

US holds potential to produce billion tons of biomass, support bioeconomy

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2016 BILLION-TON REPORT

Advancing Domestic Resources
for a Thriving Bioeconomy

Volume I | July 2016



Cover of 2016 Billion-Ton Report

The 2016 Billion-Ton Report, jointly released by the U.S. Department of Energy and Oak Ridge National Laboratory, concludes that the United States has the potential to sustainably produce at least 1 billion dry tons of nonfood biomass resources annually by 2040.

These renewable resources include agricultural, forestry and algal biomass, as well as waste. They encompass the current and future potential of biomass, from currently available logging and crop residues to future available algae and dedicated energy crops—all useable for the production of

biofuel, biopower and bioproducts.

The [report](#) findings show that under a base-case scenario, the United States could increase its use of dry biomass resources from a current 400 million tons to 1.57 billion tons under a high-yield scenario.

Increasing production and use of biofuel, biopower and bioproducts would substantially decrease greenhouse gas emissions in the utility and transportation sectors and reduce U.S. dependence on imported oil as the domestic bioeconomy grows.

The analysis was led by ORNL with contributions from 65 experts from federal agencies such as the U.S. Forest Service, Department of Agriculture, Environmental Protection Agency, Department of Transportation and Federal Aviation Administration, as well as national laboratories (Idaho National Laboratory, the National Renewable Energy Laboratory and Pacific Northwest National Laboratory), and universities (the University of Tennessee, North Carolina State University, South Dakota State University and Oregon State University), as well as private companies (Energetics, Inc. and Allegheny Science and Technology).

New to the 2016 report are assessments of potential biomass supplies from algae, from new energy crops (miscanthus, energy cane, eucalyptus), and from municipal solid waste. For the first time, the report also considers how the cost of pre-processing and transporting biomass to the biorefinery may impact feedstock availability.

Interactive tools available through the Bioenergy Knowledge Discovery Framework allow users to visualize biomass availability scenarios and tailor the data by factors such as geographic area, biomass source and price. Researchers and decision makers can use these features to better inform national bioenergy policies and research, development and deployment strategies. Each

diagram and map in the report is available in an interactive interface on the Bioenergy Knowledge Discovery Framework.

The 2016 Billion-Ton Report, volume 1, updates and expands upon analysis in the [2011 U.S. Billion-Ton Update](#), which was preceded by the [2005 U.S. Billion Ton Study](#). The report uses scientific modeling systems to project biomass resource availability under specified economic and sustainability constraints.

Volume 2 of the report is set for release later this year, and will consist of a collection of analyses on the potential environmental sustainability effects of a subset of agricultural and forestry [biomass](#) production scenarios presented in volume 1. Volume 2 will also discuss algae sustainability, land use and land management changes, and strategies to enhance environmental sustainability.

On July 21, DOE's Bioenergy Technologies Office will host a joint webinar with Oak Ridge National Laboratory staff to further discuss and answer questions regarding the 2016 Billion-Ton Report volume 1 results, scenarios, assumptions and constraints.

ORNL is managed by UT-Battelle for the Department of Energy's Office of Science, the single largest supporter of basic research in the physical sciences in the United States. DOE's Office of Science is working to address some of the most pressing challenges of our time. For more information, please visit science.energy.gov.

More information:

energy.gov/eere/bioenergy/2016-billion-ton-report

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