

Incentives for Biomass Utilization at the Federal Level

Marcia Patton-Mallory, PhD
Biomass and Bioenergy Coordinator
U. S. Forest Service

Presentation at:

*Can Forests Meet Our Energy Needs,
The Future of Forest Biomass in Colorado
Colorado State University, Fort Collins, CO*

February 21, 2008



Broad Drivers for Bioenergy

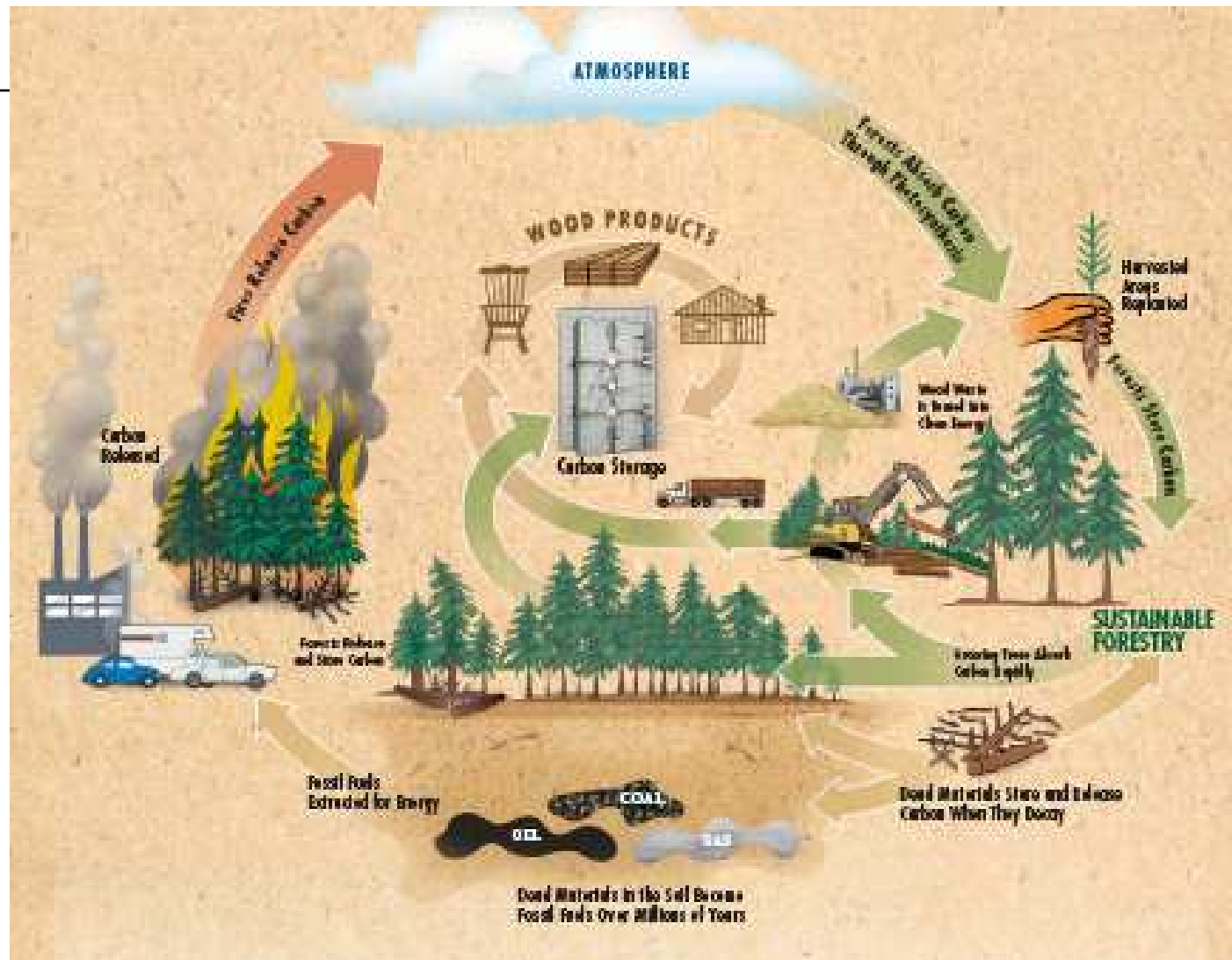
- Energy Security
- Economic Development
- Climate Change Adaptation and Mitigation
- National Security
- High Fossil Fuel Prices and Global Demand



Federal Level Approach

- Partnerships
- Collaboration
- Adaptive Learning
- Markets
- Regional Flexibility
- Mandates (RFS etc)
- National Goals
- Multi-sector
- Shared Risk
- Research, Development and Demonstration
- Conservation and Education
- Recycling and Energy Efficiency

Forests Carbon Cycle and Bioenergy



Oregon Forest Resources Institute and The Forest Foundation



Woody Biomass and Sustainable Forestry

- ❑ Thinning and removal of woody residues that are surplus to nutrient recycling, alternative to disposal
- ❑ Manufacturing residues at mills
- ❑ Urban wood waste
- ❑ Woody material from storm damage
- ❑ Short rotation wood energy crops
- ❑ Improving resilience and carbon sequestration of remain forest
- ❑ Responding to insect, disease and natural disturbance
- ❑ Reducing fire risk around communities



Public Benefits- biomass utilization

“Climate change is the greatest market failure the world has ever seen”

Stern Review Report 2006

- Improve forest health
- Fire risk reduction
- Wildlife habitat improvement
- Range improvement
- Invasive species removal
- Improve air quality
- Watershed protection
- Landfill diversion
- Power grid stability
- Reduce cost of restoration and fuels treatments
- Respond to climate change



Legislation

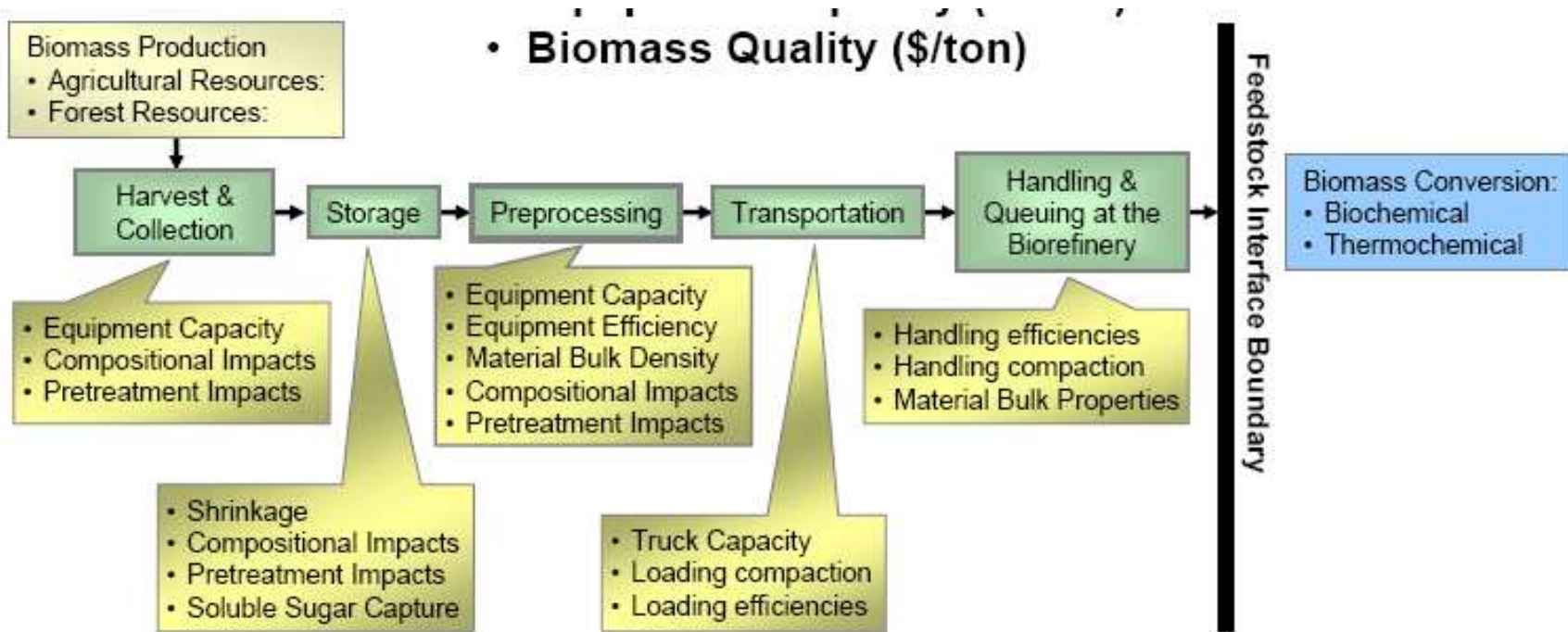
- ❑ Biomass Research and Development Act of 2000 (amended 2005)
- ❑ Farm Bill 2002 and 2008?
- ❑ Healthy Forests Restoration Act 2003 (Title II: Biomass Utilization)
- ❑ Energy Policy Act 2005
- ❑ Energy Independence and Security Act 2007
- ❑ Annual Appropriations Language (EPA, DOE, USDA, DOI, DOD, DOT, DOC)



Executive Branch

- National Fire Plan (2000): Five key points to respond to severe wildland fire, including biomass removal
- “20 in 10 Initiative” (2007): Reduce gasoline consumption and encourage 15% alternative energy sources by 2017
- Executive Order 13423: Strengthening Federal Environmental, Energy and Transportation Management
- Agency and Interagency Strategic Plans
 - Biomass R&D Roadmap
 - Federal Biofuels Implementation Plan
- International Negotiations on Climate Change- roles of forests and bioenergy

Biomass Used for Energy - feedstock





HARVESTING CLEAN ENERGY

Federal Incentives & Resources for Renewable Energy Projects

Portland, OR January 28, 2008

Adapted from the presented by:

David T. Quinby,

Stoel Rives, Minneapolis, MN

www.stoel.com



Financial and Other Incentives for Renewable Energy Projects

Renewable Fuel Standard (2007 Energy Act)

Clean Renewable Energy Bonds (CREBs)

**Modified Accelerated Cost-Recovery System
(MACRS)**

Production Tax Credit (PTC)

Renewable Energy Production Incentive (REPI)

**Small Business Innovative Research Grants
(SBIR)**



Federal, Agricultural and Rural Programs which may Apply to Renewable Energy Projects

- **Business and Industry Guaranteed Loan Program**
- **Rural Business Enterprise Grants (RBEG)**
- **Rural Economic Development Loan and Grant (REDLG)**
- **Section 9006 Guaranteed Loan**
- **New Market Tax Credits (NMTC)**



Clean Renewable Energy Bonds

- ❑ Established by 2005 Energy Act, CREBs as a financing mechanism for public sector/tax-exempt renewable energy projects (munis and electric co-ops).
- ❑ 0% interest rate - the borrower pays back only the principal of the bond, and the bondholder receives federal tax credits in lieu of the traditional bond interest.
- ❑ Tax credit funds are allocated by the Secretary of the U.S. Treasury Department.
- ❑ Original Allocation (Jan 1, 2006 – Dec. 31, 2007) - \$800 million. Over 786 applicants from 40 states applied for \$2.5 billion funds.
- ❑ 2008 Allocation, \$400 million of CREBs are allocated: \$250 million for cities/counties/tribes, and \$150 million for co-ops
- ❑ No funds for CREBs are currently allocated for 2009; however, Congress is considering allocating \$2.0 billion



Modified Accelerated Cost-Recovery System Depreciation

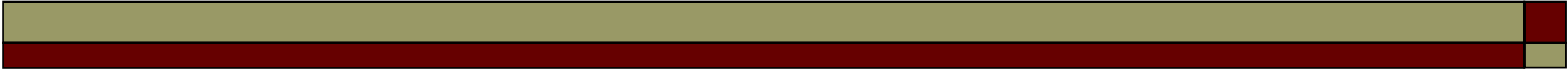
- ❑ Under the Modified Accelerated Cost-Recovery System (MACRS), business can recover investments in certain property through depreciation deductions.
- ❑ The MACRS establishes a set of class lives for various types of property, ranging from three to 50 years,.
- ❑ For solar, wind and geothermal property placed in service after 1986, the current MACRS property class is five years.
- ❑ 2005 Energy Act : fuel cells, microturbines, and solar hybrid lighting technologies are now classified as 5-year property.
- ❑ Ethanol plants typically claim “5 year property” lives; IRS may be challenging (seeking “7 year property” classification”).



Production Tax Credit

- **Wind**
- **Closed-loop biomass**
- **Open-loop biomass**
- **Geothermal energy**
- **Small irrigation power
(150 kW – 5 MW)**
- **Landfill gas**
- **Refined coal**
- **Hydropower**
- **Municipal solid waste
(burns fuel; not
gasifies)**
- **Indian Coal**

Must be placed in service by January 1, 2009. Likely to be extended, but until it is, all project agreements will need to address the risk that it won't be or that it will change



Renewable Energy Production Incentive

- **The Renewable Energy Production Incentive (REPI) provides financial incentive payments for electricity produced and sold by new qualifying renewable energy generation facilities.**
 - 2¢ per kilowatt-hour
 - 10-year duration subject to the availability of annual appropriations
- **Eligible owners:**
 - Not-for-profit electrical cooperatives
 - Public utilities
 - State governments
 - Commonwealths, territories, possessions of the U.S., the District of Columbia
 - Indian tribal governments, or a political subdivision thereof
 - Native Corporations that sell the project's electricity to someone else.

Qualifying facilities includes biomass except for municipal solid waste combustion



Other Federal Energy Programs

- **Small ethanol producer credit**
 - The 2005 Energy Act changes the definition of a "small ethanol producer" to include a production capacity of up to 60 million gallons (instead of the up to 30 million gallons originally established by Congress in 1990). The tax credit also equals \$.10 per gallon to the small ethanol producer (or its owners in pass through entities).

- **DOE State Energy Program Funding**
 - DOE's State Energy Program (SEP) provides funding to states and U.S. overseas territories for them to address their energy priorities. State energy offices manage all SEP-funded projects, and many of them use this funding for alternative fuels projects.



USDA Business and Industry Guaranteed Loans

(1 of 2)

Eligible Recipients: Cooperatives, corporations, partnerships, Indian Tribe, public body or individual.

Purpose:

- To improve, develop, or finance business, industry, and employment and improve the economic and environmental climate in rural communities.
- Guaranty quality loans bolster the existing private credit structure which will provide lasting community benefit.
- Not marginal or substandard loans or for relief of lenders having such loans



USDA Business and Industry Guaranteed Loans

(2 of 2)

- **Loan Amounts:**
 - Up to \$10 million typical Limit
 - Between \$10 and \$25 million require Administrator's approval
 - Between \$25 and \$40 million require Secretary Approval for rural cooperative organizations that process value-added agricultural commodities.

- **Guarantee Amount:**
 - Negotiation with Lender
 - Up to 80% of loans of \$5 million or less
 - Up to 70% of loans between \$5 and \$10 million
 - Up to 60% of loans exceeding \$10 million



USDA Rural Business Enterprise Grants (RBEG)

- **Eligible Recipients:** Rural public entities (towns, communities, state agencies and authorities), Indian tribes and rural private, non-profit corporations.
- **Purpose:** to benefit small and emerging private businesses in rural areas, defined as those that will employ 50 or fewer new employees and have less than \$1 million in projected gross revenues.
- Eligible funds in 2007 (\$40 million). To be used for:
 - Acquisition or development of land, easements, or rights of way
 - Construction, conversion, renovation, of buildings, plants, machinery, equipment, access streets and roads, parking areas, utilities
 - Pollution control and abatement
 - Capitalization of revolving loan funds including funds that will make loans for start ups and working capital
 - Training and technical assistance
 - Distance adult learning for job training and advancement
 - Rural transportation improvement; and project planning.

Adapted from Stoel Rives- Harvesting Green Energy Conference- Jan 2008



USDA Rural Economic Development Loan and Grant (REDLG)

□ **The REDLG Program:**

- Provide funding to rural projects through local utility organizations
- USDA provides zero interest loans to local utilities which they, in turn, pass through to local businesses (ultimate recipients) for projects that will create and retain employment in rural areas.
- The ultimate recipients repay the lending utility directly. The utility is responsible for repayment to the Agency
- Grants are awarded on a competitive bases, and for FY2007, could be up to \$300,000



USDA Section 9006 Guaranteed Loan

- **Eligible Applicants:** Agricultural producers and small rural businesses
- **Purpose:** makes available competitive grant funds and guaranteed loans for the purchase of renewable energy systems and energy improvements.
 - The project must occur in a rural area and implement pre-commercial or commercially available and replicable technology.
 - No research and development.
 - The applicant must provide at least 75% of eligible project costs, and grant assistance to a single individual or entity can not exceed \$750,000.
 - Eligible projects include biofuels, hydrogen, and energy efficiency improvements, as well as solar, geothermal, and wind.
- Project developers will work with local lenders, who in turn can apply to USDA Rural Development for a loan guarantee up to 85 percent of the loan amount.
 - Maximum of \$10 million per project, minimum of \$5,000
 - Loans up to 50% of the project's cost

Adapted from Stoel Rives- Harvesting Green Energy Conference- Jan 2008



New Market Tax Credits

- The New Markets Tax Credit (NMTC) Program permits taxpayers to receive a credit against Federal income taxes for making qualified equity investments in designated Community Development Entities (CDEs).
- CDE must invest substantially all funds in low-income communities.
- Credit = 39% of the investment over a seven-year credit allowance period.
 - 5% each of the first three years
 - 6% each of the last four years
- Investors may not redeem their investments in CDEs prior to the conclusion of the seven-year period.
- New Rule requires significant level of 2008 NMTC allocations to be invested in rural communities, so good potential for renewable energy investment.

Adapted from Stoel Rives- Harvesting Green Energy Conference- Jan 2008



Specific Federal Agency Programs



U.S. Forest Service- financial incentives

□ **Wood Biomass Grants**

- \$4.0 Million annually
- \$250,000 each grant with 20% non-federal matching
- Grants that address the nationwide challenge in dealing with low-valued material removed from hazardous fuel reduction activities, restoration of insect and diseased conditions or catastrophic weather events through marketable forest products and/or energy products.

□ **State Wood Energy Grants**

- \$800,000 in FY2007 awarded to State Foresters to support the development of projects that will help jump start statewide programs that implement wood-to-energy-technology.



U.S. Forest Service- other assistance

- Coordinated Resource Offering Protocol- facilitating available local biomass supply
- Stewardship Contracting
- Forest Products Technology and Marketing Assistance
- Harvesting technology guidelines
- Fuels for Schools and Beyond
- R&D
 - Processing and conversion technology
 - Sustainability- soils, habitat, productivity, & economics
 - Improved short rotation wood energy crops
 - Life-cycle analysis of wood energy systems
 - Land use change- strategic analysis in Resource Planning Act



Bureau of Land Management-DOI

- ❑ Includes option for biomass removal in all service and timber contracts, unless reserved as ecologically inappropriate.
- ❑ Department has authority to issue research and development and transportation subsidy grants for biomass.
- ❑ Participates in Regional Biomass Supply Assessments (coordinated resource offering protocol)



Department of Energy

- ❑ Commercial Scale Demonstration Biorefineries
- ❑ Small Scale Demonstration Biorefineries
- ❑ Bioenergy Research Centers
- ❑ Regional Feedstock Assessments
- ❑ Federal Energy Management Program (for federal facilities)
- ❑ Voluntary Reporting of Greenhouse Gases Program

<http://www1.eere.energy.gov/biomass/>

Major DOE Biofuels Project Locations




Geographic, feedstock and technology diversity



Three wood-using sites



| Legend | |
|--------------------|--|
| Company Name | |
| Process Technology | |
| Feedstock Type | |
| (Site Location) | |

-  Six Commercial-Scale Biorefinery Projects; DOE will invest up to \$385 million
-  Four Small-Scale Biorefinery Projects; DOE will invest up to \$114 million (first round)
-  Three Bio-Energy Centers; DOE will invest up to \$405 million

* Acquired by NewPage Corporation



EPA- bioenergy related programs

- ❑ Combined Heat and Power Programs
- ❑ Lead agency for the Renewable Fuels Standard (RFS)
- ❑ Air Quality– Supreme Court decision to regulate CO₂ under the Clean Air Act
- ❑ Waste Stream Diversion
- ❑ Water Quality
- ❑ Eco-labeling

Managing our lands for energy, food and fiber



Questions ?

Marcia Patton-Mallory, PhD

mpattonmallory@fs.fed.us

<http://www.fs.fed.us/woodybiomass/>

http://www.forestsandrangelands.gov/Woody_Biomass/