



Woody Biomass for the Developing Bioeconomy, a Billion-ton Report Update

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In the pursuit of net-zero targets, the United States Department of Energy releases the fourth in a series of national biomass resource assessments. Building on the studies conducted in 2005, 2011, and 2016, the Billion-ton 2023 (BT23) report, provides an advancement in the understanding of biomass resources in terms of quantity, spatial distribution, and economic accessibility. The goals of this report are to update to latest available input data (e.g., costs, yields, and economic inputs) and ensure equitable access to the latest biomass resource data and that results are findable, accessible, interoperable, and reusable (FAIR) through a data new portal. The assessment unveils nuanced regional variations in biomass availability, ranging from the immediate potential of forest wastes to the maturation of the market for woody energy crops cultivated on agricultural land. This presentation provides an assessment of renewable carbon resources potentially available from the forested and agricultural land bases in the CONUS. The analysis of biomass resources extends to forested landscapes, assessed using the Forestry Sustainability and Economic Analysis Model (ForSEAM). Additional biomass resources on agricultural land are modeled using the Policy Analysis System Model (POLYSYS), a partial-equilibrium linear programming model with a focus on the agricultural producer response. In collaboration with the U.S. Forest Service (USDA-FS), waste-based woody resources are assessed using Forest Inventory and Analysis (FIA) data and the Bioregional Inventory Originated Simulation Under Management (BioSUM) model. BioSUM models two case studies to determine the potential for trees and other waste resources to be harvested from forests, fostering resilience against the growing threat of wildfires. Throughout these analyses, sustainability constraints are incorporated including the net regeneration of forested stands, limitations on harvesting on steep slopes, and other good practices that would need to be applied based on local conditions. By providing detailed insights into woody biomass suitability for energy production, this research lays the groundwork for near-term woody biomass resource potential and a mature-market potential contributing to a developing bioeconomy. This comprehensive analysis underscores the pivotal role of biomass resources in steering the U.S. toward net-zero targets.