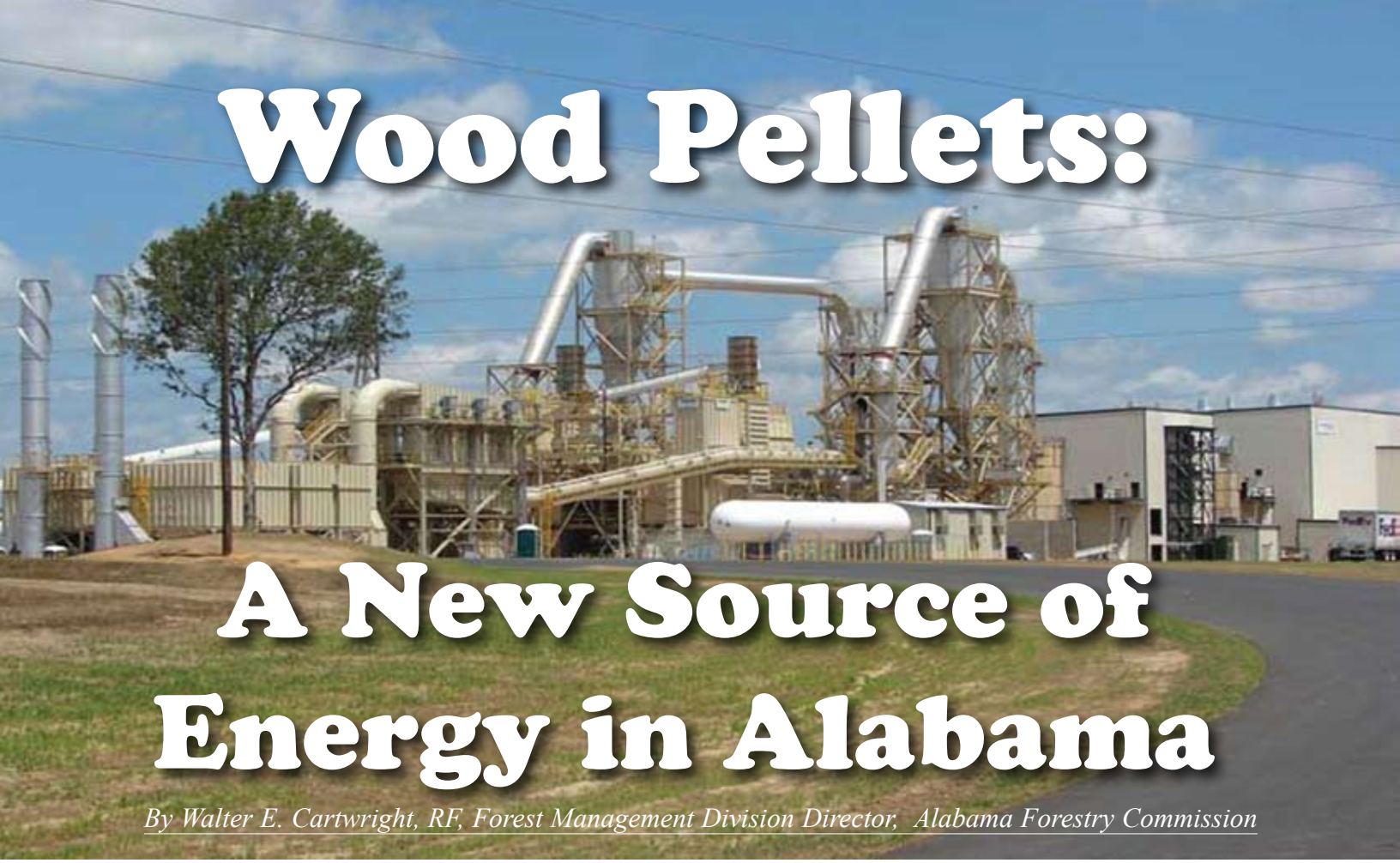

Wood Pellets: A New Source of Energy in Alabama

By Walter E. Cartwright, RF, Forest Management Division Director, Alabama Forestry Commission

The wood pellet industry is relatively new to the South, but it's been around for decades in New England where the little round wood pellets are burned in home heaters. We have seen a tremendous expansion of the pellet industry in the US recently, driven by last year's fuel shortage and increase in price, as well as by the export opportunity. Conventional fuel prices have skyrocketed, all petroleum fuels have increased significantly, and coal prices have tripled to $150 per ton. Since coal makes up about 50 percent of an electric utility's fuel portfolio, consumers will see higher rates for electricity. Pellet plants are utilizing woody biomass (logging residuals, sawdust, bark, and small trees) to produce pellet fuels. Wood pellets, chips, waste paper, cordwood, and other agricultural by-products are all categorized as biomass fuels.

The attraction of biomass fuel is that we have an ample supply in the Southeastern forests and it is renewable. Once fossil fuels are removed from the ground and used, they are gone forever. Trees can always be replanted. Wood pellet proponents point to numerous advantages over fossil fuel. For one thing, pellet high density and uniform shape means they can be stored in standard silos and easily transported by rail or barge. They can be unloaded directly from barges to ships without using any dock space.

Pellets also pose none of the explosion risks or environmental pollution from spills as non-renewable fossil fuels do. Also, when biomass such as wood pellets are heated, carbon dioxide is released into the atmosphere. Trees absorb it in equal amounts as they grow, so burning pellets does not increase the amount of greenhouse gas in the atmosphere.

Production issues include a consistent, known local supply of fiber that can be managed to have a consistent blend of material. This requires managing suppliers, watching chip quality, wood yard management, and pile turning and blending. The drying process is run to prepare the material, and dryers cannot be cycled up and down to meet varying chip properties. The extrusion process is a source of proprietary knowledge where companies have to design and change the dies for pellet diameter, hole length, and hole profile; all of which would change if the feedstock is varied. Specifications even vary from pine to hardwood to woody material with large amounts of bark. Companies also have emissions issues with heating wood and losing some Volatile Organic Compounds. The operations are run 24 hours a day, 7 days a week to maximize annual production and fully utilize the dryers being used.

Current wood pellet production capacity is not able to meet peak demand. In 2007, total North American pellet production was nearly 3 million tons, with worldwide production nearly 7 million tons. Some experts estimate that European consumption by 2010 will top 12 million tons. Driving this growth is a push by European utilities to cut carbon dioxide releases from fossil fuels in an effort to combat global warming. Pellets are also burned to heat buildings in parts of North America and Europe.

The accompanying photographs show the world's largest pellet production facility, Green Circle Bio Energy, a 560,000-ton per year plant in Cottondale, Florida. Beginning production this year with state-of-the-art equipment, the owners are fine-tuning the operation for maximum wood pellet production.

Recently constructed near Baxley, Georgia, is "Appling County Pellets, LLC." This 145,000-ton-per-year capacity pellet plant is operated by Fram Renewable Fuels.

Other such mills are under construction across the Southeast, targeting power plants in Europe that substitute pellets for coal or natural gas in an attempt to cut carbon dioxide emissions. New Gas Concepts is planning to build a 500,000 ton per year pellet plant near Jackson, Alabama, in Clarke County. "DG Pellets I" will be located in the industrial park on Highway 177, about a mile east of U.S. 43 on the city's south side.

The same company is also starting production at a similar plant in Selma, called "Dixie Pellets." This $75 million facility is expected to employ 80 to 100 people. Dixie Pellets will have an annual capacity of 500,000 tons, making it the world's second largest plant. The Selma operation is dependent on a barge channel down the Alabama River. With low flows, they may truck pellets to Demopolis to ship them down the Tombigbee River, which also runs near the Jackson site.

Meanwhile, pine pellets manufactured near Gordo, Alabama, in Pickens County are being sold as cat litter!

These plants in Alabama, Georgia, and Florida represent a significant increase in pellet production. The Pellet Fuels Institute website lists over 80 member companies producing in excess of one million tons. Prior to the newest round of plants, the largest in the US was a 200,000-ton per year

operation. The listed capacities are dry tons of product. Multiply by 4 to estimate green tons of feedstock required. The Alabama/Florida plants will consume about 3.5 - 4.5 million green tons of feedstock.

References:

Pellet Fuel Information Notes – Dr. Bob Rummer, USDA Forest Service, Auburn, Alabama

www.pelletheat.com Fuel cost comparison chart, primarily residential application.

www.pelletheat.org Website for the Pellet Fuels Institute, a trade group. Good information on this site such as fuels standards.

Below: Wood and chip piles at Green Circle Bio Energy pellet plant in Cottondale, Florida. Inset: Dry storage facility at Green Circle Bio Energy pellet plant.

Photos used with permission of Green Circle BioEnergy, Inc.