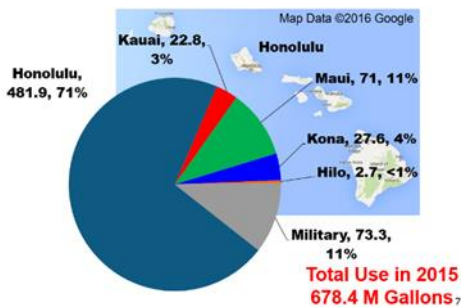
Sustainable Aviation Fuel Production

OBJECTIVE AND SIGNIFICANCE: Commercial aviation in Hawaii currently uses nearly 700 million gallons of jet fuel per year, all of it is derived from petroleum. The University of Hawaii is a member of the Federal Aviation Administration’s (FAA) Aviation Sustainability Center (ASCENT) team of U.S. universities conducting research on production of sustainable aviation fuels (SAF). The University of Hawaii’s specific objective is to conduct research that supports development of supply chains for alternative, renewable, sustainable, jet fuel production in Hawaii. Results may inform similar efforts in other tropical regions.

BACKGROUND:

This project was initiated in October 2015 and is now continuing into its 5th year. Activities undertaken in support of SAF supply chain analysis include:

- Conducting literature review of tropical biomass feedstocks and data relevant to their behavior in conversion systems for SAF production
- Engaging stakeholders to identify and prioritize general SAF supply chain barriers (e.g. access to capital, land availability, etc.)
- Developing geographic information system (GIS) based technical production estimates of SAF in Hawaii
- Developing fundamental property data on biomass resources
- Developing and evaluating regional supply chain scenarios for SAF production in Hawaii

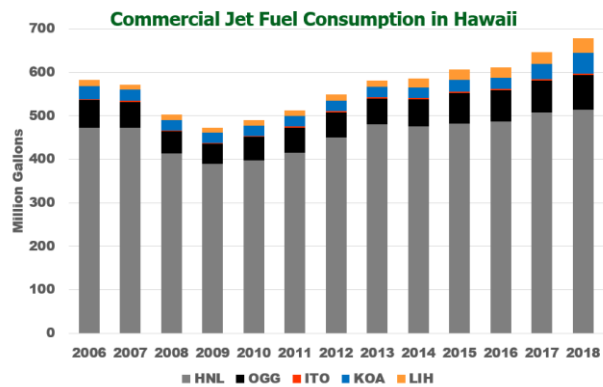


PROJECT STATUS/RESULTS: Literature reviews of both biomass feedstocks and their behavior in SAF conversion processes have been completed and published. Based on stakeholder input, barriers to SAF value chain development in Hawaii have been identified and reported. Technical estimates of land resources that can support agricultural and forestry-

based production of SAF feedstocks have been completed using geographic information systems analysis techniques. Samples from Honolulu’s urban waste streams and candidate agricultural and forestry feedstocks have been collected and subjected to physicochemical property analyses to inform technology selection and design of SAF production facilities.

Future work with ASCENT partners includes:

- Analysis of feedstock-conversion pathway efficiency, product slate (including co-products), maturation
- Scoping of techno-economic analysis (TEA) issues
- Screening level greenhouse gas (GHG) life cycle assessment (LCA)
- Identification of supply chain participants/partners
- Continued stakeholder engagement
- Acquiring transportation network and other regional data
- Evaluating infrastructure availability
- Evaluating feedstock availability



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