



# Biomass Program

## Mississippi Ethanol Gasification Project

The Mississippi Ethanol Project is a Congressionally-mandated effort to develop and demonstrate technologies for the conversion of biomass to ethanol in the State of Mississippi. The gasification portion of the project involves the development, design, and construction of a biomass gasification system that will convert a wood waste feedstock to a synthesis gas (syngas) consisting of hydrogen, carbon oxides, methane, and higher molecular weight hydrocarbon compounds. These could subsequently be converted to ethanol and other fuels and chemicals.

Researchers will build a small pre-pilot scale version of a planned pilot plant that can be used for evaluating the effect of feedstock variability and to identify scale-up parameters. The 1/10<sup>th</sup> scale model of the pilot plant design will be constructed at Mississippi State University's Diagnostic Instrumentation and Analysis Laboratory Test Facility, where design, construction, and testing capabilities already exist.

Ultimately, researchers hope to complete a pilot scale facility in Winona, Mississippi, to demonstrate the viability of the process.



Photo: NREL

### Path Forward

Initial research will focus on design, construction, and testing of the gasifier pre-pilot unit. Results of small-scale testing will be used to direct the engineering design for the pilot scale unit.

MSU will undertake bench scale research activities to determine the technologies that are best suited for processing the gasification product stream. Effort will be undertaken to identify candidate organisms that can then be evaluated in a 70 liter per day bench scale pilot unit. The biological pilot unit will be operated in concert with the 1/10<sup>th</sup> scale gasification pilot unit.

## Congressionally Directed Integrated Biorefineries R&D

### Benefits

- Practical use of wood wastes
- Demonstration of biomass gasification at pilot scale

### Applications

This project will create a biomass gasification system that can convert wood waste to a usable synthetic gas for use as a feedstock for fuels and chemicals.

### Project Participants

Mississippi Ethanol, LLC  
Mississippi State University

### Project Period

FY 2002 – FY 2007

### For more information contact:

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