

Rural Voices for Conservation

Working together to find solutions to the ecological and economic challenges of the rural West.

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Community-based Forestry Perspectives on Woody Biomass

Briefing Paper

Key Points in Considering Biomass Utilization Policies

- ❖ **Biomass utilization is a land management issue, not just an energy production concern.** Woody biomass supply is directly linked to forest management planning, a link that is not present for most other types of energy development. For this reason, the process of developing and evaluating appropriate technologies and facilities for woody biomass energy and utilization must be integrated with long-term and collaborative forest management planning processes.
- ❖ **Federal funds targeting biomass utilization should support development of diversified forest products sectors (including uses beyond energy generation).** Using biomass for power should complement and diversify the approaches to small diameter wood utilization. A diversified approach, including small diameter utilization and other value-added wood products along with energy generation, will result in the creation of the greatest number of jobs and thus the greatest social benefit. A diversified biomass products sector will also be better able to withstand changing markets over time.
- ❖ **Federal biomass policies should encourage the development of facilities at a variety of scales.** Agreement on a facility's *appropriate scale* should be defined through a collaborative approach as evidenced by broad stakeholder involvement, analysis and agreement (including local government, energy developers, conservationists, land management agencies, etc). Determination of appropriate scale must be a place-based decision.
- ❖ **For many rural communities, small (1-10 megawatts) is the appropriate scale.** Support for small-scale facilities provides opportunities to test innovative new technologies that generate clean renewable energy and thermal applications integrated with value-added manufacturing facilities. Small-scale is also appropriate for the social and economic capacities of many rural communities, and can provide the greatest number of sustainable jobs.
- ❖ **Incentives for woody biomass utilization and energy production should not harm existing businesses that utilize small diameter forest products.**
- ❖ **New contracting authorities and long-term contracts** (such as those provided in stewardship contracting) **should be explored** to establish a reliable sustainable supply of woody biomass.
- ❖ **Federal biomass policy must develop, support, and encourage valuation of biomass utilization that recognizes the many ancillary benefits that it provides.** Ancillary benefits include important environmental services derived from limiting pollutants, greenhouse gas emissions, landfill use, and the savings to forest treatments. There are also important social benefits, including quality jobs and increased rural tax revenue, which are not accounted for in the traditional cost benefit analysis of biomass utilization. Federal biomass policy should recognize the important values of healthy forests and healthy communities.

Forest Restoration and the Potential of Woody Biomass

Past forest management practices and aggressive fire suppression over the past century have led to increases in the occurrence of large catastrophic wildfires and a decrease in forest health and productivity caused by accumulations of small diameter trees and brush. Recent legislation, such as the *Healthy Forest Restoration Act*, and policies such as the *National Fire Plan*, call for active forest management to restore forest conditions and stem unwanted wildfire. Community wildfire protection activities, fuel reduction projects, and broader forest restoration projects are becoming the central focus of Western forestland management.

Woody biomass, which consists of trees and woody shrubs, including the bark, limbs, tops, needles, leaves, stumps, and roots, as well as wood infected with disease and insects, has historically been uneconomical to process. However, the development of economic uses for woody biomass will provide opportunities for sustainable economic development in rural forest-based communities that were devastated by the decline in their timber economy, while at the same time supporting forest restoration implementation.

Combined with the focus on community protection, fuel reduction, and forest restoration are policies calling for increasing use of woody biomass to help meet the environmental and resource management objectives of these activities as well as create social and economic benefits through jobs and products associated with biomass use. A key policy is an interagency agreement among the departments of Energy, Interior, and Agriculture that provides the framework for federal agency activities on woody biomass utilization. This framework includes principles such as:

1. Include local communities, interested parties, and the general public in the formulation and consideration of woody biomass utilization strategies.
2. Promote public understanding of the quantity and quality of woody biomass that may be made available from federal lands and neighboring Tribal, State, and private forests, woodlands, and rangelands nationwide.
3. Promote public understanding that woody biomass utilization may be an effective tool for restoration and fuels treatment projects.
4. Develop and apply the best scientific knowledge pertaining to woody biomass utilization and forest management practices for reducing hazardous fuels and improving forest health.
5. Encourage the sustainable development and stabilization of woody biomass utilization markets.

These principles are consistent with the views of many community-based forestry groups. As our 'key points' at the beginning of this briefing paper note, we seek to promote an integrated approach that includes local community participation in developing strategies for biomass utilization, recognizes the connections between biomass utilization and forest restoration, and encourages sustainable development through a variety of enterprises at different and appropriate scales.

A diversified approach to economic development utilizing woody biomass has tremendous potential for rural forest-based communities. Adding value to small diameter wood-products and utilizing biomass for ‘highest and best use-values’ will provide the greatest economic benefits and the greatest economic stability to rural communities. Support for business opportunities at a variety of scales will ensure that local entrepreneurs are able to capitalize on local woody biomass supply and develop traditional and innovative value-adding businesses. Although large-scale facilities often pencil out as being the most cost-efficient, small scale facilities are more appropriate for rural communities when considering local social and economic capacities and the goal of providing local benefits from woody biomass utilization.¹

Benefits of Woody Biomass Utilization

The most critical benefits derived from biomass utilization are the economic contributions that small diameter material can provide to rural forest-based communities, and the achievement of forest restoration and fuel reduction objectives.

Utilization, along with directly offsetting forest treatment costs, will indirectly reduce the high costs to society and the federal agencies of dealing with unhealthy and fuel-loaded forests. The \$1 billion per year that is spent on average for wildfire suppression and post-fire rehabilitation each year could be reduced through restoration and fuel reduction treatments followed by biomass removal and utilization.

Woody biomass utilization can provide significant community benefits from value-adding business and processing facilities. Sorting for ‘highest and best use-value’ (defined as creating products from raw materials that will fetch the highest market value), will yield the greatest social and economic benefits. The small diameter material can be utilized for value-added manufacturing that yields products such as dimensional lumber, posts and poles, flooring and paneling, roundwood building materials and other innovative products, with the remainder of the material going to energy production. Biomass co-generation facilities can produce electricity as well as heat and steam that can be utilized for many applications. For example, steam is extremely efficient to produce and is commonly used for lumber kilns and facility heating. When biomass is harvested for these uses, forest treatments have net benefit to treatment costs of \$200-650 per acre over 20 years compared to traditional treatments (Morris, 1999).

Woody Biomass Utilization also provides the following benefits.

- ❖ **Biomass is a clean source of renewable energy** compared to burning fossil fuels. Burning biomass instead of fossil fuels will reduce emissions of associated atmospheric pollutants and acid rain.
- ❖ Biomass utilization will slow global climate change. When biomass is converted to energy there is **no net increase in carbon dioxide** since trees grow back and photosynthesize to balance emissions.
- ❖ Biomass energy production generates **fewer atmospheric pollutants than catastrophic wildfire and prescribed burning**, the alternatives to woody biomass utilization.

¹ Support for these assertions is evidenced by the USDA, DOI, and DOE’s dependence upon predominantly small scale community examples to illustrate the success of the diversified approach to biomass utilization.

Impediments to Biomass Utilization

Access to a reliable supply of woody biomass is a significant barrier. In regions where most of the biomass is on federal lands, it is almost impossible to get a long-term supply commitment. Harvests on federal lands remain low despite initiatives aimed at improving forest health, reducing hazardous fuels, and 10-year stewardship contracts (Appendix A).

Energy markets are not sufficient to cover the costs of establishing biomass-to-energy plants or getting the biomass from the woods to the plants. The cost of producing biomass energy (including capitol investment costs, harvesting material, and hauling material from the woods) tends to be higher than the market value of electricity. However, studies have shown that biomass energy production has a conservative value of 11.4 cents per kWh for environmental services, which is not reflected in market values (Morris, 1999). Fossil fuels and hydro-power continue to be heavily subsidized, despite their negative externalities, and remain well below the cost of biomass energy. Despite these factors some regional markets, like those in the Northeast where renewable energy credits are bought and sold, have begun to improve the margins for biomass utilization.

Community-based forestry policy principles, along with those of the Departments of Interior, Energy, and Agriculture, should help to guide a comprehensive strategy for successful woody biomass utilization.

Appendix A

Despite a number of recent federal policies providing grants for biomass research and development, transportation and utilization subsidies, and encouraging the utilization of woody biomass materials derived from forest restoration and fuel reduction treatments, consistent supply and viable economic conditions for woody biomass utilization have yet to be realized in most regions.

Recent Policies Facilitating Biomass Utilization

- ❖ The Departments of Interior, Energy, and Agriculture recently issued an *interagency Memorandum of Understanding* ‘On Policy Principles for Woody Biomass Utilization for Restoration and Fuels Treatments on Forests, Woodlands, & Rangelands’ intended to develop and implement consistent and complimentary policies and procedures for Federal efficiency and effectiveness of woody biomass utilization.
- ❖ The *National Fire Plan* encourages biomass utilization: “Because much of the hazardous fuels in forests are excessive levels of forest-based biomass –dead, diseased and down trees – and small diameter trees, there are several benefits to finding economical uses for this material, including helping offset forest restoration cost; providing economic opportunities for rural, forest-dependent communities; reducing risks from catastrophic wildfires, protecting watersheds; helping restore forest resiliency, and protecting the environment.” (p. 25)
- ❖ *The Biomass Research and Development Act of 2000 (Title 3 of the Agricultural Risk Protection Act of 2000, P.L. 106-224)* allows entities (including non-profits) to compete for federal grants and contracts associated with biomass research.
- ❖ *Section 9006 of the 2002 Farm Bill (P.L. 107-171)* authorizes federal grants and loans to farmers, ranchers, and rural businesses to purchase renewable energy systems, and *section 9010* authorizes payments to producers of bioenergy (biodiesel or ethanol). The *FY2004 Farm Bill (P.L. 108-199)* appropriated \$23 million to fund these provisions.
- ❖ *Section 201 of the Healthy Forests Restoration Act of 2003 (P.L. 108-148)* expands the scope of these grants to include research on thinning, harvesting, transportation, pricing, and curricula development. *Section 203 of HFRA* authorizes grants to owners and operators of biomass facilities, including wood-based facilities, and authorizes funds to this end. Most recently, \$4.4 million has been authorized for grants to ‘improve utilization and create markets for small-diameter material and low-value trees removed from hazardous fuel reduction activities on National Forest lands.’
- ❖ *American Jobs Creation Act of 2004 (P.L. 108-357, H.R. 4520)* expands the renewable energy production tax credit (extended earlier by *P.L. 108-311*) to include a half-credit over five years for open-loop biomass.

WHO WE ARE

The Rural Voices for Conservation Coalition is comprised of western rural and local, regional, and national organizations that have joined together to promote balanced conservation-based approaches to the ecological and economic problems facing the West. We are committed to finding and promoting solutions through collaborative, place-based work that recognizes the inextricable link between the long-term health of the land and well-being of rural communities. We come from California, Oregon, Washington, Idaho, New Mexico, and Montana.

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