

Bioenergy and the forest products industry: Responding to the nation's need for alternative fuels

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In 2007, the United States consumed 106.1 quadrillion BTUs of energy. About 85 percent of this was derived from fossil fuels, a significant portion of which came from imported petroleum. While energy demand is only expected to rise in the future, concerns over national security and environmental impacts have elevated the profile of renewable sources to reduce our dependence on petroleum, coal, and natural gas. Achieving the goal of energy independence will require contributions from solar, wind, and nuclear technologies; however, biomass utilization for both solid and liquid fuels is considered to be a critical path to foster the nation's transition away from the finite supply of fossil-based energy. The advancement of bioenergy, biofuels, and bioproducts will undoubtedly intensify demand for both agricultural and forest resources. At the same time, this trend will create exciting opportunities for the forest products industry to build on its leadership as a renewable energy user while diversifying into new materials and markets.

One concept for integration of existing forest products processes with biofuels is termed "Value Prior to Processing" (VPP). Developed around the vision of an integrated biorefinery, the approach seeks to partially extract hemicellulose from wood strands. The strands can then be used for composite panel production, and the hemicellulose becomes a new product stream that can be converted to fuels, or other materials. This presentation will further define the framework of VPP while exploring other mechanisms for integration of processes and diversification of product lines at existing wood processing operations. To lay the foundation, the status of the bioenergy industry, including innovations in biofuels production platforms, will be discussed.