



## Burgeoning Bioenergy Investments Begin To Rattle The Forest Products Industry

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By: Peter J. Stewart

In July, two notable events occurred in South Carolina, events that could have a significant effect on wood fiber markets in the state. First, the Savannah River National Laboratory announced it has completed plans for a pilot plant to test and demonstrate methods for converting regional crops into clean, locally produced cellulosic ethanol. Second, Santee Cooper announced it is in discussions with several independent power producers to purchase 50 MW of electricity (enough to power 25,000 homes) generated from forest biomass, specifically wood chips from forest residue.

These events mark the beginning of a shift in the tectonic plates that underlie the forest products industry as we know it.

Several factors have brought us to the brink of this change. The explosive combination of economic and national security interests in the US, including high energy prices and the need to reduce US reliance on foreign oil, have

intensified the focus on alternative, domestic sources of energy. Pressure to reduce carbon emissions has been mounting at the same time. As a result, government incentives and funding for alternative energy sources favor renewable sources that produce “green” energy.

Because forest biomass is a renew-

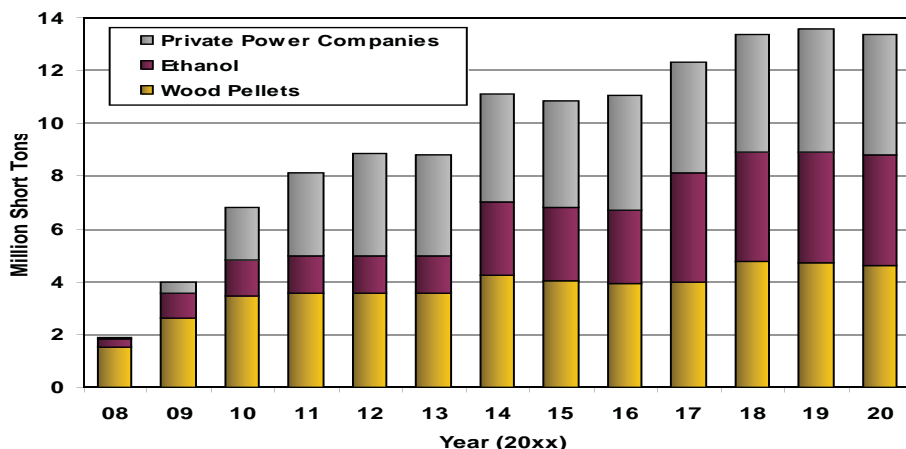
able resource and because it produces energy that is significantly cleaner than petroleum or coal, turning wood fiber into transportation fuel (cellulosic ethanol) or converting it into heat and/or electricity (through cogeneration) are logical next steps. Another growing market, the incineration of wood pellets to produce heat has already made its mark on the forest products industry, with 20 pellet manufacturers in the US South; the vast majority of these companies export pellets to Europe where there is a growing industrial and residential market.

These bioenergy end uses for wood fiber will emerge as significant sources of demand for forest biomass. The scope of new projects in these industries—those announced and those yet unannounced—will require massive quantities of wood fiber, enough in aggregate to affect the entire wood fiber market in the US South. The change is likely to be more significant than the change we saw as a result of the OSB market that emerged in the 1990s.

Many believe that the supply to meet this growing demand already exists in the residues left behind after harvest—the slash, limbs, and stumps remaining after merchantable timber has been hauled away. This is not the case. Two things will prevent this from providing an adequate supply for the new markets, at least in the short term.

First, the cost of reclaiming this post-

Figure 1.2: U.S. South Wood Fiber Demand by Bioenergy Market



Note: Includes roundwood and residual chips for the production of cellulosic ethanol, wood consuming utilities and wood pellets. Excludes fiber furnish from construction and demolition debris, bark, biomass harvesting (e.g., slash), tree tops, limbs and other forest residuals, other urban wood fiber sources and hogfuel used for combined heat and power by the forest product industry.

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harvest biomass from the forest floor is prohibitive. Loggers will need to make significant investments in new equipment to make this possible, and with the high cost of fuel and the uncertainties at play in the new markets, this seems an unlikely move for them, at least in the near term. Second, bioenergy producers have strict requirements for the type of wood fiber they can use, as certain types are more efficient and cost-effective for specific uses. Like paper mills, all bioenergy producers will need to source clean chips. The predominant use for logging slash will continue to be for pulp and paper mills, where cogeneration is used to produce heat and power for manufacturing facilities.

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In the near future, no more than 10 or 15 percent of forest residuals in the US South is likely to become economically accessible for bioenergy production. Instead, primary and secondary chips will be the predominant feedstocks for bioenergy production. (See Figure 1). Over the next 15 years, for instance, bioenergy as an end user of pulpwood grade fiber is projected to develop at a faster rate than the OSB sector has over the last 20 years. Both in-woods whole-tree chips and residual chips will also play a significant role, with demand and prices climbing.

The growing demand for wood fiber will have significant repercussions for other industries competing for the

same material. Bioenergy producers will compete with pulp and paper mills for primary and secondary chips. US experience with corn ethanol provides a recent example of what might happen in the wood fiber markets once bioenergy markets solidify. Not only will prices for pulpwood, residual chips and in-woods chips increase, but harvest and delivery costs will continue to rise as well.

This is critically important for traditional players, as the current economic and political situation benefits the bioenergy markets. Right now, for instance, the incentives and grants offered by federal and state governments make the financial viability of bioenergy irrelevant.

The company that eventually contracts to provide Santee Cooper with 50 MW of electricity, for instance, will be eligible to receive up to \$750,000 in incentives and tax credits—up to \$100,000 (1 cent per kWh) per year for biomass energy production and tax credits of up to \$650,000 over 15 years on costs for equipment and facilities related to biomass energy production.

In the short term, the number and value of incentives will continue to increase. Like it or not, the playing field is not going to level out any time soon.

**E**scalating competition is the real news, and the prospect of greater competition for wood fiber supply—and the corresponding rise in prices—ought to set off a wave of new SWOT analyses across the industry.

Some industry participants—the early adopters—have already begun to adjust their game plans. We've already heard from some of our clients that they are preparing to take advantage of these new markets. Some timberland owners, for instance, are integrating the production and removal of biomass into their forest management plans and looking for innovative ways to sustain high rates

of biomass productivity and limit the negative effects of biomass removal on stand productivity.

Other reports suggest timberland management companies are investing in chippers and chipping crews to follow behind logging jobs and chip the material left on the logging deck. Some loggers have also begun to invest in chippers and chipping vans to process tops and limbs thrown off by the log processor at the logging deck.

What we haven't run across to date are actions taken by buyers of wood fiber. As the bioenergy industry develops, however, it will become increasingly important for mills of all kinds to secure their supply lines by establishing loyal relationships with their suppliers, instituting smart transportation regimes, and preparing—where necessary and possible—for substitution.

Ultimately, it's difficult to predict what may happen as these three new consumers of wood fiber move toward full production. Even if advances are modest, however, we're looking at significant disruptions in wood fiber markets. While it may take longer than anyone expected, the housing market will recover—perhaps not to its highest levels but at the very least to healthy ones. As the housing market recovers, the bioenergy markets will grow. At some point in the not-so-distant future, these forces will meet.

Savvy forest products companies—in both traditional and bioenergy sectors—should be planning for the seismic nature of this event.

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