



WOOD^{to} ENERGY

Case Study

Wood-powered Whiskey

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According to local residents, Lynchburg, Tennessee in Moore County is so far off the beaten path that people don't pass through on their way to somewhere else. If you find yourself there, either it is your intended destination or you must be lost. With a population of less than five hundred, Lynchburg is a small town—not quite fifty miles north of Huntsville, Alabama, and less than one hundred miles northwest of Chattanooga. The local Chamber of Commerce boasts you will not find strip malls and super stores, fast food restaurants, or high-rise buildings in Lynchburg. It has a slow, small-town pace and that's just the way residents like it. Among the rolling hills, horse and cattle farms, quaint shops, and friendly people is the nation's oldest registered whiskey distillery, Jack Daniel's (Figure 1). Interestingly, Moore County is a dry county and has been since the days of Prohibition.

Jack Daniel's not only produces world-famous whiskey, but also recycles a lot of wood. The company uses over five hundred wooden barrels a week to age the whiskey and no barrel is used more than once. After use, most barrels are sold for the production of scotch or other spirits that require used barrels; others are sold as trash barrels or used in furniture. The barrels are more valuable when reused this way. Jack Daniel's also uses wood to make its own charcoal, which is used in the mellowing stage of the whiskey-making process. Stacks of wood called "ricks" are created from sugar maple trees and burned slowly to produce charcoal. All Jack Daniel's whiskey is passed through ten feet of charcoal inside a mellowing vat.

Jack Daniel's also uses wood to produce the steam needed for the distillation process. The company has operated two wood-fired boilers since 1981. The boilers originally were designed to use wood, coal, gas, or oil, but have since been converted to use wood only. According to George Stone, Jack Daniel's laboratory manager, hardwood waste from local sawmills within about a 100-mile radius of the distillery serves as the primary source of boiler fuel. The distillery also partners with a number of local industries to acquire used wood pallets. These pallets are either reused for shipping or used as boiler fuel. Not only does this practice prevent the pallets from ending up in the landfill, it provides the distillery with a source of dry wood, thereby reducing air emissions and cutting costs. In the past, facility staff experimented with urban wood waste but found it difficult to control the quality of their supply. In their experience, inconsistent wood chip size and contamination by foreign materials make this source unreliable.



Figure 1. The Jack Daniel's Distillery brings visitors to the small town of Lynchburg, Tennessee.

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The facility uses up to 400 tons of woody biomass per day, which is transported by truck in 10 to 20 truckloads. The wood typically is not dried prior to delivery and is stored on-site near the boilers. While some of the storage area is covered, most of the wood is stored outside. Following combustion, ash from the boilers is removed and either used as soil conditioner or added to compost, which is sold or used on-site.

The company's efforts to use wood for energy have been supported by the public and local government. The community recognizes that this practice helps divert waste wood that would otherwise overwhelm landfills or be piled in fields and openly burned. Jack Daniel's has received numerous awards for its wood recycling efforts. In 1995, the Tennessee Association of Business presented Jack Daniel's with its Excellence in Solid Waste Management Award. In 1996, the facility received an Environmental Award from the American Feed Industry Association in recognition of outstanding efforts in recycling and waste reduction for the preservation of the environment.

George Stone is proud of the operation and says he would certainly encourage other facilities to use wood for boiler fuel. To help ensure success, he recommends selecting boilers that are designed specifically to use wood.

Although the management consider their operation a success, the Jack Daniel's company has no plans to expand its wood-fueled facility. In terms of maintaining its

fuel supply, it has no guarantees from wood suppliers, so availability is a concern. Also, as energy prices increase, the effect on supply and cost of wood must be considered. After years of improving and adjusting its system, the company is pleased with its operation. If the company were to start over tomorrow, Stone says he thinks it would begin with a boiler designed exclusively for wood fuel and would simplify the wood-handling system.

Jack Daniel's enjoys the support the support of the community and is pleased with the decision to use wood. The company's efforts to produce a quality product, while finding innovative ways to optimize its use of natural resources and reduce burdens on landfills, make it an interesting and inspiring example of woody biomass use.

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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