Sustainable Biodiesel in Hawaii – Supply and Pricing

Asia Pacific Clean Energy Summit
August 14, 2012

www.biodiesel.com

Pacific Biodiesel

Company History

- Formed in 1996 in Kahului.
- Distributed production focus
- Built 13 Biodiesel facilities
- Present Company Activities
  - UCO and GT pumping
  - Biodiesel production facilities
  - Fuel sales and distribution
  - Fuel Quality Testing
  - Research & Development
  - Mgmt. contracting

www.biodiesel.com

The Pacific Biodiesel Ohana

Encore Oils

PACIFIC BIODIESEL TEXAS

BIG ISLAND BIODIESEL

Biodiesel Production

Feedstock Collection

SeQuential PACIFIC BIODIESEL

PACIFIC BIODIESEL LOGISTICS

Used Cooking Oil and Grease Trap Recycling

Quality Assurance

PACIFIC BIODIESEL TECHNOLOGIES

AMERICAN BIOFUEL TESTING

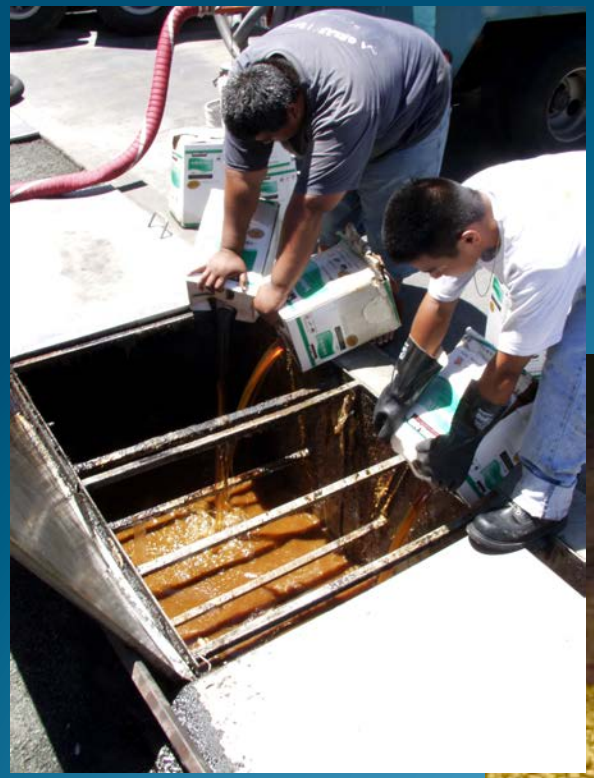
Big Island Biodiesel

Feedstock = Supply

- Recover all useable waste grease first
- Encourage sustainable biofuel crop production on all islands
- Develop animal feed markets for leftover presscake
- Develop oleo chemical and nutriceutical co-products for added-value
- Replace mainland cooking oil with local supply, then recycle it; “Food, then Fuel”

PACIFIC BIODIESEL TECHNOLOGIES

Feedstock Pricing



PACIFIC BIODIESEL TECHNOLOGIES

Feedstock Pricing

UCO/GT Trucking Companies

PACIFIC BIODIESEL LOGISTICS

ENCORE OILS

2009 PARTICIPANT

RESTAURANTS FOR RENEWABLES™

Food, then Fuel!

Our cooking oil is locally recycled into renewable fuel to benefit our community & the planet.

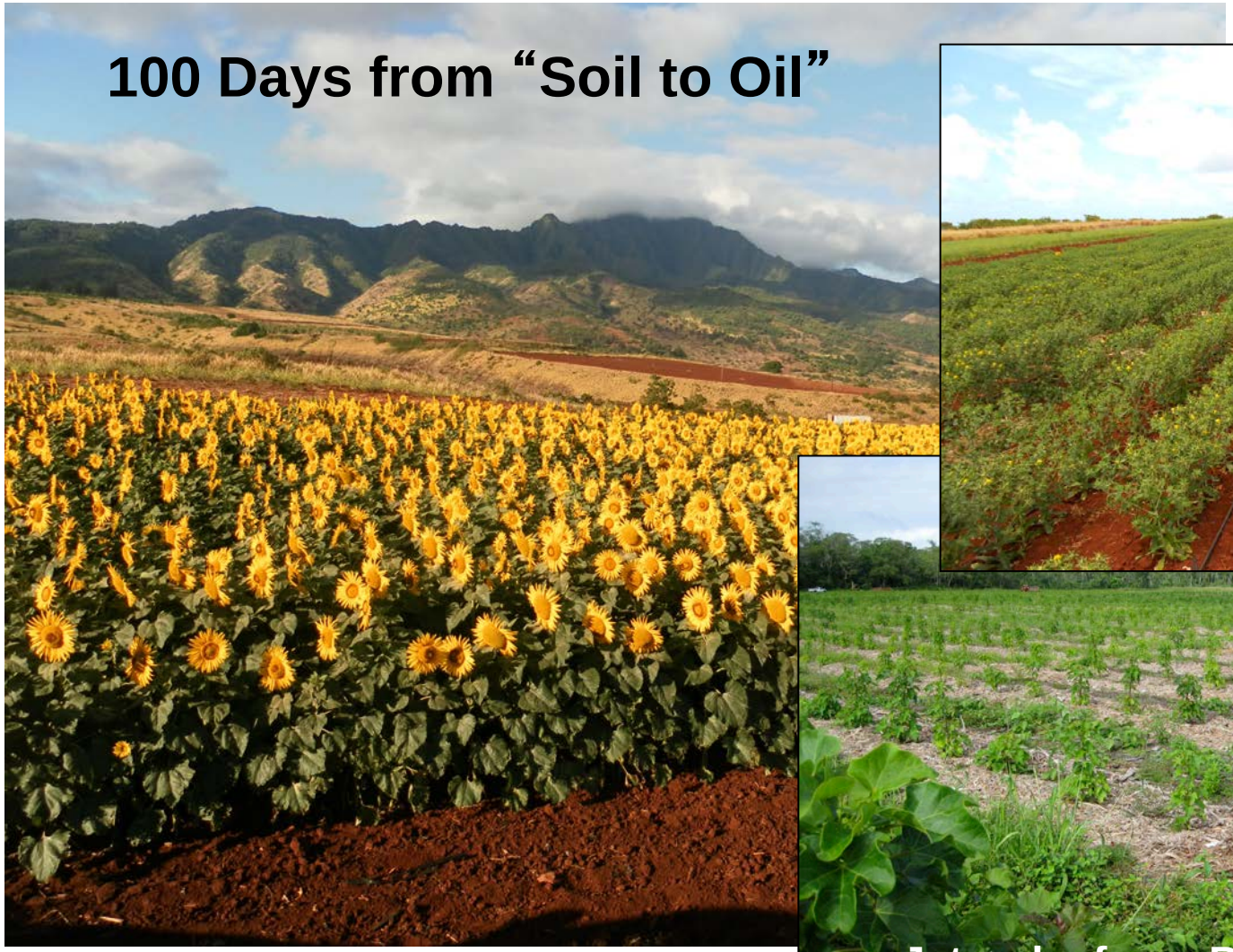
Brown Grease To Biodiesel

- Multi-Feedstock facility
  - Accept all types of greases, tallow and virgin
  - Allow for variations in waste feedstock
  - Blend for cloud point consistency, oxidative stability
- Retrofit installations under development
- First dedicated facility 5.5 MGY in Hawaii 2012

Separated Grease Trap Oil and Finished Grease Trap Biodiesel

PACIFIC BIODIESEL TECHNOLOGIES

Biofuel Crop Plan funded by U.S. ACE



**included in APEC brochure*

Potential Crops

- Numerous Varieties
  - Jatropha, Kukui, Coconut, Castor, Peanut, Canola, Sunflower, Palm, Safflower, Moringa, Hemp …
- Properties to consider
  - Oil yield per acre
  - Water requirements
  - Input requirements
  - Byproduct applications
  - Harvesting techniques

Potential Crops

- Other issues for Production Modeling
  - Economic returns
  - Scalability of operations
  - Infrastructure and equipment requirements
  - Compatibility with food sustainability
  - Environmental impacts

Biodiesel Co-products

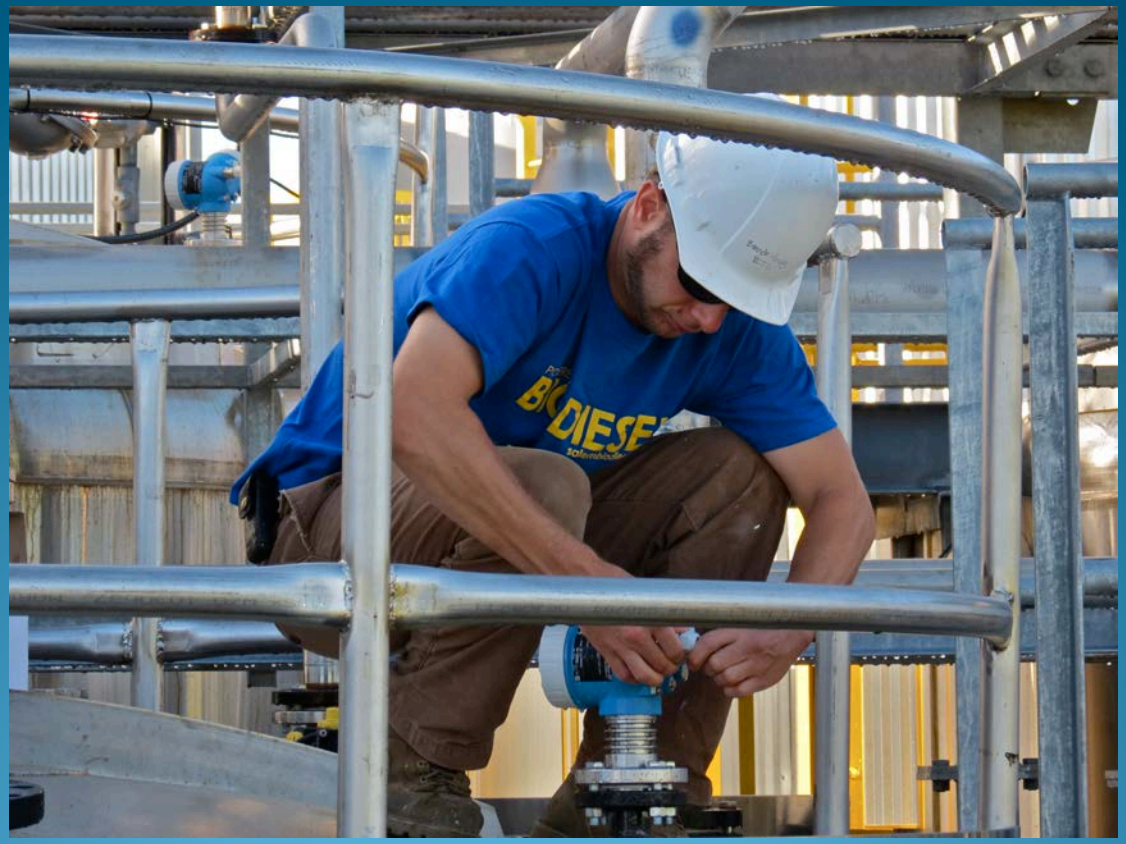
By-product Uses

- Animal feed
- Soap and Oleochemical
- Fertilizer
- Energy

Recent Crop Tour with Hawaii Cattle As

Other Price Factors

- PRODUCTION COST



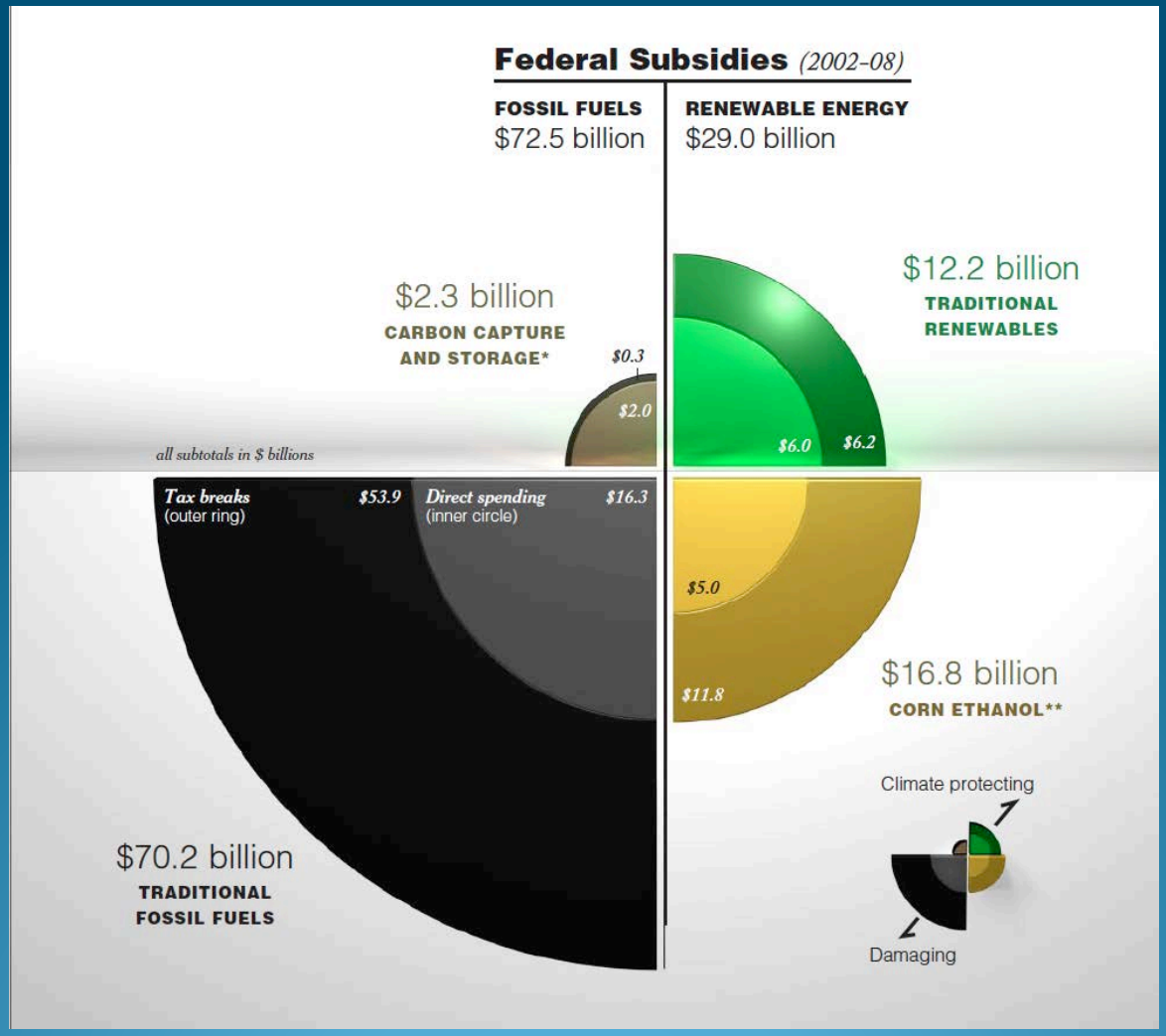
Government Mandates

- EPA's RFS2 program
  - RINs: Renewable Identification Numbers
  - Market driven - has ranged from $0.30 to over $2/gal
- State biodiesel blend mandates
  - Generally B2 or B5 (considered additive)
  - Improves biodiesel distribution infrastructure
  - Often triggered by in-state production
  - Minnesota, Oregon, Pennsylvania, Washington, Massachusetts, Louisiana

Government Incentives

- Federal Excise Tax Credit
  - Expired Dec 2011
  - Bankable incentive but only short-term commitment
- USDA's Biofuels Crop Assistance Program
  - Helps farmers with start-up costs
  - Limited funding available – none in Hawaii
- Road Tax discounts
  - Vary by state

Government Incentives

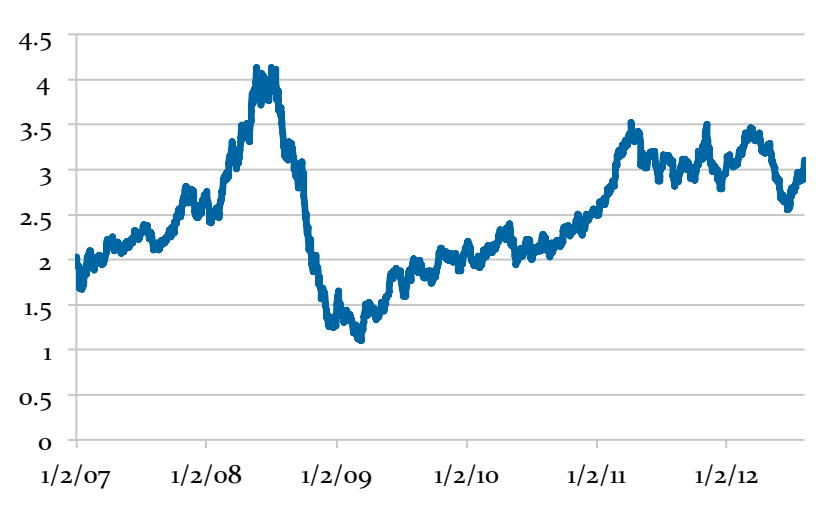


Source: Environmental Law Institute

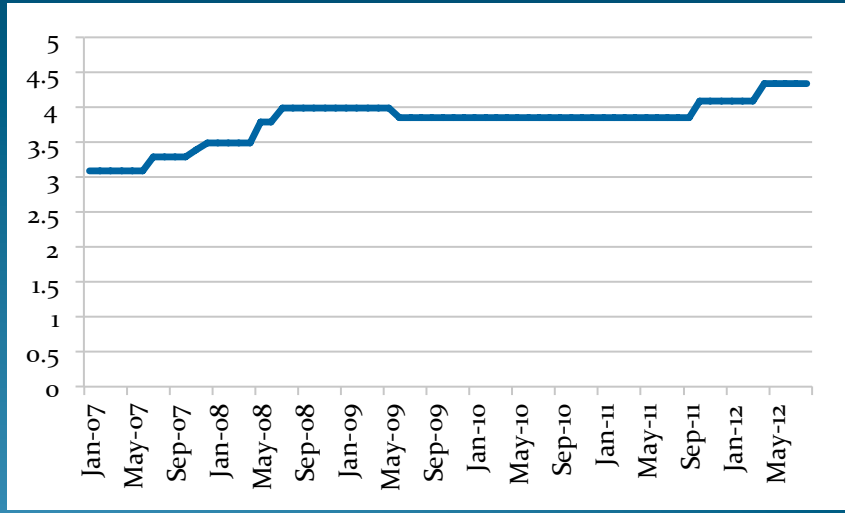
Supply vs Demand

- Biofuel demand = higher value as transportation fuel

Price History/Trend



ULSD Los Angeles CARB Index



Pacific Biodiesel retail station, Maui

Source: US Energy Information Administration

Benefits for the community

Waste Reduction and Diversion

26,000 tons / 6.8 million gallons per year
Reduced wastewater clogging and spills

Local Economy

Green jobs and new businesses
Stable fuel prices
90 cents per dollar stays in the community

Diversified Agriculture
Energy Security


A SUSTAINABLE FUEL FUTURE
Sustainable Source – Energy Security
Environmental Impact – Healthy Future
Diversified Ag – Crops not Condos
Community-based – Local Business
All Sustainability is Local