



Hawaii
BioEconomy
Trade Organization

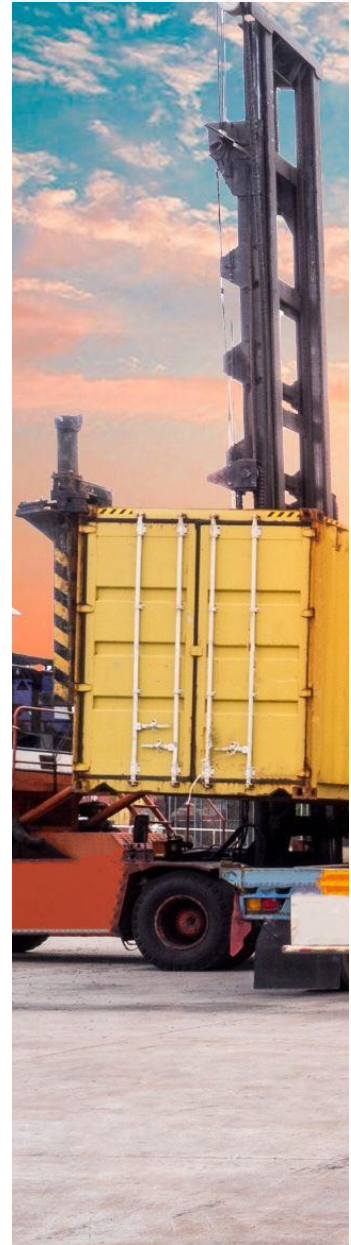


Hawai'i BioEconomy Trade Organization



MISSION

The Hawaii BioEconomy Trade Organization (HBETO) is dedicated to advancement of integrated biologically-based systems which produce products and services to re-use waste, make renewable fuel, local food, and value-added products in Hawaii.



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Photo by Kate Righter for HBeTO

VISION statement

HBeTO provides a forum for business, logistics, technical, and policy coordination between established and new businesses in the State of Hawai'i to produce sustainable, reliable, and locally produced renewable fuel and energy, food, feed, and consumer goods from plant matter and natural biological materials and wastes.

The organization seeks to develop beneficial collaborations which innovate re-use of existing infrastructure and industrial systems to reduce lifecycle greenhouse gases relative to imported petroleum energy and food products, support the state's economic development through use of agricultural land for agribusiness activities, improve resident as well as visitor quality of life, integrate and support Hawaii's visitor industry through meaningful eco-tourism, and apply science and data-based best practices to re-use waste as well as restore agricultural land, watersheds, and indigenous ecosystems.

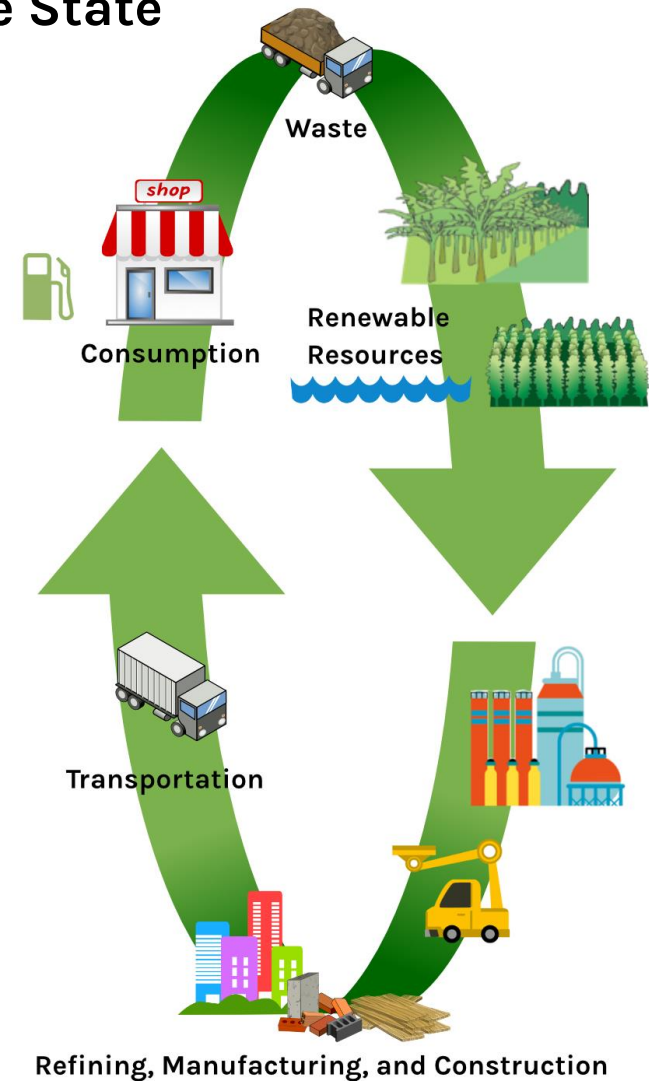
Recognizing that no industry survives in isolation, HBeTO works to find constructive and proactive paths for green fuels and local food development and consumption that include reasonable compensation mechanisms for the contributions made to the supply chain by local businesses sharing these common business interests.

HBeTO engages in state-level business, legislative, and regulatory forums with the explicit intent of collaborating with all stakeholders willing to work cooperatively toward food and fuel's intersection with the State of Hawaii's clean energy future.

Current State



Future State



Linear economy: Take-Make-Waste

- Import materials & products
- Use them for awhile
- Dispose in Landfill

Circular economy solution:

- Move our economy from linear to circular
- Meet society's needs within the limits of the islands.

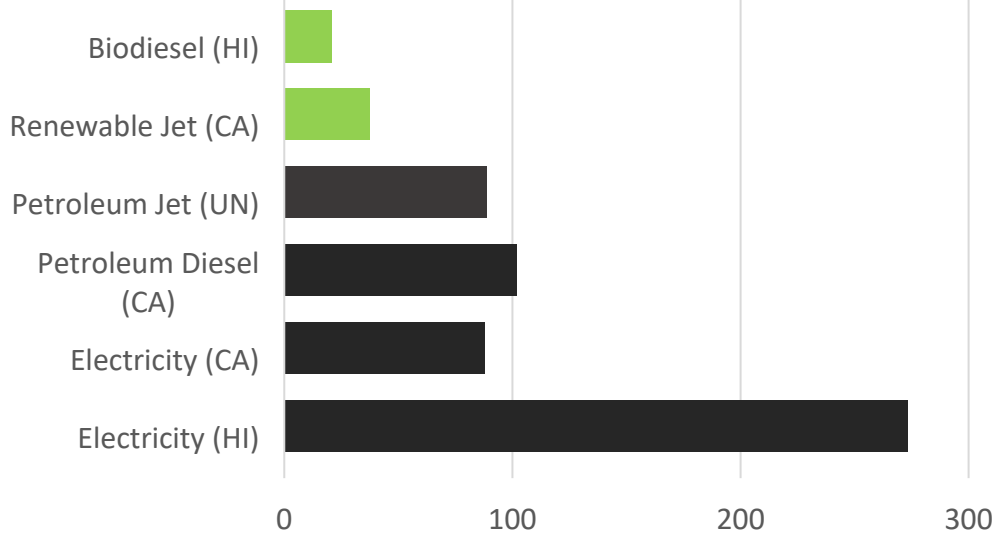




Calls to Action

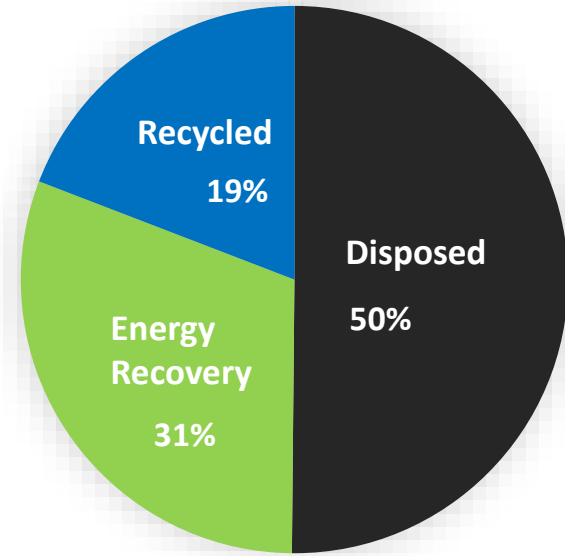
- Food:
 - Achieve the promise of doubling local food production
- Renewable Fuel:
 - Commit to comprehensive renewable fuel standard
 - Focus on development and completion of renewable fuel projects
- Waste:
 - Waste-to-fuels
 - Zero waste-repurpose
- Transportation
 - Fuels infrastructure
- Build a Hawaii Bioeconomy
 - High quality innovation jobs
- Value added products
 - Market innovations
- Advance HBETO mission
 - Become a member

Transportation Greenhouse Gas Intensity Benchmarks 2019 (g-CO_{2e}/MJ)



Sources: U.S. Dept of Energy GREET Model, California Air Resources Board

Hawaii's Solid Waste 2019 (tons)



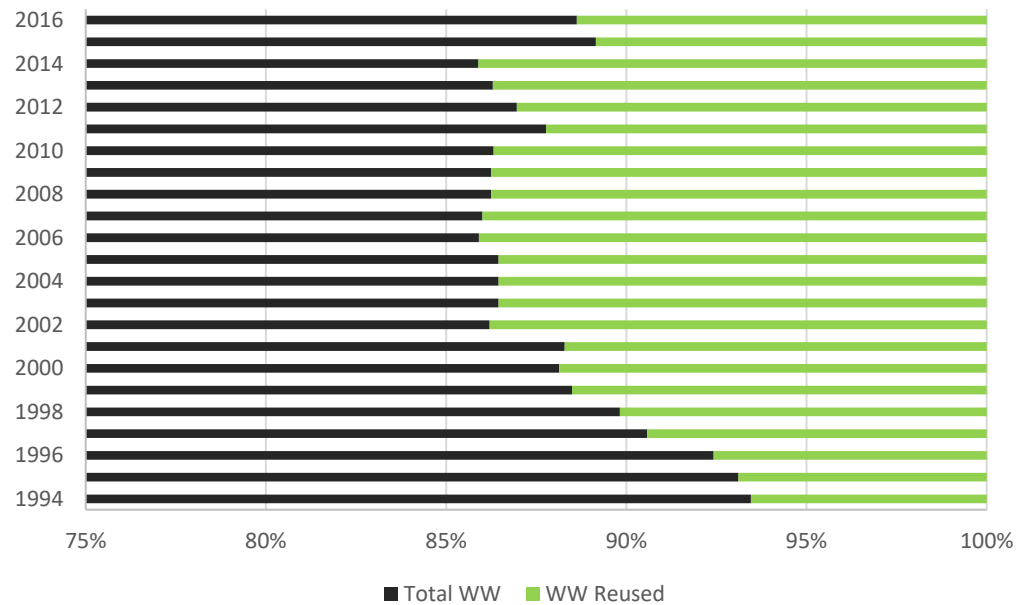
Source: State of Hawaii Department of Health

Food Supply 2017



Sources: Hawaii Department of Agriculture, hawaiifoodsystem.com

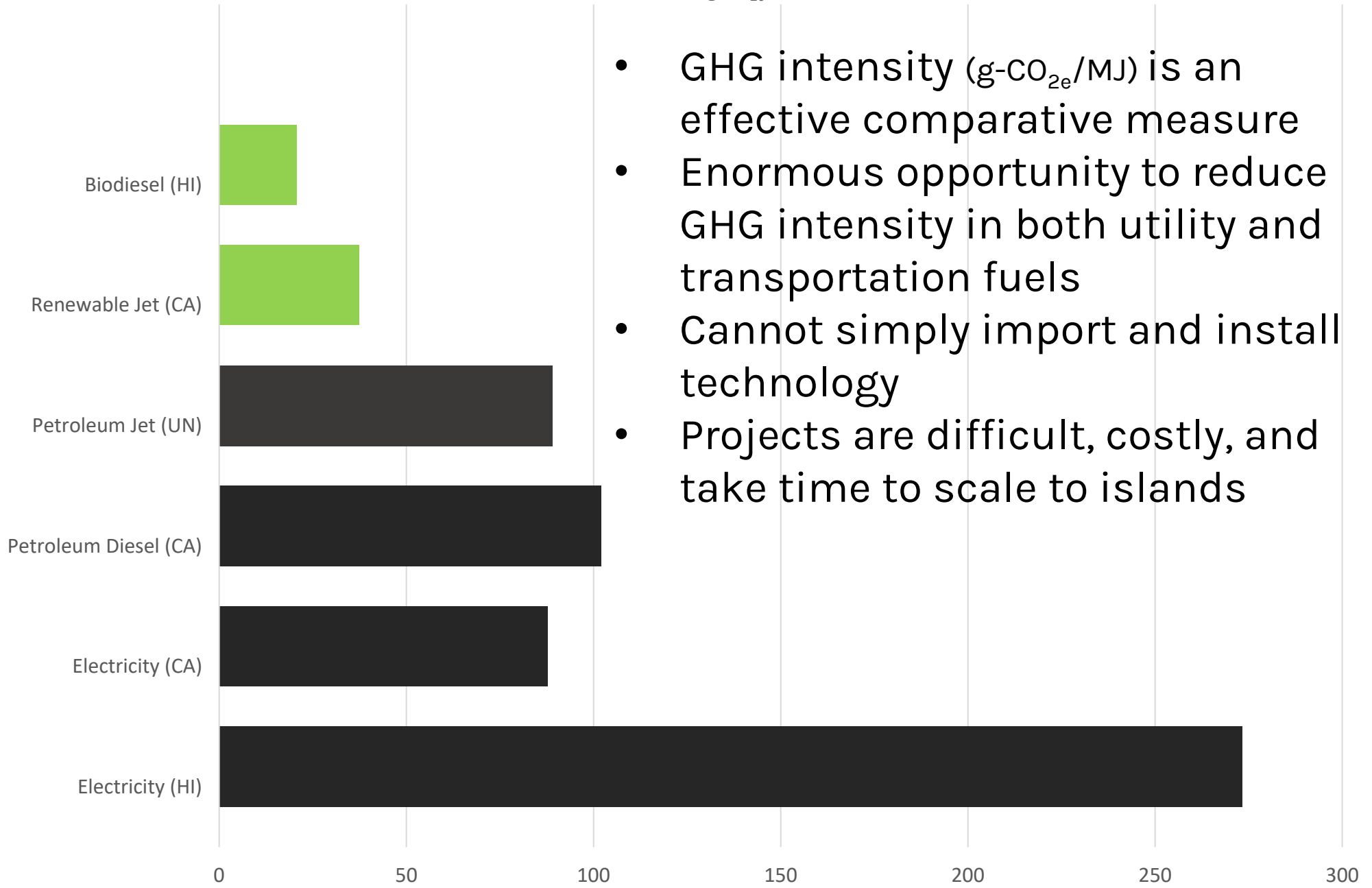
Waste-Water



Source: State of Hawaii Department of Health

Transportation Greenhouse Gas Intensity Benchmarks

2019 (g-CO_{2e}/MJ)



- GHG intensity (g-CO_{2e}/MJ) is an effective comparative measure
- Enormous opportunity to reduce GHG intensity in both utility and transportation fuels
- Cannot simply import and install technology
- Projects are difficult, costly, and take time to scale to islands

Hawaii Food Supply

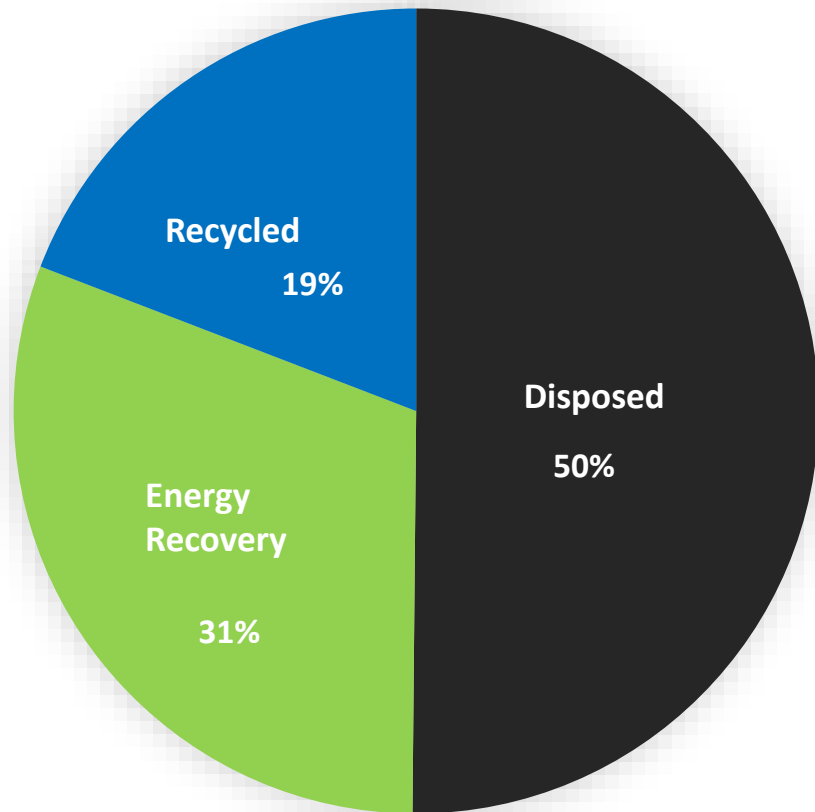
2017

- Historical
 - 85-90% imported (2012)
 - DBEDT
- 2014 goal
 - “double local production by 2020” – Gov. Ige
- 2017 current available data
 - Goal achieved per HDOA
- More food waste available?
- Datasets inconsistent



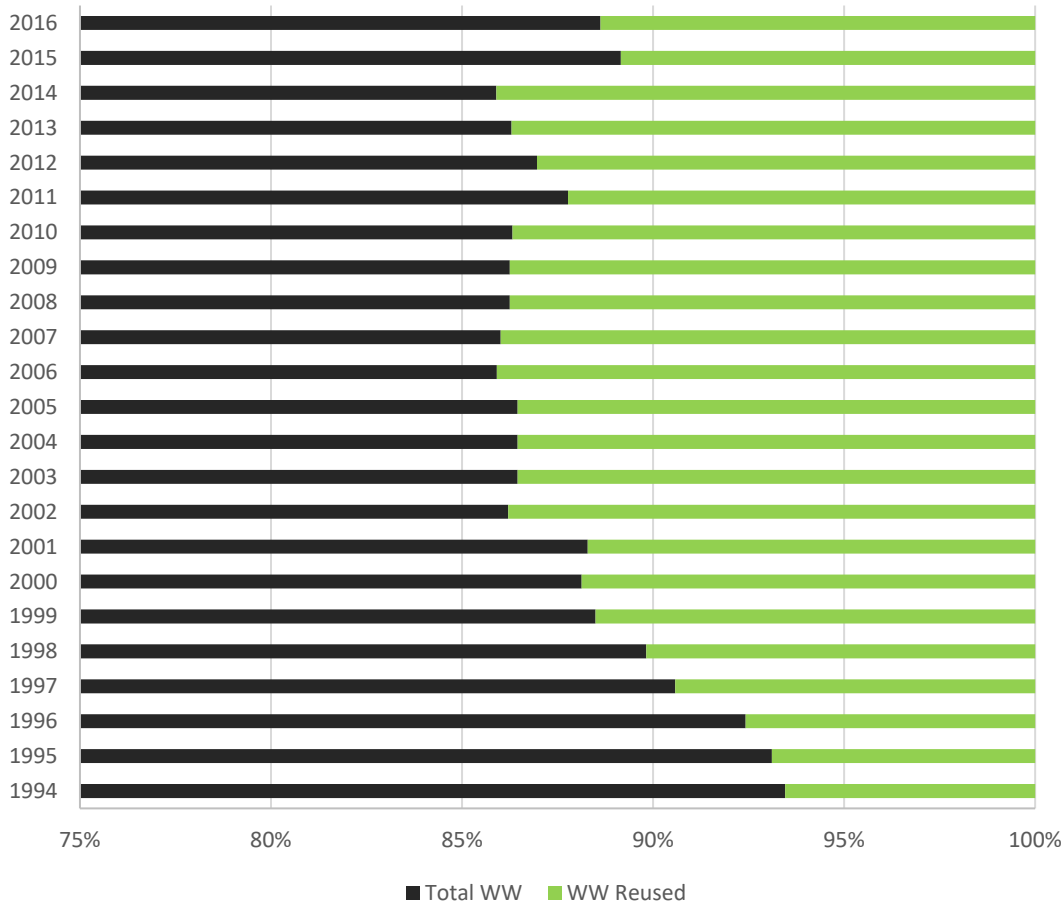
Hawaii's Solid Waste

2019 (tons)



- Enormous opportunity for growth in W2E and W2F
- 50% of solid waste is landfilled!
- We can convert waste to opportunity

Waste-Water



- Significant opportunity for bioeconomy growth based on percentage of waste-water available to reuse and repurpose
- SOH efforts to reuse waste-water have improved, yet there is room for innovation



Member COMMITMENTS

- Promote a vision for Sustainable Integrated Bioeconomy in Hawaii
- Pursue Ideas and Innovations from Agricultural sectors
- Convert waste from challenge to opportunity to useable products, such as REF and value added
- Demonstrate innovation results through bioeconomy metrics

Energy Cane Nursery at Castle High School
Photo by CHFour, LLC for HBETO

Guidance

How we align our actions with HBETO's vision?

Does it

- Move us forward relative to BioEconomy metrics?
- Support sustainability and a circular economy?
- Reduce waste and/or greenhouse gas emissions?
- Advance SOH renewable goals?





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