

Federal Policy for Bioenergy Commercialization

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

EESI: *Seeking Innovative Environmental and Energy Solutions*



- Dedicated to promoting sustainable societies through innovative policies on energy, climate, transportation, agriculture, and smart growth
- Founded in 1984, by a bipartisan Congressional Caucus
- Provides timely information regarding science, policy, and technologies
- Organizes ~20 Congressional briefings a year
- Builds coalitions and networks
- Publishes 3 electronic newsletters
 - BCO – Bioenergy, Climate Protection & Oil Reduction
 - Climate Change News
 - National Clean Bus update
- EESI Associates Program allows companies and individuals to participate

(BCO) Bioenergy – Climate Protection – Oil Reduction Agriculture and Energy Network

- Avenue of information for success stories from government agencies and NGOs
- Current information on feedstocks and new technologies
- Builds consensus with key stakeholders
- Legislative updates on pertinent policy
- Open forum for articles and commentary
- Goes to more than 1500 individuals

Ag can be a part of the Clean Energy and Climate Solution

- **There is no silver bullet**
- New Policies
- New Technologies
- New Feedstocks (including wastes)
- Conservation & Efficiency Efforts
- Decreased petroleum for transportation needs
 - Flex-Fuel Vehicles/Plug-In Hybrids
 - Biobased products and renewable energy can reduce fossil energy use/ greenhouse emissions

Broad Goals

- Environmental Sustainability/Climate Change
- **National** Energy and Security Policies
- Diversify and Grow the Domestic Agriculture Portfolio while Decreasing Dependence on Export Markets
 - Economic Development
 - Ownership



Existing Federal Policies

2002 Farm Bill (P.L. 107-171): Energy Title

- Sec. 9002 Procurement of Biobased Products (\$1 mil/yr)
- Sec. 9003 Biorefinery Development Grants
- Sec. 9004 Biodiesel Fuel Education Program (\$1 mil/yr)
- Sec. 9005 Energy Audit and Renewable Energy Development Program
- Sec. 9006 RE/EE Improvements (\$23 mil/yr)
- Sec. 9007 Hydrogen and Fuel Cell Technologies
- Sec. 9008 Biomass R&D Act of 2000 (\$63 mil/yr)
- Sec. 9009 Carbon Sequestration Research
- Sec. 9010 CCC Bioenergy Program (\$150 mil/yr)

Federal Procurement of Biobased Products

- Requires Federal agencies to purchase biobased products that meet price, availability, and performance standards
- Provides for a voluntary labeling program of certified “biobased products”
- Provides financial assistance for testing of biobased products by manufacturers
- **Aug. 17, 2 new proposed rules designating 20 items**
 - For a full list visit:
<http://www.biobased.oce.usda.gov/public/index.cfm>

Renewable Energy Systems & Energy Efficiency Improvements Program

- Purchase of renewable energy systems and energy efficiency improvements for agriculture producers and rural small businesses
- During the first 3 years USDA spent \$61.8 mil on 270 renewable energy projects, leveraging \$833.7 mil
 - 170 mil/yr of ethanol and biodiesel
 - 300+ megawatts of wind power
 - Millions of dollars in energy efficiency savings
- FY06 Solicitation
 - \$11.385 million competitive grant funds
 - \$176.5 million in guaranteed loan authority
- **FY06 Awards Announced on August 8, 2006**
 - 12 recipients from three different states received over \$9 million in loan guarantees and grants (Grants totaled \$2,595,437 and guaranteed loans totaled \$6,481,279)
 - Change in announcements because of the loan guarantee
 - More awards to come...

Biomass Research & Development Act

- Executive Order 13134: DEVELOPING AND PROMOTING BIOBASED PRODUCTS AND BIOENERGY, issued in August of 1999
- Multi-agency effort to coordinate and accelerate all Federal biobased products and bioenergy research and development
- USDA/DOE Joint Solicitation since FY03
- *Roadmap for Biomass Technologies in the United States* was released in 2003
 - Updating the *Roadmap* through 3 regional meetings
 - Notes from the meetings may be found at:
<http://www.biomass.govtools.us/default.asp>

Energy Title FY07 Appropriations

Section	FY06 Final	FY07 Authorization*	Admin Proposed FY07	House	Senate
9002	\$2.0	\$1.0	\$2.5	\$1.0	\$2.5
9004	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0
9006	\$23.0	\$3.0*	\$10.2	\$23.0	\$25.0
9008	\$12.0	\$214.0*	\$12.0	\$14.0	\$14.0
9010	\$60.0	\$0.0	\$0.0	\$0.0	\$0.0
6401	\$20.5	\$40.0	\$20.3	\$28.0	\$48.0

* Reflects changes from the Energy Bill and Budget Reconciliation

Energy Policy Act of 2005 (P.L. 109-58)

Some Wins

- Renewable Fuel Standard
- Clean Renewable Energy Bonds
- Extension and Expansion of Production Tax Credit
- Biomass Research and Development Act of 2000
- Integrated Biorefinery Demonstration Projects
- Production Incentives for Cellulosic Biofuels
(reverse auction)
- Loan Guarantee Program

Renewable Fuels Standard (Sec. 1501)

- 7.5 billion gallons of renewable fuels to be sold or dispensed in 2012
- One gallon of cellulosic ethanol or waste-derived ethanol will be counted as 2.5 gallons
- After 2012, the 2.5-to-one ratio no longer applies, but the RFS will require annual minimum of 250 million gallons of cellulosic biomass fuels

Should the RFS be increased?

**Should there be a carve-out for cellulosic?
biodiesel?**

RFS Update

- It is predicted that the United States will surpass the 4.0 billion gallons of renewable fuel required for this year
- Rules from the EPA on: liable parties, record keeping, reporting requirements and credit trading program still need to be generated.
- Appropriations

Authorization FY07	Admin Proposed FY07	House	Senate
\$0	\$11.4 mil	\$2.4 mil	\$1.4 mil

Extension and modification of renewable electricity production credit (Sec. 1301)

- Extends placed-in-service date by two years (through December 31, 2007) for qualifying facilities including closed-loop biomass
- Expands provision to 'any nonhazardous lignin waste material' for open-loop biomass facilities
- Qualifying facilities receive credits per kWh (currently at 1.9 cents/kWh) for electricity produced over a 10 year period (adjusted for inflation)
- Open-loop biomass facilities only receive .9 cents/kWh for electricity produced

Clean Renewable Energy Bonds (Sec. 1303)

- Provision created to provide incentives for public power, tribes and co-ops
- \$800 million in bonding authority over 2 years; a minimum of \$300 million for co-ops
- Projects are prioritized according to dollar amount with the smallest projects at the front of the queue
- Deadline was April 26, 2006
- **Overwhelming project interest indicates need for expansion**

Agriculture Biomass R&D Programs

Sec. 941 Amendments to Biomass R&D Act of 2000

- Authorizes \$214 mil/yr. FY06-15; previous authorization level was \$68 mil/yr FY02-07
- **Update: House & Senate funding level is \$14 mil for FY07**

Sec. 942 Production Incentives for Cellulosic Biofuels

- Authorizes \$250 million for “reverse auction” incentive to reach 1 billion gallons cellulosic biofuels production by 2015
- **Update: DOE requested comments on how to implement this program. No FY07 appropriation at this time.**

Sec. 943 Procurement of Biobased Products

- Establishes procedures to comply with Sec. 9002 of the 2002 Farm bill to procure biobased products for the Capitol Complex.

Agriculture Biomass R&D Programs (cont'd)

Sec. 944 Small Business Bioproduct Marketing & Certification Grants

- Provides competitive grants for marketing and for certification of biobased products. Authorized \$1 mil for FY06 and “such sums as necessary” for FY07-15

Sec. 945 Regional Bioeconomy Development Grants

- Competitive grants for coordination, education, and outreach to support and promote growth and development of a bioeconomy. \$1 million authorized for FY06 and “such sums as necessary” for FY07-15
- **Update: Senate appropriations level \$3 mil for FY07**

Sec. 946 Preprocessing and Harvesting Demonstration Grants

- Competitive grants for the purpose of demonstrating cost-effective, cellulosic biomass innovations. \$5 mil/yr. authorized for FY06-10

Sec. 947 Education and Outreach

- Authorized \$1 mil/yr for education and outreach on biobased fuels and biobased products for FY06-10

Integrated Biorefinery Demonstration Projects (Sec. 932(d))

- Distributed geographically
- Must encourage:
 - Wide variety of lignocellulosic feedstocks
 - Commercial application of biomass technologies
 - Liquid transportation fuels
 - High-value biobased chemicals
 - Substitutes for petroleum based feedstocks
 - Energy for electricity or heat
 - Demonstration of collection and treatment
- Authorization (in millions) FY07 \$100, FY08 \$125 and FY09 \$150

Update: Integrated Biorefinery Demonstration Projects

- Solicitation for this program closed on August 8, 2006
- \$53 mil is expected to be made available for up to 3 projects
- Appropriation

Authorization FY07	Admin Proposed FY07	House	Senate
\$100 mil	\$50 mil	\$50 mil	\$50 mil

Loan Guarantee Program (Title XVII)

- Eligible projects will encourage early commercial technologies that will:
 - avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases
 - employ new or significantly improved energy technologies
- DOE must receive either an appropriation for the Subsidy Cost or payment of that cost by the borrower

Update: Loan Guarantee Program

- Solicitation for pre-application announced on Aug. 8 and will be closed on Nov. 6
- Up to \$2 billion in loan guarantees
- NO appropriation has been made for this program for FY07
- Eligible Biomass Projects
 - Bioenergy Projects as described in Sec. 932(d)
 - Biofuels Production, Distribution and Infrastructure
- Proposed rulemakings to develop regulations soon
- Guidelines for proposals may be found at:
<http://www.lgprogram.energy.gov/>

Policy Options

Research

- Research on:
 - Appropriate Feedstocks for Different Regions of the Country
 - Appropriate Scaled Projects
 - Development of Biobased Co-Products and Markets for them
 - Cellulosic Technologies
 - Energy and Food Crop Yields/Ha with low inputs
 - Different Biomass Conversion Platforms
 - Sustainable and Rural Economic Development
 - Sustainable Harvesting
 - Factors that Need to be Considered: Climate, Soil, Native Species, Water and Natural Pests
- Policy Options
 - Biomass Resource Assessment: State-by-State
 - Stop Cutting Funding for Land Grant Universities/Extension
 - Fully Fund the Biomass R&D Act
 - New grants like the Joint USDA and DOE Genomics Grants

Biofuels

Expanded Renewable Fuel Standard

- Increase ethanol mandate, eg.:
 - H.R. 1398: Mandate for 10% ethanol and 5% biodiesel by 2010
 - S. 1609: 20/20 Biofuels Challenge Act of 2005
 - S. 1920: Renewable Diesel Standard Act of 2005
 - H.R. 4357: '10 by 10' Act of 2005
 - H.R. 4573: Increase National RFS to 25 billion gallons by 2025.
- Create a carve out for:
 - Cellulosic Ethanol
 - Biodiesel

Biopower

- **Extend and Expand Production Tax Credit**
 - Are there other technologies/feedstocks that could use this credit?
- **Renewable Portfolio Standard**
 - Grows a market & infrastructure for biomass
- **National Net Metering & Standardized Interconnection**
 - Encourages production
 - Creates long-term financial stability if producer is getting paid a fair price for their energy

Connecting Transportation & Electricity

National Plug-In Partner Campaign

- Most car trips are less than 20 miles – so with a Plug-In, the entire trip could be fueled by the electric battery.
- Owners can recharge their car at night when over 40% of the generating capacity in the U.S. sits idle.
- If the trip is longer than the battery range (about 40 miles), the car can switch to gasoline or a biofuel.
- At prevailing electric rates, **the cost of an “electric” gallon is 70-80¢** – compared to gas, which is averaging \$2.50 a gallon
- More than 125 public power utilities, largely signed on through the American Public Power Association
- Surpassed **6,000 fleet orders**
- 30 of the countries 50 largest cities

Rural Development - General

- Economic Development
- Capacity Building
- Ownership
- Entrepreneurship & Youth Programs

Rur. Dev. - Economic Development

- Substantial Farmer/Producer or community equity in biorefineries
- Incentives for small/community scale renewable energy projects
- Policy Options
 - Rural Enterprise Zones
 - Minnesota Job Opportunity Building Zones “JOBZ”
 - Pine Tree Zones (Maine)
 - Need to create agriculture-related, but off-farm jobs
 - Ag Manufacturing: Biobased products, value-added processing

Capacity Building

- USDA Rural Development and Natural Resources Conservation Service offices and Extension Service overall should include technical assistance for renewable energy
 - Public-Private Partnerships
 - Management Assistance
 - Strategic Business and Financial Planning
 - Continuing Education
 - Spur Innovation
- Policy Options
 - National Biomass Initiative formerly known as the Regional Biomass Energy Program
 - Sec. 6404: Agriculture innovation center demonstration program
 - Sec. 6021: National Rural Development Partnership
 - Sec. 6030: Rural Strategic Investment Program



For more
information Contact:

Jetta Wong

(202) 662-1885

jwong@eesi.org

or

Carol Werner

(202) 662-1881

cwerner@eesi.org

www.eesi.org