

The Role of U.S. DOE Laboratories in the Evolution of the U.S. Bioenergy Industry

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Abstract

Biomass has uniquely served mankind since the beginning of time as a food supply, valuable material of construction, versatile fuel, and chemical building block. Given the fixed supply of non-renewable fuels and global warming that results from our use of fossil fuels, renewable energy usage must increase. As our only sustainable source of carbon-based fuels and chemicals, biomass will clearly play a critical role in a portfolio with other renewable energy sources. Existing biomass producing and processing industries are already adapting to supply increasing supplies of fuels as well as chemicals from a variety of biomass forms. This presentation will provide an overview of some of the key industry trends and the evolution of *biorefineries*.

In examining the evolutionary trends in the U.S. bioenergy industry, this presentation will summarize the technical barriers, and the role of U.S. Department of Energy (DOE) Laboratories in developing technology to overcome these barriers. The activities of the recently established National Bioenergy Center (NBC) – the newest of three DOE national centers for renewable energy research – will be introduced and summarized. Like the other centers (National Wind Technology Center and National Center for Photovoltaics), the NBC is headquartered at DOE's National Renewable Energy Laboratory (NREL) and serves as DOE's coordinating body for longer term R&D carried-out at DOE Laboratories. In partnership with industry, academia and the USDA, NBC scientists carryout research to ensure that needed biomass production, conversion, and usage technologies will be available so that U.S. industries will be able to replace a large fraction of the nation's current petroleum usage with biomass-derived fuels and chemicals.