

**Section: BIOREFINERIES**  
**Fuels, Technologies and Feedstocks in Planned Biorefineries as of 2008**

<b>Liquid Fuel Types Planned</b>		
Ethanol	Propanol	Biogasoline
Methanol	Fischer-Tropsch diesel fuel	Lignocellulosic biodiesel
Bio-butanol	Renewable Crude Oil	Jet Fuel
<b>Technologies Involved in Production of Biofuels and Bioproducts</b>		
Weak Acid Hydrolysis	Component of ethanol production, see BIOFUELS "The Ethanol Production Process - Dry Milling"	
Enzymatic hydrolysis	Component of ethanol production, see BIOFUELS "The Ethanol Production Process - Dry Milling"	
Engineered microbes	Component of ethanol production, see BIOFUELS "The Ethanol Production Process - Dry Milling"	
Specialty enzymes	Component of ethanol production, see BIOFUELS "The Ethanol Production Process - Dry Milling"	
Steam explosion hydrolysis	Alternative to weak acid hydrolysis for feedstock pretreatment	
Strong acid hydrolysis	Alternative to weak acid hydrolysis for feedstock pretreatment	
Hydrogenolysis process	<a href="http://www.patentstorm.us/patents/4661643">One of several patent descriptions found at http://www.patentstorm.us/patents/4661643</a>	
Organosolv process	<a href="http://www.patentgenius.com/patent/4470851.html">One of several patent descriptions found at http://www.patentgenius.com/patent/4470851.html</a>	
Fischer-Tropsch process	<a href="http://wikipedia.org/wiki/Fischer-Tropsch">See http://wikipedia.org/wiki/Fischer-Tropsch for explanation</a>	
Gasification*	A thermochemical process creating a synthesis gas that can be transformed by catalysts or microbes to biofuels/bioproducts	
Biomass Fractionation*	Separation of biomass components prior to pretreatment for a wide variety of possible end-products	
Proprietary technologies*	Several proprietary technologies have been proposed	
<b>Feedstocks Planned for Production of New Biofuels and Bioproducts</b>		
<b>Agricultural Residues</b>	<b>Industry and Municipal Residuals</b>	
Citrus Waste	Municipal solid waste	
Corn cobs, fiber and stover	Yellow/trap grease	
Grain, rice and wheat straw	Construction waste	
Leafy material	Urban wood waste	
<b>Energy Crops</b>	<b>Other Woody Biomass</b>	
Miscanthus	Hazardous forest fuels (thinning & slash)	
Specially bred energy cane	Material from habitat restoration	
Switchgrass	Logging and mill residues	
Poplar, willow, and pine trees		

**Source:**

The information presented above is largely derived from the fact sheet on cellulosic biofuels developed in July 2008 by Justin Mattingly, Fahren Robb, and Jetta Wong of the Environmental and Energy Study Institute ([www.eesi.org](http://www.eesi.org)). Oak Ridge National Laboratory staff added links for additional information.

**Note:** More information can be found at:

<http://www1.eere.energy.gov/biomass/factsheets.html>