



WOOD^{to} ENERGY

Case Study

Using a Mix of Fuels to Produce Heat and Power

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The town of New Bern is situated on the southeast coast of North Carolina, where the Trent and Neuse rivers meet and flow into the Atlantic Ocean. The 25,000 residents who call New Bern home enjoy moderate temperatures and beautiful scenery. Popular trolley tours show visitors around the second-oldest city in the state, stopping at such historical sites as Tyron Palace and Gardens and an old pharmacy officially known as the Birthplace of Pepsi-Cola (Figure 1).



Figure 1. New Bern offers residents and visitors a number of attractions in a historical, coastal setting. PHOTO COURTESY OF KELLER WILLIAMS REALTY.

About five miles outside of town, within the Craven County Industrial Park, a biomass-fueled generating plant supplies the electrical grid system with 50 megawatts of energy daily. Craven County Wood Energy is a Limited Partnership owned and operated by affiliates of CMS Energy Corporation and Decker Energy International, Inc. The original plan for bringing renewable energy production to the area involved a peat burner in neighboring Hyde County. Peat is partially decayed vegetation typically found in wetland areas. That plan ran into some permitting obstacles, however, and the power contract was used instead to construct the Craven County facility in 1990.

The facility uses approximately 500,000 tons of waste wood per year. Ten percent of fuel is railroad ties, 6 percent is wood shavings from poultry brooder houses, and the remainder is wood waste from forest thinnings, pallets, land-clearing debris, harvest residues, sawmills, and clean urban waste wood. The facility uses two tippers to receive approximately 100 truckloads per day. Six of the

facility's thirty-five acres are used to store two open-air wood piles which are rotated constantly. Since the fuel is not dried, it is combusted in a boiler designed to handle wood that has 50 percent moisture content. However, because railroad ties and poultry waste tend to be drier, the facility actually operates at closer to 40 percent moisture content. Up to 423,000 pounds of steam can be produced in one hour to turn the turbine at 3,600 revolutions per minute. Air emissions are controlled with a Zurn multi-cyclone mechanical dust collector and a Research-Cottrell Electrostatic Precipitator.

The Craven County facility enjoys a positive relationship with the surrounding community. Twenty-six people are employed at the facility, and approximately seventy-five more work indirectly to meet fuel production and transportation needs. To increase community awareness about local energy systems, local schools often tour the facility. Also, with the help of the North Carolina State

University Extension Service, the 20,000 tons of fly ash produced each year are collected and distributed to local farmers as fertilizer. The ash contains potassium, phosphate, and other elements that help enrich soil and raise soil pH. This program became a success after the North Carolina Department of Environment, Health, and Natural Resources, Division of Solid Waste agreed to classify the ash as a soil amendment for agricultural purposes.

Since the Craven County facility is dependent upon the waste of other industries, there is some concern for the future of its fuel supply. A decline in the forest products industry would reduce the amount of economical fuel available. Increased competition for wood waste by other biofuel industries may also impact supply and cost in the future. Yet, having overcome fuel-related challenges before, such as excessive rainfall during hurricanes, CEO Wade Bennett says the Craven County project has been

successful overall. To others considering a wood-to-energy facility, he suggests making sure assumptions about fuel supply are accurate and he recommends using a facility designed to handle the available resources.

For more information regarding specific concerns about wood-to-energy facilities, refer to the other fact sheets, case studies, and community economic profiles available in this series at <http://www.interfacesouth.org/woodybiomass>. Additional information is available at <http://www.forestbioenergy.net>.

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