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WOOD to ENERGY

Case Study

Forest Industry Creates Its Own Power

Jon E. Berg, Andres Villegas, & Martha C. Monroe

Valdosta is located along Interstate 75, approximately 18 miles north of the Georgia-Florida border, on Georgia's coastal plain. A vibrant community with a strong economy, Valdosta is considered south-central Georgia's commercial center, anchored by Valdosta State University, Moody Air Force Base, and South Georgia Medical Center.

Once dominated by farming, Valdosta's economy has expanded to include a variety of commercial enterprises and industrial manufacturing facilities. Yet agriculture —specifically row crops, vegetables, and tobacco—and forestry remain at the center of the local economy. Three of the forest industry's major local employers are Packaging Corporation of America, Truss-Joist/Weyerhaeuser, and The Langdale Company.

The Langdale Company is a 113-year-old, vertically integrated, family-owned company that produces a variety of wood-based products including lumber, utility poles, marine pilings, barn poles, oriented strand board (OSB), medium-density fiberboard (MDF), pattern lumber, MDF moldings, and doors and windows (Figure 1). Vertical integration means the company is involved in different aspects of forest product production such as growing, harvesting, processing, marketing, and retailing.

Throughout its history, The Langdale Company has focused on maximizing the use of resources and reducing waste from its operations. This has led to investments in the production of OSB, MDF, and energy from unmerchantable by-products of manufacturing processes and forestry operations. These investments in industrial forest products facilities, in turn, have helped secure the future of local and regional forests.

Although the pulp and paper industry has been producing power from woody biomass for sixty years, the co-generation power station constructed at Langboard OSB in Quitman, Georgia, is one of the first co-generation ("co-gen") plants built at an engineered or solid wood facility in the southeastern United States. Inaugurated in January 2006, the co-gen produces up to 12 megawatts of power by using the excess heat and steam from the combustion of biomass sources to produce electricity, which

Figure 1. *Langdale industries produces a wide variety of forest products including lumber.* Photo by Tim Scott, USDA Forest Service Products Laboratory.

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is conveyed directly onto the energy grid. Fuel types used in the co-gen facility include mill residues (bark, shavings, dust) and chipped logging slash and understory (unmerchantable materials).

Round wood and biomass chips are delivered to the facility from privately owned forests within a radius of forty to sixty miles of the plant. A significant amount of fuel is also produced at the plant as a by-product of the OSB manufacturing process.

In conjunction with the University of Georgia's Warnell School of Forestry and Natural Resources, the company has developed a system to collect fuel for the co-gen plant from the forest during the initial timber harvest. Logging slash (residuals) and understory material brought back to the logging deck are chipped using a small Conehead 280 horsepower chipper. This chipper is used both with and without a delimbing gate, depending on the type of harvest being conducted and the amount of understory available for harvest. Timber is harvested in accordance with Georgia's Best Management Practices by loggers who are Certified Master Timber Harvesters. Logs harvested for the production of OSB are stored on the log deck and undergo atmospheric drying before processing. Fuel wood produced from mill operations is stored in a fuel bin, and fuel chips delivered into the plant are stored on an open pad.

The co-generation plant is part of a major mill expansion that was completed in 2006. The expansion allowed the mill to become independent of fossil fuels, relying solely on biomass to produce the heat and steam necessary to operate the plant and meet air quality standards. As with any new venture, there are many technological and operational obstacles to overcome. This project has not achieved the full success that was originally envisioned, as the ability of the facility to produce power has been limited. However, it has reached an important milestone by being the only fossil-fuel independent OSB mill in the United States.

The Langdale Company will continue to focus on ways to capture and utilize waste materials from the local forestry and mill operations to produce energy, liquid fuels, and chemicals. In order to advance a biomass industry in the South and achieve greater collaboration and expertise, the company will continue to work with its engineering and equipment vendors, the USDA Forest Service's Forest Products Laboratory, the University of Georgia's Warnell School of Forestry and Natural Resources, and the University of Georgia's Faculty of Engineering.

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.

Authors

Jon E. Berg, Outreach Assistant, School of Forest Resources and Conservation, University of Florida, Gainesville, FL; Andres Villegas, Manager of International Business, Research & Government Affairs, Langdale Industries, Inc., Valdosta, GA; and Martha C. Monroe, Associate Professor, School of Forest Resources and Conservation, University of Florida, Gainesville, FL.

Reviewers

Larry Fudge, Procurement Manager, Langdale Industries, Inc., Valdosta, GA, and Phillip Badger, Bioenergy Technical Director, Southern States Energy Board, Florence, AL.

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