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TITLE: Biomass as Feedstock for a Bioenergy and Bioproducts Industry: The Technical Feasability of a Billion-Ton Annual Supply

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ABSTRACT:

The U.S. Department of Energy (DOE) and the U.S. Department of Agriculture (USDA) are both strongly committed to expanding the role of biomass as an energy source. In particular, they support biomass fuels and products as a way to reduce the need for oil and gas imports; to support the growth of agriculture, forestry, and rural economies; and to foster major new domestic industries--biorefineries--making a variety of fuels, chemicals, and other products. As part of this effort, the Biomass R&D Technical Advisory Committee, a panel established by the Congress to guide the future direction of federally funded biomass R&D, envisioned a 30 percent replacement of the current U.S. petroleum consumption with biofuels by 2030. Biomass--all plant and plant-derived materials including animal manure, not just starch, sugar, oil crops already used for food and energy--has great potential to provide renewable energy for America's future. Biomass recently surpassed hydropower as the largest domestic source of renewable energy and currently provides over 3 percent of the total energy consumption in the United States. In addition to the many benefits common to renewable energy, biomass is particularly attractive because it is the only current renewable source of liquid transportation fuel. This, of course, makes it invaluable in reducing oil imports--one of our most pressing energy needs. A key question, however, is how large a role could biomass play in responding to the nation's energy demands. Assuming that economic and financial policies and advances in conversion technologies make biomass fuels and products more economically viable, could the biorefinery industry be large enough to have a significant impact on energy supply and oil imports? Any and all contributions are certainly needed, but would the biomass potential be sufficiently large to justify the necessary capital replacements in the fuels and automobile sectors? The purpose of this report is to determine whether the land resources of the United States are capable of producing a sustainable supply of biomass sufficient to displace 30 percent or more of the country's present petroleum consumption--the goal set by the Advisory Committee in their vision for biomass technologies. Accomplishing this goal would require approximately 1 billion dry tons of biomass feedstock per year.

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