Electricity from Biomass

Overview

Biomass is a general term for all of the Earth's plant and animal matter. In the renewable energy industry, however, biomass usually refers to: (1) energy crops grown specifically to be used as fuel, such as fast-growing trees; (2) agricultural residues and by-products, such as straw, sugarcane fiber, and rice hulls; and (3) residues from forestry, construction, and other wood-processing industries. (*Note: As defined here, biomass does not include municipal solid waste or landfill gas.*)

Biomass currently accounts for around 1% of total U.S. electric generating capacity, or 8% of the country's renewable-source generating capacity. In 1995, there was approximately 7700 MW of grid-connected biomass power capacity in the United States.

According to a 1992 study by Meridian Corporation and Antares Group Inc., the biomass power generation industry employs more than 66,000 people nationwide. In 1992, the industry created more than $1.8 billion in personal and corporate income, and generated more than $460 million in federal and state taxes.

Because biomass power activities tend to be concentrated in rural areas, this technology offers a great opportunity for revitalizing rural America. The U.S. Department of Energy (DOE) estimates that a concerted effort to develop dedicated energy crops for biomass power plants could generate 120,000 new jobs over the next 15 years.

Success Stories

Maine: Leading the Nation

Maine obtains a greater percentage of its electricity from nonhydro renewable sources than any other state. The biomass power industry generates 25% of Maine's electricity and supports 2780 jobs in wood harvesting and transport, power plant construction and operation, and associated retail and service sectors. The industry has nearly 500 MW of installed capacity in 21 generating plants.

Northern States Power/PIX00240

The biomass power industry creates thousands of jobs in fuel production and harvesting for rural workers, such as this grapple operator on a tree farm in Oregon.

"Small power producers ... have been one of Maine's largest sources of new employment and investment."

— **State Planning Office of Maine, quoted in *Energy Choices Revisited: An Examination of the Costs and Benefits of Maine's Energy Policy*, Mainewatch Institute, 1994**

In rural districts with limited employment opportunities, a single power plant can have a critical impact on the local economy. This is the case with Fairfield Energy Venture, a 32-MW biomass plant located in the town of Fort Fairfield in northeastern Maine.

Everyone's a Winner

The Fairfield Energy facility provides approximately 140 jobs (38 at the plant and about 100 in wood harvesting) and more than 30% of the town's property tax base. With a population of 4000, and only about 1270 jobs available in the area, the biomass plant is vital to the health of the town's economy. "We consider ourselves lucky to have the energy plant," acknowledged a representative of the Fort Fairfield Chamber of Commerce.

The biomass plant has generated substantial economic benefits for the local and state economies, both during initial construction and since. The facility was completed in 1988 after a two-year construction period. During this phase, the plant's developers spent more than $8 million in the state of Maine, including $5.3 million paid in wages to local workers for on-site assembly and construction.