

## BIOMASS PROGRAM

The U.S. Department of Energy Biomass Program produces a variety of publications focused on biomass technologies including factsheets, reports, case studies, presentations, analyses, and statistics. For this document and links to the below publications, go to [www.biomass.energy.gov/pdfs/publications.pdf](http://www.biomass.energy.gov/pdfs/publications.pdf).

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| Publication Name  | Description   | Date of Publication |
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| <b>FACT SHEETS and SUMMARIES</b>  |   |                     |
| <b>Program Overviews and Investments Summaries</b>  |   |                     |
| The Biomass Program works with industry, academia, and our national laboratory partners on a balanced portfolio of research in biomass feedstocks and conversion technologies. Through research, development, and demonstration efforts geared toward the deployment of first-of-a-kind integrated biorefineries, the Program is helping transform the nation's renewable and abundant biomass resources into cost competitive, high performance biofuels, bioproducts, and biopower. |   |                     |
| <a href="#">Sustainably Reducing U.S. Reliance on Fossil Fuels: The Biomass Program</a>   | An overview of the Biomass Program's mission, strategic goals, and research approach in an effort to meet national energy goals.  | March 2010          |
| <a href="#">American Recovery and Reinvestment Act Biomass Program Investments</a>  | A summary of the Program's American Recovery and Reinvestment Act portfolio that includes conversion and sustainability R&D, integrated biorefinery, and infrastructure projects. | March 2010          |
| <a href="#">Biomass Basics: The Facts About Bioenergy</a>   | An explanation of what biomass is and how it can be used.   | February 2010       |
| <b>Feedstocks/Sustainability</b>  |   |                     |
| The success of the U.S. bioindustry depends, to a large degree, on the quantity and quality of biomass available, and on the industry's ability to cost-effectively utilize biomass for energy production. These documents delineate our feedstock production, logistics, and sustainability activities.  |   |                     |
| <a href="#">Our Commitment to Sustainability</a>  | A high-level summary describing the Program's commitment, vision, and program activities related to sustainability.   | October 2009        |
| <a href="#">Enhancing Benefits While Mitigating Concerns: Biofuels Sustainability</a>   | An overview of our projects and partnerships and how these efforts intend to address environmental issues related to biofuel production and use.                                  | March 2010          |

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| <a href="#">Providing the Resource: Biomass Feedstocks &amp; Logistics</a>   | A summary of our resource assessment activities, feedstock trials, and harvest, storage, handling, and transport activities to support biomass feedstock development and use.                                       | March 2010 |
| <a href="#">Bioenergy Knowledge Discovery Framework</a>  | A summary of the Framework, which provides a means for a broad range of users to access, synthesize, analyze, and visualize biomass-related information in a variety of ways.                                       | March 2009 |
| <a href="#">Using Spatial Analysis to Solve our Complex Bioenergy Challenges</a>   | A summary about how the Program is supporting advanced analyses using Geographic Information Systems (GIS).   | March 2010 |
| <p><b>Conversion Technologies</b><br/>         The Biomass Program focuses its conversion activities on two routes: biochemical and thermochemical. These efforts focus on technologies and processes that can reduce the cost and increase the efficiency of producing biofuels, bioproducts, and biopower. These documents provide information about the steps involved in biochemical and thermochemical conversion and highlight Program activities in conversion and efforts to achieve improvement.</p>  |   |            |
| <a href="#">Using Heat and Chemistry to Make Products, Fuels, and Power: Thermochemical Conversion</a>   | Information about the Program's collaborative projects exploring thermochemical conversion processes that use heat and chemistry to convert biomass into a liquid or gaseous intermediate.                          | March 2010 |
| <a href="#">Using Fermentation and Catalysis to Make Fuels and Products: Biochemical Conversion</a>  | Information about the Program's collaborative projects to improve processing routes for biochemical conversion, which entails breaking down biomass to make the carbohydrates available for conversion into sugars. | March 2010 |
| <p><b>Integrated Biorefineries</b><br/>         The Biomass Program's investment in integrated biorefineries at the pilot, demonstration, and commercial scale constitute a cornerstone of the program. Our projects employ various combinations of feedstocks and conversion technologies to produce a variety of biofuels, as well as by- or co- products that include chemicals, heat, and power. The March 2010 overview document, Economy Through Product Diversity: Integrated Biorefineries provides information on project locations and details such as feedstocks and technologies used as well as the products IBRs intend to generate.</p> |   |            |
| <a href="#">Economy Through Product Diversity: Integrated Biorefineries</a>  | A general discussion of the integrated biorefinery concept, the Biomass Program's related activities and challenges and specific biorefinery projects being funded through the Program.                             | March 2010 |
| <p><b>New Program Initiatives</b><br/>         The Biomass Program continually evaluates its portfolio in an effort to foster the growth of emerging technologies and explore new pathways toward sustainable, renewable energy. These documents provide information about Program activities in these areas, which include biopower and algae.</p>  |   |            |

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| <a href="#">Biopower</a>   | For our recently reinvigorated focus on biopower, this provides information on our planned way forward in R&D and our Program's focus on improving efficiencies and overcoming barriers in generating electricity and thermal energy from biomass.   | March 2010    |
| <a href="#">Algal Biofuels</a>   | A timely overview of how algal biofuels are generating considerable interest, and represent promising pathways to potentially help meet the biofuel production targets set by the Energy Independence and Security Act of 2007.  | March 2010    |
| <a href="#">Bioindustry Creates Green Jobs</a>   | A general discussion of how the Biomass Program's development of advanced technologies and real-world solutions support green job creation and retention.  | March 2010    |
| <b>DESIGN REPORTS/CASE STUDIES</b>   |  |               |
| Design reports and case studies provide a range of more in-depth information about biomass technologies. Elements of these documents include process designs, technoeconomic evaluations, state of technology assessments, and cost and production targets as well as many other key resources, data, and information. |  |               |
| <a href="#">Design Case Summary: Production of Gasoline and Diesel from Biomass via Fast Pyrolysis, Hydrotreating, and Hydrocracking</a>   | This case study takes a look at the current state of conversion technologies in an effort to determine where improvements need to take place in the future. This design case is the first to establish detailed cost targets for the production of diesel and gasoline blendstock from biomass via a fast pyrolysis process. | February 2010 |
| <a href="#">Thermochemical Design Report: Thermochemical Ethanol via Indirect Gasification and Mixed Alcohol Synthesis of Lignocellulosic Biomass</a>  | This process design and technoeconomic evaluation addresses the conversion of biomass to ethanol via thermochemical pathways that are expected to be demonstrated at the pilot-unit level by 2012.   | April 2007    |
| <a href="#">Biochemical Design Report: Lignocellulosic Biomass to Ethanol Process Design and Economics Utilizing Co-Current Dilute Acid Prehydrolysis and Enzymatic Hydrolysis for Corn Stover</a>   | This design report focuses on potential process designs and estimates the economics of each process related to the development of ethanol from lignocellulosic feedstocks as an alternative to conventional petroleum-based transportation fuels.  | June 2002     |
| <b>PLANS, ROADMAPS, AND REPORTS</b>  |  |               |

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The Biomass Program is always working to further its efforts to achieve its strategic goals, performance goals, barriers, and prioritizations of those barriers. Annual budget and appropriations processes, internal guidance, specific legislation, and results from our partnerships all influence the Biomass Program's direction.

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| <a href="#">Algal Biofuels Technology Roadmap</a>   | <p>This roadmap presents information from a scientific, economic, and policy perspectives that can support and guide RD&amp;D investment in algal biofuels. While addressing the potential economic and environmental benefits of using algal biomass for the production of liquid transportation fuels, the Roadmap describes the current status of algae RD&amp;D.</p> | <p>June 2010</p>                    |
| <a href="#">Multi-Year Program Plan</a>   | <p>This plan details the strategic and performance goals, targets, activities and milestones across the biofuels supply chain designed to help achieve national goals and support EERE's priorities for energy.</p>  | <p>March 2010<br/>(last update)</p> |
| <a href="#">Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, Report 1</a>                            | <p>This report provides the results of the U.S. Department of Energy's test program to evaluate the potential impacts of intermediate ethanol blends on legacy vehicles and other engines.</p>   | <p>February 2009</p>                |
| <a href="#">Breaking the Chemical and Engineering Barriers to Lignocellulosic Biofuels: Next Generation Hydrocarbon Biorefineries</a>     | <p>This roadmap outlines a number of novel process pathways for biofuels production based on sound scientific and engineering proofs of concept demonstrated in laboratories around the world. This report was based on the workshop of the same name held June 25-26, 2007 in Washington, DC.</p>   | <p>March 2008</p>                   |
| <a href="#">Top Value Added Chemicals from Biomass - Volume II, Results of Screening for Potential Candidates from Biorefinery Lignin</a> | <p>This report evaluates lignin's role as a renewable raw material resource. Opportunities that arise from utilizing lignin fit into three categories: power, fuel and syngas (generally near-term opportunities); macromolecules (generally medium-term opportunities); and aromatics and miscellaneous monomers (long-term opportunities).</p>                         | <p>October 2007</p>                 |

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| <p><a href="#">Roadmap for Biomass Technologies in the United States</a></p>   | <p>This roadmap report represents the collective assessment of the Biomass Research and Development Board's Technical Advisory Committee, which is comprised of experts from industry and academia. It identifies research and policy measures needed for converting our nation's biomass resources into economically and environmentally desirable biobased fuels, power, and products</p>   | <p>October 2007</p>  |
| <p><a href="#">Vision for Bioenergy and Biobased Products in the United States</a></p>   | <p>This vision, established by the Biomass Research and Development Technical Advisory Committee, defines a set of achievable quantitative goals to help the United States transition from a fossil-fuel-based economy to a biobased economy.</p>   | <p>December 2006</p> |
| <p><a href="#">Breaking the Biological Barriers to Cellulosic Ethanol: A Joint Research Agenda</a></p>   | <p>This roadmap presents findings from the Biomass to Biofuels Workshop, held December 7–9, 2005, which was convened by the Department of Energy's Office of Biological and Environmental Research in the Office of Science; and the Biomass Program in the Office of Energy Efficiency and Renewable Energy. The purpose was to define barriers and challenges to a rapid expansion of cellulosic-ethanol production and determine ways to speed solutions through concerted application of modern biology tools as part of a joint research agenda.</p> | <p>June 2006</p>     |
| <p><a href="#">Biomass as Feedstock for a Bioenergy and Bioproducts Industry: The Technical Feasibility of a Billion-Ton Annual Supply</a></p> | <p>This analytical report aims 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 Biomass R&amp;D Technical Advisory Committee in their vision for biomass technologies. Accomplishing this goal would require approximately 1 billion dry tons of biomass feedstock per year.</p>  | <p>April 2005</p>    |

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| <p><a href="#">Top Value Added Chemicals from Biomass - Volume I, Results of Screening for Potential Candidates from Sugars and Synthesis Gas</a></p> | <p>This roadmap report identifies twelve building block chemicals that can be produced from sugars via biological or chemical conversions. The twelve building blocks can be subsequently converted to a number of high-value bio-based chemicals or materials.</p>  | <p>August 2004</p> |
| <p>Biopower Technical Strategy Workshop<br/>Summary Report</p>  | <p>This report summarizes the results of a December 2009 Workshop sponsored by the DOE/EERE Biomass Program. The workshop was convened to identify and discuss challenges to the expanded use of biopower and the possible solutions, including technology research, development, and demonstration (RD&amp;D) as well as policies and other market transformation mechanisms. The report outlines those results in an effort to influence future Program efforts.</p> | <p>Coming Soon</p> |