



## Supplying Equipment for Woody Biomass Projects: PRM Energy Systems, Inc.

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As communities and industries explore the use of different fuel sources to generate energy, the type of generating equipment required for certain fuel types and potential equipment suppliers also become important considerations. Along with several other factors, the cost, efficiency, reliability, and availability of generating equipment may affect which types of fuel are chosen. There are many suppliers who produce equipment for energy generation, with some companies specializing in the technologies required for converting biomass to energy. The following report provides a description of an equipment supplier who builds and distributes biomass gasification systems.

PRM Energy Systems, Inc. (PRME) in Hot Springs, Arkansas has provided energy solutions for over twenty years. PRME serves private and public power producers on five continents. The company's mission is to continue to provide customers with the most reliable, efficient, and economical energy solutions available. Currently, the Hot Springs office employs five people and sells one to two industrial systems for co-generation every year.

The PRME gasification technology originally was developed, installed, and patented at Producers Rice Mill, Inc. in 1982, under the direction of Ron Bailey Sr., while he was president of Producers Rice Mill from 1967 to 1988. The first two gasifiers were designed to gasify rice husks to produce process heat and steam for a large rice parboiling facility. In 1988, Bailey acquired the name and the technology and began marketing the technology worldwide. Today, twenty-four commercial PRME gasifiers operate around the world; they use a variety of fuels and produce energy outputs that include steam, electrical power, heat, and combinations of these three energy forms (Box 1).

From 1984-88, many types of biomass fuels were tested in full-scale PRME gasifiers, including rice hulls, chicken litter, green bark, sawdust, wood chips, peat, wheat straw,

### Box 1. Project Types under Development

- **Heat and/or Steam Application Projects** – gasify waste materials to produce heat for industrial drying applications or low-pressure, saturated steam for an industrial process.
- **Co-generation Projects** – produce electricity and process steam through extraction turbines; some supply process heat from boiler exhaust.
- **Electrical Projects and Demonstration Systems** – including commercial gasifier/engine systems.

corn cobs, peanut hulls, petroleum coke, processed municipal solid waste (RDF), cotton gin waste, and low-grade coal. All of these waste fuels were successfully converted to gas. PRME's gasification technology has a long-standing performance record for rice residue-fired systems: since 1982, in the United States; 1985, in Australia; 1987, in Malaysia; and 1995, in Costa Rica. PRME's customers include governments, Fortune 500 companies, small industries, cities, rice mills, and investors. This unique market also creates a demand that allows the company to continually expand. Bailey states that to date, PRME has "gasified more than seven million tons of biomass" and has "systems that have been operating around the clock for over twenty-five years with minimum maintenance and supervision."

Features of PRME technology include maximum versatility to handle all types of waste fuels (including a wide range of moisture contents), less energy input, and continuous ash recovery. Only a few of the systems operate on fuels that need drying, and if necessary, PRME also provides drying systems. Systems range from 750 kilowatts to 10 megawatts (MW) for single units and up to

120 MW in module units. Typical applications include boilers and steam systems, furnaces and process heat systems, rotary dryers, kilns, thermal oil systems, steam turbines, co-generation plants, internal combustion engine, and combustion turbine power generating systems. Some PRME gasification systems cost about \$1.5 million and are delivered by various methods including trucks and barges.

As a supplier of energy generating equipment, it appears PRM Energy Systems Inc. will continue to fulfill its mission to provide customers with the reliable, efficient, and

economical energy solutions. Understanding that such suppliers exist and are constantly working to improve their products is helpful for communities and industries in the process of developing an energy plan.

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