



Bioenergy: Technologies and Incentives

**Carol Werner, Executive Director
Environmental & Energy Study Institute
122 C St. NW, Suite 630
Washington, DC 20001
Phone: (202) 662-1881 Fax: (202) 628-1825
www.eesi.org**

What is Biomass?

Definition: Nonfossil organic material that can be used in the creation of bioenergy (electricity), biofuels (ethanol, biodiesel, cellulosic ethanol), and biobased products.

- Biopower
- Biofuels
- Biobased Products

Biopower: Production of electricity and heat from biomass, via direct combustion, gasification or cofired with coal

- **Woody Biomass: limbs, tops, needles, leaves, orchard and vineyard prunings**
- **Agriculture Residues: corn stover (stalks, leaves, husks and cobs), wheat straw, rice straw, etc.**
- **Manure – Anaerobic Digesters**

Biofuels: Ethanol, Cellulosic Ethanol, Biodiesel

- **GHG Reductions, Non-toxic, Biodegradable, No sulfur**
 - Ethanol: 2.7 bil. gallons produced 2003, primary feedstock is corn, use of cellulose will allow for many more feedstocks to be used in production
 - Biodiesel: Produced from soybean oil, other oilseeds, and “non-virgin” waste oils

Biobased Products

- **Any product that can be derived from petroleum can also be produced from biomass**
 - **Chemicals, polymers, adhesives, textiles, packaging materials, etc.**
 - **Backing out petrochemicals**
 - **Federal Procurement Preference**
 - **Executive Order, August 1999**
 - **Sec. 9002, 2002 Farm Bill, “Biobased Products Purchasing Program”**

Energy from Biomass: An Economic Development Tool

- \$15 billion investment, 66,000 jobs nation-wide (NREL 1999)
- 20-30 GW by the year 2020 (DOE)
- Available biomass may exceed 39 million tons per year - doubling of the existing U.S. BioPower capacity (DOE)
- Federal Renewable Fuels Standard: farm income increase \$700 million annually, 13,500 jobs created. (USDA)

Sec. 9002 Federal Procurement of Biobased Products (\$6 mil.)

- **\$1 mil/yr (FY02-07)**
- **Proposed rules published Dec 19, 2003, with 60 days for public comment**

Sec. 9004 Biodiesel Fuel Education Program (\$5 mil.)

- **1 mil/yr (\$1 mil/yr FY03-07)**
- **Educate government and private fleet managers and public on benefits of biodiesel.**
- **National Biodiesel Board, U. of Idaho awarded funding**

Sec. 9006 Renewable Energy System & Energy System Improvements Program (\$115 mil.)

- **\$23 mil/yr FY03-07**
- **Provides grants, loans, and loan guarantees for renewable energy systems and energy efficiency improvements**
- **Grants cover max. 25% of project costs. No loans for FY03**
- **August 2003: USDA announced awards to 113 applicants; 24 states, \$21,207,233 (anaerobic digesters: \$7 mil., \$3.9 mil for ethanol plants/anaerobic digesters, direct combustion, and fuel pellet systems.)**

Sec. 9008 Biomass Research and Development Act (\$75 mil.)

- **(\$5 mil FY02, \$14 mil/yr FY03-07)**
- **In October 2003, USDA/DOE announced \$23 million in biomass research funding to 19 projects selected under a joint solicitation**

Sec. 9010 Commodity Credit Corporation Bioenergy Program (\$204 mil.)

- **Compensates producers of ethanol and biodiesel for commodity purchases to expand production**
- **Most traditional commodities as well as cellulosic feedstocks are eligible**

Rural Development Title

Sec. 6401 Value-added Agricultural Product Market Development Program

- **Amended to allow renewable energy systems to qualify for grants**
 - \$28.7 million FY 2003 Value-Added Producer Grants (VAPG) to 184 projects in 40 states.
 - Three grants were awarded in the Northwest totaling \$156,150.

Funding Issues

- **Sec. 9006 Renewable Energy System & Energy System Improvements Program (\$23 mil/yr.)**
 - **Mandatory funding zeroed out by Administration and House Appropriations Committee; funding ultimately restored by House and Senate**
- **Sec. 6401 Value-added Agricultural Product Market Development Program**
 - **Mandatory funding zeroed out by Administration, House; funding protected by Senate**
 - **Reduced to \$15 mil in discretionary funding in Omnibus appropriations bill. CR expires Jan 31, 2004.**
- **Clearly an issue for FY05 and beyond**

USDA/NRECA Memorandum of Understanding

- **NRECA to research, develop, promote, and encourage greater cooperative use biofuels, biobased products**
- **USDA and NRECA will develop education, outreach, technical support bioenergy education among cooperatives**
- **Technologies to be considered: biomass co-fired plants, biomass gasification power plants, animal-waste-to-electricity studies, landfill methane power plants, wind and solar**

Renewable Fuels Standard

(As contained in 2003 Energy Bill)

- **Sets 5 billion gallon requirement, doubling renewable fuels production by 2012**
- **Requirement on refiners – not on states or consumers**
 - **Credits can be traded among refiners, blenders, and importers**
- **Cellulosic ethanol to be counted as 1.5 gallons of renewable fuel. Conference Report provided 2.5 credit for ethanol derived from agricultural residues.**
- **Conference report phases out MTBE by 2014, provides MTBE producer liability waivers**

Renewable Production Tax Credit (PTC)

- Energy Bill extends the wind and biomass (including poultry litter) energy production tax credit through January 1st, 2007
- Expanded to include swine and bovine waste nutrients, geothermal energy, and solar energy.

Renewable Portfolio Standard (RPS)

- Federal level

- A 10% national standard that would apply to all states by 2020 proposed in Senate energy bill
- Conference report has no RPS

- State Level

- 13 State RPS Programs
- 12,400 megawatts (MW) of new renewable electricity capacity in the US by 2012
- Enough to power 7.6 million homes

State Public Benefit Funds

- **23 states (plus the District of Columbia) have enacted PBF's. More than half specifically promote biomass**
- **Generally state-wide programs**
- **Support for renewable energy resources, energy efficiency initiatives, low-income support programs**
- **Most commonly supported through a charge to all customers on electricity consumption**

State Renewable Energy Incentives with Biomass Provisions

1) Financial Incentives

- State Grant Programs (16 states)
- Production Incentives for Renewable Power Generation and Fuels (11 states)
- Loan Programs (15 states)
- Property Tax Incentives (10 states)
- Personal Income Tax Incentives (10 states)
- Corporate Tax Incentives (17 states)
- Sales Tax Incentives (9 states)
- Industrial Recruitment Incentives (4 states)
- Rebate Programs (5 states)

State Renewable Energy Incentives with Biomass Provisions (cont'd)

2) Rules & Regulations

- **Construction and Design Policies (2 states)**
- **Generation Disclosure Rules (17 states)**
- **Green Power Purchasing/Aggregation Policies (8 states)**
- **Net Metering Rules (25 states)**
- **Public Benefit Funds (13 states)**
- **Renewable Portfolio Standards/Set Asides/Goals (16 states)**
- **Required Utility Green Power Option (5 states)**

State Renewable Energy Incentives with Biomass Provisions (cont'd)

3) Outreach & Voluntary Programs

- Outreach Programs (6 states)
- Utility Green Pricing Programs (22)



For more information Contact:

Carol Werner

(202) 662-1881

cwerner@eesi.org

Josh Alban

(202) 662-1885

jalban@eesi.org