



COLLEGE OF SOCIAL SCIENCES  
**HAWAII ENERGY POLICY FORUM**  
UNIVERSITY OF HAWAI'I AT MĀNOA

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**Legislative Briefing  
Renewable Energy  
January 17, 2008**

**Renewable Energy Working Group**

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- **Status/Outlook** (Technologies/Projects)
- **Status/Outlook** (Legislative/Regulatory)

# Summary

- RPS Performance is “on-track”
- Electrical Sector: Good growth seen in wind and solar – first wave of windfarms are up and operating; first large solar project is in development; and other projects are under consideration
- Transportation Sector: plans for first ethanol facility are proceeding on Kauai; and new biodiesel market opportunities are developing with existing (Pacific Biodiesel) and new market entrants (HECO companies and others)

# Summary - Continued

- Outlook – Electrical Sector: Overall policy for electrical sector has been put in place – implementation issues are under investigation by the Public Utility Commission
- Outlook – Transportation Sector: Forum will support DBEDT bioenergy master plan development and prepare white paper on biofuels for Hawaii
- Outlook – Legislative Activities: two solar bills, possible bills from 2007 session; and NEHO's

# HEPF 10-Point Plan

➤ **The following actions from the 10-point plan are being addressed by the REWG:**

- TPP #1: Expand renewable energy opportunities;
- TPP #8: Support research and development of alternative energy sources; and
- TPP #9: Support sustainable development and use of biofuels.

# RPS Status – End of 2006

## ➤ RPS: HECO (13.8%); KIUC (13.92%)

- Existing wind (plus one new windfarm – Pakini Nui), solar, biomass, geothermal and hydro installations, including solar & net metered offsets;
- Energy offsets from heat pumps, ice storage, and waste heat recovery portion of Combined Heat & Power systems; and
- Energy offsets from utility Demand-Side Management Programs.

# Outlook – Electricity Sector

## ➤ Hawaiian Electric Company

- **Wind** – Hawi (10.6 MW), Kaheawa Pastures (30 MW), Pakini Nui (21 MW) and others under investigation;
- **Solar** -- boom in hot water system; PV expanding but prices are still high, as worldwide demand is high;
- **Biomass** – H-Power’s waste-to-energy power plant (45 MW); new 2 MW facility on Hawaii (Tradewinds); alternative options for additional capacity are under investigation;
- **Geothermal** – expansion of Puna Geothermal Ventures 8 MW in near term – then to 60 MW; and
- **Hydro** – new run-of-stream system on Maui; pumped-storage under consideration.

# Outlook – Electricity Sector

## ➤ Other Renewable Energy Sources Being Developed/Investigated:

- Seawater Air Conditioning (SWAC) – Kakaako & Waikiki;
- Solar thermal electric – Sopogy is currently constructing a 1 megawatt concentrating solar power facility at NELHA and is developing additional concentrating solar power projects in Hawaii; and
- Ocean Thermal Energy Conversion (OTEC) and Wave energy systems – under consideration.

# Outlook – Electricity Sector

## ➤ **Kauai Island Utility Cooperative:**

- KIUC is working with industry partners to:
  - projects selected from their competitive bidding process initiated in 2005 for “As-Available” Renewables; and
  - promote solar hot water and net metered systems on their grid.
- KIUC will discuss the status of these activities in their presentation.

# Status – Transportation Sector

## Ethanol mandate is in the implementation phase:

- E-10 in 85% of fleets/gasoline stations - Initial ethanol is being imported; and
- Development of local ethanol sources continues on Kauai:
  - Gay & Robinson Inc. and Pacific West Energy LLC have formed a partnership to develop the first fuel ethanol plant in America to create renewable power and clean-burning ethanol fuel from sugarcane;
  - The 12 Mg/yr facility will use sugar juice and molasses as feedstocks; and
  - The facility will help preserve 230 jobs, protect the island's agricultural heritage and further the state's renewable energy goals.

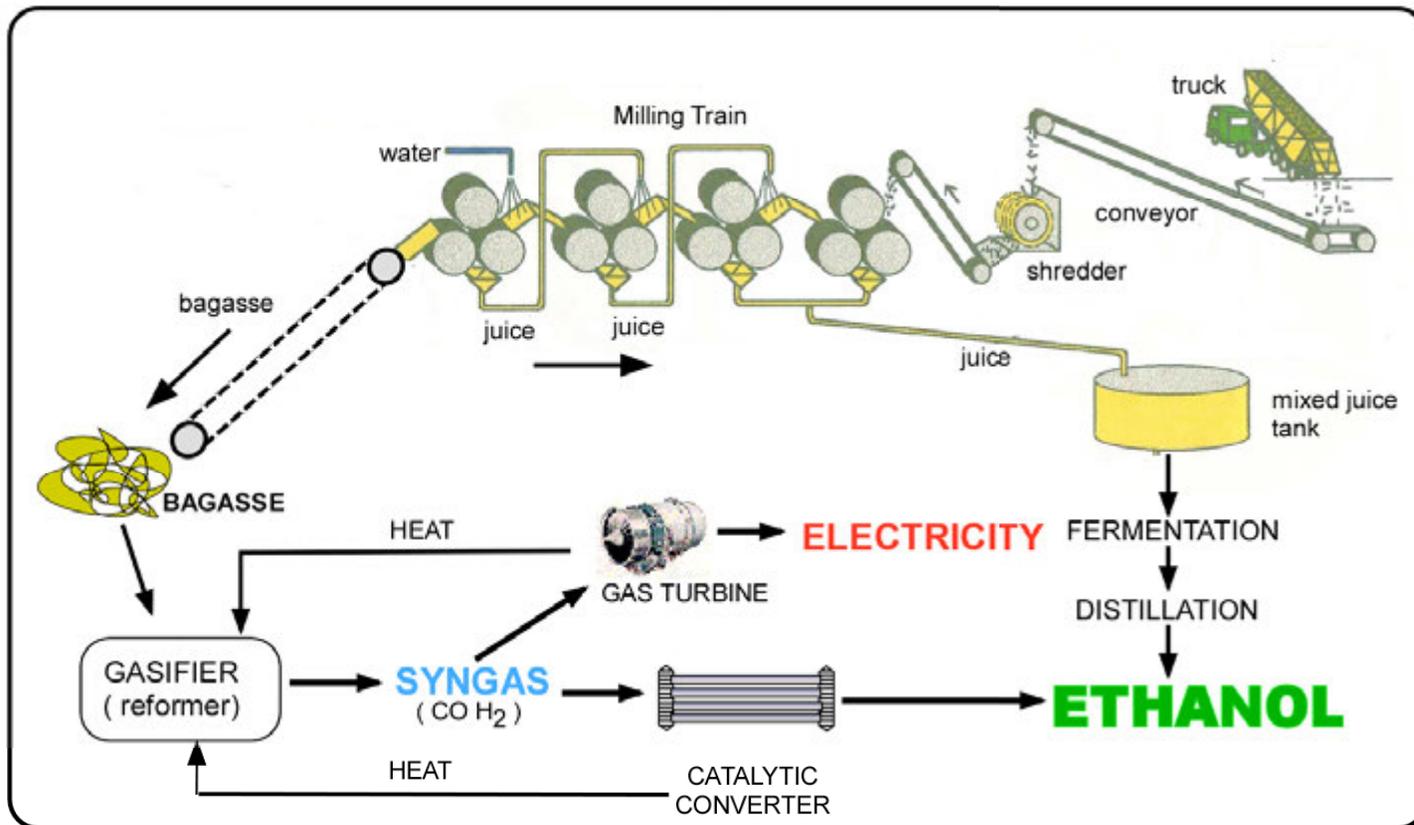
## Biodiesel – market is growing:

- Pacific Biodiesel and other market entrants – moving beyond waste cooling oil/grease to growing local energy crops; and
- In parallel, HECO has proposed local biodiesel production (for generating electricity) using both local and imported energy crops.

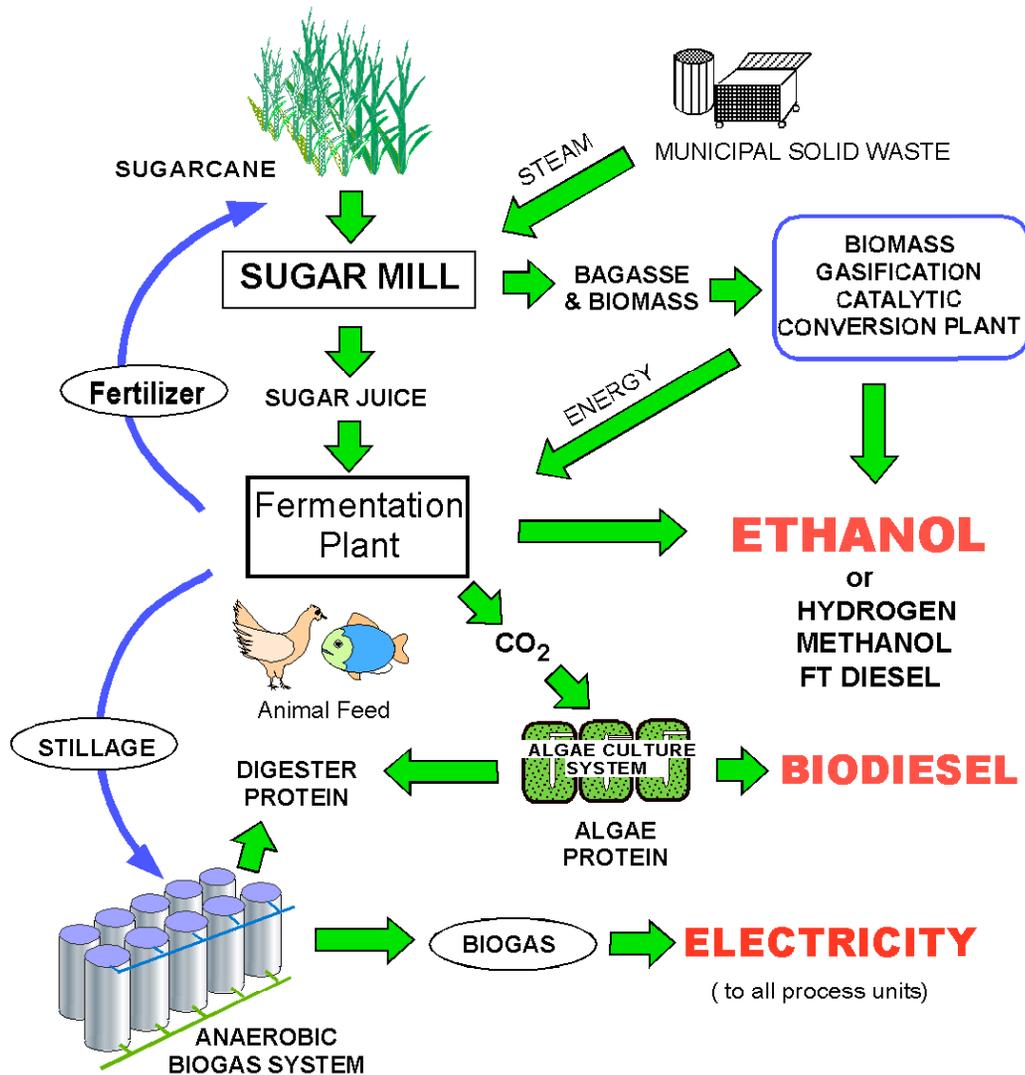


ClearFuels  
TECHNOLOGY, INC.

## Integrated Sugar Crop Ethanol Production Business



# KAUAI HAWAII INTEGRATED SUGAR ENERGY PRODUCTS



Kauai Integrated Energy  
shleser October 2007

# Outlook – Transportation Sector

- Bioenergy Master Plan: DBEDT to discuss status in their presentation of the Bioenergy Master Plan that was funded (\$300K) in 2007 session;
- Industry: Anticipate that ethanol and biodiesel market will continue to develop with existing and new market entrants; and
- HEPF:
  - Will support DBEDT's efforts on the master plan, and
  - Will prepare a “white paper” on Biofuels for Hawaii – initial draft will focus on biodiesel.

# Status – Hawaii Renewable Hydrogen Program

- Section 6 of Act 240 passed by 2006 Legislature established “Hawaii Renewable Energy Program” within DBEDT:
  - Strategic partnerships for R&D, testing, and deployment of renewable hydrogen technologies;
  - Evaluation of Hawaii’s potential for hydrogen use & near-term project opportunities;
  - Hydrogen demonstration projects including infrastructure for the production, storage, and refueling of hydrogen vehicles; and
  - State-wide hydrogen economy public education.
- Section 7 of Act 240 established the “Hydrogen Investment Capital Special Fund” with \$10 million in initial capitalization.
  - A RFP was issued for management of fund; and
  - Selection of fund manager is pending.

# Status/Outlook – Legislative Issues

## RPS Implementation

- Act 162 (2006 Session) revised our RPS law – the Public Utility Commission subsequently opened two dockets to investigate issues relating to Act 162:
  - Docket No. 2007-0008 (Renewable Energy Portfolio Standard), and
  - Docket No.2007-0484 (Public Benefits Fund and Administrator).
- The Commission will discuss the status of these and other relevant dockets in their presentation.

# Status/Outlook – Legislative Issues

## Renewable Energy Technologies

- Market Activity - 2007 compared to 2006:
  - There were increases in customer participation in the utilities' solar water heating and net energy metering programs;
  - Both utilities initiated their “Pay As You Save” programs; and
  - The utilities will provide the details in their presentation.
- Potential Issues for 2008 Legislation:
  - Re-definition of the technologies qualifying under the Renewable Energy Technologies Income Tax Credit;
  - Permitting of solar projects on agricultural lands; and
  - NEHO's (Never Ever Heard Of's)

# Status/Outlook – Regulatory Issues

➤ **A Number of Renewable Issues have been Delegated to the Commission:** a short list of the relevant dockets to be discussed by the Commission in their presentation):

- Net Energy Metering (No. 2006-0084)
- Pay As You Save Program (No. 2006-0425)
- HECO DG Tariffs (No. 2006-0497)
- KIUC DG Tariffs (No. 2006-0498)
- RPS Implementation (No. 2007-0008)
- Public Benefits Fund and Administrator (No. 2007-0084)
- Intragovernmental Wheeling of Renewables (No. 2007-0176)
- Renewable Energy Infrastructure Program (No. 2007-0416)