U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Biomass 2013

Bioenergy Technologies Office

New Directions

July 31, 2013

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Outline

- Incubator
- Waste-to-Energy
- Carbon Fiber
- Natural Gas

EERE Incubator: Vision of the Program

Purpose: To provide a dedicated, annual funding mechanism for each EERE technology office for innovative technologies and solutions that are *not represented in a significant way* in the Office's *existing Multi-Year Program and/or current portfolio.*

- Pilot expansion of the successful SunShot Incubator program in the Solar Energy Technologies Office.
- Seeks to fund "off-road map" emerging technology approaches; if successful, technology to become "on-road map".
- Small fraction of the annual budget for each office.
- Each EERE office will run its own FOA, but coordinated in the same timeframe as the other offices for outreach.

BETO-Specific Incubator

- Each Office will have some flexibility in administering its Incubator Program

Develop and transform sustainable biomass into commercially viable biofuels, bioproducts, and biopower.

- Important criteria
  - New, innovative, Approach or Solution
  - Impact on BETO mission and National energy goals if successful
  - Technical Merit

BETO Waste-to-Energy Efforts

There is a significant near-term market entry opportunity to deploy WTE technologies in the U.S., specifically with regard to anaerobic digestion at landfills to recycle organic waste biomass into renewable energy, thereby enabling a national network of distributed power and biofuel production sites.

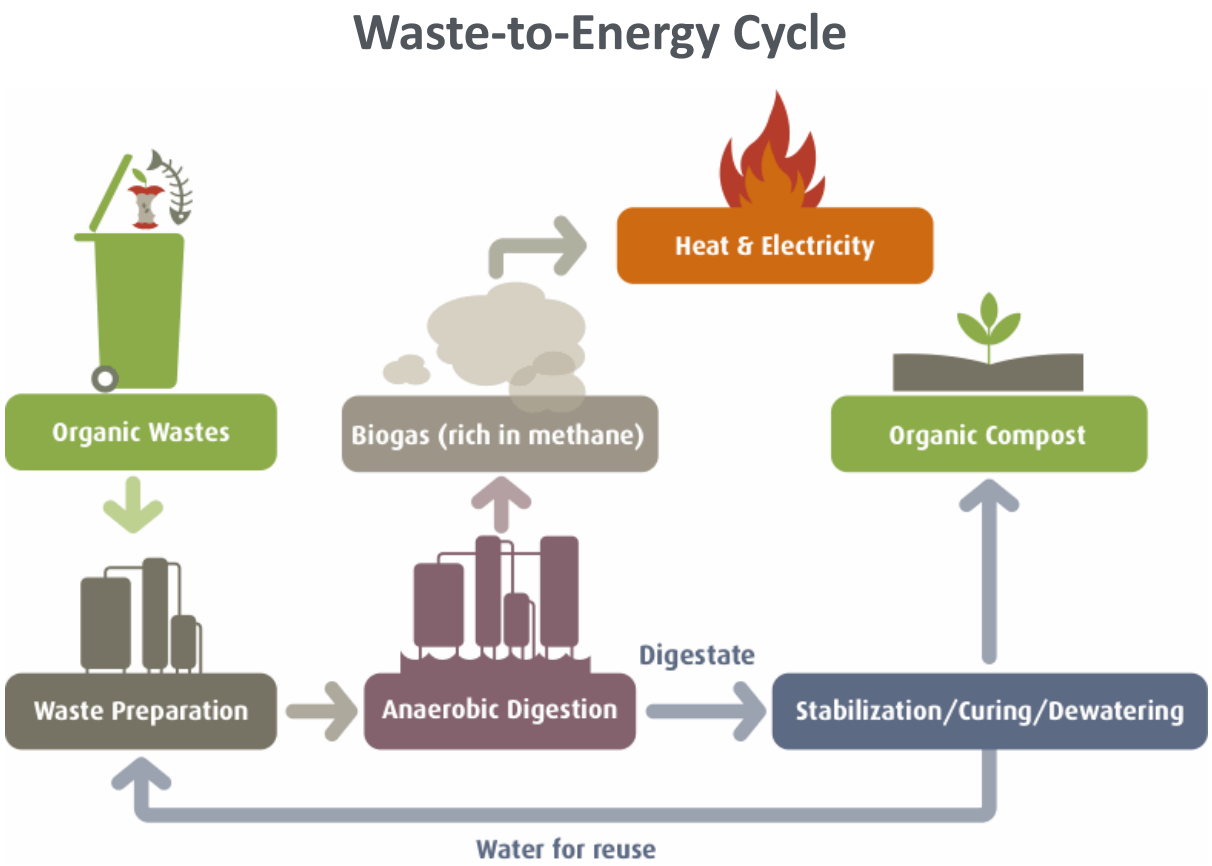


Image courtesy of Iona Capital

BETO Waste-to-Energy Efforts

- Biogas can be used to produce electricity and can often offset all electricity needed to run the processing facility, especially in WWTPs, where the waste stream has high energy content.
- Process provides useful methane source for CHP, which would otherwise be flared or released into the atmosphere, and remaining bio-solids can be used as valued-added soil amendment.
- Producing energy from biogas expands the suite of products from biorefineries, municipalities, and agricultural operations and has the potential to increase revenue and reduce GHG emissions while providing additional opportunities in bio-based chemicals.

Waste streams that could be considered for use include:

- Municipal solid waste
- Landfill gas
- Waste streams from waste water treatment plants (WWTPs)
- Bio-solids (from thermochemical or biochemical biofuel pathways)

Renewable Carbon Fiber

This effort aims to reduce our dependence on foreign oil and bring more manufacturing jobs to the U.S.

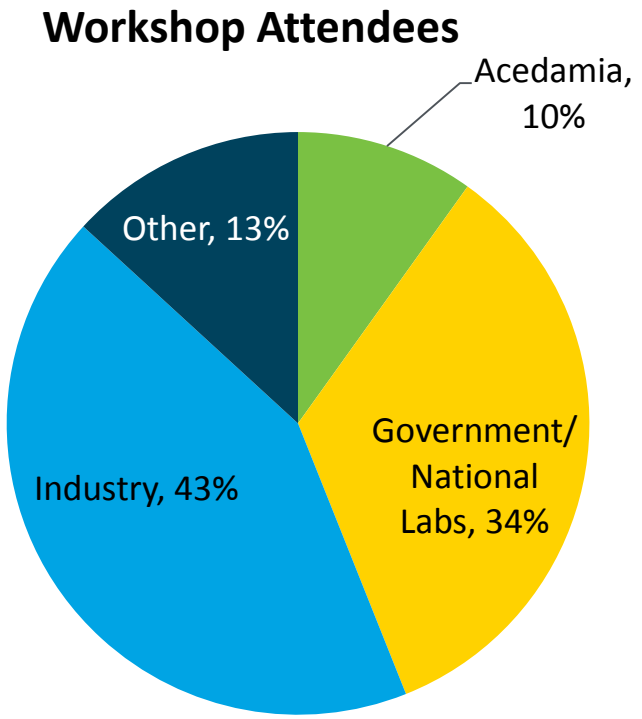
- BETO and other EERE Offices are working together to produce innovative materials from biomass.
  - Utilize biorefinery products (sugars, lignins, other chemicals).
  - Enhance biorefinery economics.
  - New materials
    - Application for multiple markets.

Renewable, Low-Cost Carbon Fiber for Lightweight Vehicles Workshop

On June 4–5, BETO in conjunction with AMO and VTO, held a workshop in Detroit.

Deliverables from this workshop include:

- A workshop summary report
- Plenary presentation slides and breakout session initial outcome slides
- Public comments

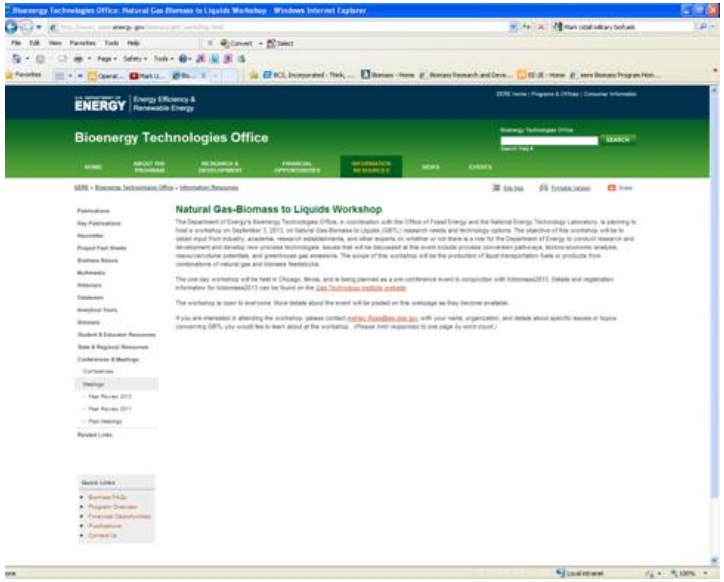


The Workshop Webpage includes the initial results of the event: http://www1.eere.energy.gov/bioenergy/carbon_fiber_workshop.html

Natural Gas-Biomass to Liquids Workshop – Overview

When: September 3, 2013
11:00 AM – 5:00 PM

Where: Sheraton Chicago Hotel & Towers
301 East North Water Street
Chicago, Illinois 60611



The workshop is being planned as a pre-conference event with tcbiomass2013, hosted by the Gas Technology Institute. tcbiomass2013 will begin with a welcome reception the evening of September 3, and last through September 6 and will be held in the same venue as the workshop.

To register: Ashley.Rose@ee.doe.gov

Natural Gas-Biomass to Liquids Workshop – Objectives

The objective of the GBTL Workshop is to obtain input from industry, academia, research establishments, and other experts on the role for the Department of Energy

Facilitated discussions with the participants will be broken out in the following areas:

- Technical Barriers
- Resource and Volume Potentials and Environmental Issues