



HANDOUT **4** Implications of Using Woody Biomass for Energy and Other Products

Like with many natural resource-related issues, the production and utilization of woody biomass for heat, power, electricity, transportation fuels, and industrial-scale bioproducts can be controversial. Like all feedstocks, woody biomass has benefits and costs that must be carefully considered.

Advantages

Some potential advantages of producing and utilizing woody biomass for bioenergy, biofuels, and bioproducts are:

Wildfire Mitigation and Healthy Forests Landowners have the opportunity to market materials for biomass that are removed during forest management activities, such as those that help reduce wildfire risk and prevent insect infestations and disease.

Economic Development Markets are key components of the woody biomass value chain. Viable, local biomass markets provide financial opportunities for bolstering rural communities, providing additional income to forest landowners, insuring local flow of money, and diversifying local economies. Woody biomass production and use can also create new jobs, further stimulating local economies.

Increased Energy Security The United States is vulnerable to oil supply disruptions and price increases because it imports much of its oil from politically unstable countries. Woody biomass offers an opportunity to lessen the dependence on foreign supplies of fossil fuels by providing an alternative, “homegrown,” renewable source of energy.

Environmental Benefits Wood offers many environmental benefits including improved air and water quality, incentives for better forest management, and reductions in greenhouse gases. When burned, trees do not add more carbon dioxide into the atmosphere than they removed while growing. As long as trees are replanted, wood is an essentially carbon-neutral energy source. Fossil fuels, on the other hand, release carbon that was sequestered thousands of years ago.

Disadvantages

Some potential disadvantages of producing and utilizing woody biomass for bioenergy, biofuels, and bioproducts are:

Size of Facility Power plants that strictly use wood cannot typically be built to produce as much power as their traditional coal-fueled counterparts. While a large wood plant may produce up to 50 megawatts of power, coal plants can be built to produce thousands of megawatts.

Sustainable Supply of Wood Needed Communities need an ample, sustainable supply of wood in order for a woody biomass facility to be successful. For example, urban areas surrounded by expansive suburbs do not lend themselves to wood supply accessibility. Wood must be plentiful and relatively easy to access and transport.

Loss of Soil Fertility and Habitat Change Removing debris that would otherwise become organic matter under natural conditions may have long-term negative effects on soil fertility and wildlife habitat. Woody

biomass utilization must incorporate management standards based on sustainability and facilitating a healthy forest ecosystem, including the health of the soil and wildlife habitat.

Wood May Not Be Cost Competitive The cost of woody biomass varies depending on location, availability, type and quality; environmental regulations; and transportation and processing options. In some communities and at some scales, wood may be more expensive than traditional fossil fuels, such as coal.

Is There Enough Wood to Meet Our Needs? Concerns exist about whether or not there are sufficient amounts of wood for wood-based needs: paper and timber, energy, green landscapes, recreation, wildlife habitat, and watershed protection. The emergence of new and growing markets for bioenergy and biobased products will likely place an even greater burden on already heavily used forest resources, further supporting the need for sustainable forest management and effective land-use and energy policies

Summary and Conclusion

Like all feedstocks, the production and utilization of woody biomass has advantages and disadvantages that should be weighed carefully as individuals, industries, and communities decide whether or not to choose wood. While no energy source or raw material is perfect, wood may be a viable option in some cases.

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