

Biomass use for power, fuels and biobased products: Current baseline and opportunities for growth

D. Kaempf^a, R. McGuckin^b, T. Carole^{*b}

^aU.S. Department of Energy, Energy Efficiency and Renewable Energy

^bEnergetics, Inc. 501 School St SW, Washington, DC. 20012

Fax: 202-479-0229; rmcguckin@energetics.com

Biomass use represents a significant opportunity for the United States to meet the needs of economic growth in a sustainable manner. Energy supply has been the subject of increasing concern in the U.S., as has the environmental and ecosystem impacts of energy consumption. In addition, rural economies have been on a steady decline in recent years, with many farmers being forced to sell their farms.

Biomass use for energy and industrial products can address many of the energy, economic and environmental concerns in the U.S. Recognizing this potential, Congress established the Biomass Research and Development Initiative in July of 2000 under subtitle III of the Agricultural Risk Protection Act. The two bodies created by the Act, the Biomass R&D Board and Advisory Committee, are charged with strategic planning to accelerate the use of biomass. An essential element of strategic planning is an accurate snapshot of today's biomass use and supply situation, as well as an assessment of future opportunities.

This paper presents quantitative information on the current availability of biomass feedstocks and the use of biomass for power, fuels, and products. The analysis looks at several existing sources of baseline data, including the Department of Energy's Energy Information Agency, National Renewable Energy Laboratory, Oak Ridge National Laboratory, the U.S. Environmental Protection Agency, the Department of Agriculture, a recent study by Arthur D. Little and several other industry sources and publications. The assumptions involved in each source are examined and the data then normalized and presented on a common basis. The major assumptions and methodologies are discussed.

The analysis identifies potential opportunities for increased use of biomass. An overview of the principal technologies currently known to be in use at either a commercial or demonstration level is presented, and the current incentives for each area are summarized. Additionally, pricing for each product is benchmarked with fossil-based or conventional competitors. Based on these and other factors certain trends have emerged in each of the areas of power, fuels and products. These trends are identified and analyzed to show the potential for increased use of biomass in the United States.