

Greenwire
August 23, 2007

ETHANOL: Will sleepy Ga. town lead cellulosic revolution?

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SOPERTON, Ga. -- A farmer whose cotton fields had been ravaged by boll weevils put this town on the map in the 1920s by plowing under his crop and replacing it with hearty pine trees.

James Fowler's enterprise eventually expanded to 7 million trees on 10,000 acres, spurred a national Depression-era reforestation movement, pioneered the use of Southern pine in paper manufacturing -- and gave tiny Soperton its nickname, "Million Pines City." Now people here are wondering if they are about to be touched by another economic visionary: an energy startup backed by a Silicon Valley venture capitalist has picked Soperton for what its promoters hope will be the world's first commercial-scale cellulosic ethanol refinery.

Range Fuels -- a Broomfield, Colo., company backed by Sun Microsystems' co-founder Vinod Khosla and a \$76 million Department of Energy grant -- plans to break ground in coming weeks for construction of a \$225 million plant to make ethanol from spindly tree tops, limbs, bark and straw that would otherwise be burned or left to rot.

Washington and Wall Street are watching closely what happens here. "If it works," said Jacques Beaudry-Losique, a DOE biomass program manager, "it will help us address a huge problem in meeting the demand for alternative fuels in this country."

The plant could help bring prosperity to Treutlen County and hope to other rural communities that grow and harvest trees on rotation for sawmills, paper producers and other industries. Many timber communities -- like this town of 2,800 people 90 miles west of Savannah -- have struggled in recent years.

"It's like Santa Claus just dropped in on us," said John Lee, executive director of the Treutlen County Economic Development Authority. "For the amount of money they're spending, you could buy this entire county. It's going to put us back on the map."

Just last year, the county's most promising economic development project was aimed at landing a few service stations and fast-food restaurants at one of three Soperton exits on Interstate 16. Now, there is talk of overhauling the exit to allow a year's worth of tanker traffic to rumble to and from the refinery hauling 40 million gallons of ethanol and 9 million gallons of methanol.

The ethanol plant would be worth \$110 million per year to the county, including nearly \$500,000 of tax revenue, according to a University of Georgia analysis. Range Fuels also

expects to hire up to 80 full-time employees at wages much higher than the regional average.

The money can't hurt. Soperton, the county seat, has a median household income of \$20,471, less than half the statewide average, with 29 percent of its families living below the poverty line, according to 2000 census data.

"Our goal is to work with Georgia's timber companies to help them appreciate the value in their waste," said Mitch Mandich, Range Fuels' CEO.

"There's so much raw material in Georgia, it's unbelievable," he added. "And we're going to be right in the heart of it."

'Out there in front'

Mandich, 58, is a Silicon Valley guy -- former CEO of software developer Edify and senior vice president for worldwide sales at Apple Inc.

But Mandich has quickly learned to talk like a Georgia timberman, citing figures suggesting that the state's forests generate sufficient waste wood to produce more than 2 billion gallons of cellulosic ethanol -- enough to support many more plants the size of the planned Soperton refinery. The plant is expected to use about 1,200 tons per day of wood residues and wood-based energy crops and yield 40 million gallons of ethanol and 9 million gallons of methanol per year.

"Georgia is out there in front today," he said, noting the state's commitment to forest regeneration -- two trees are planted for each harvested -- and a culture of cooperation between forest owners, harvesters and buyers of saw timber and wood fiber.

Other Southeastern states -- Alabama, Mississippi and Louisiana, which have forest resources similar to Georgia's and a shared history of timber harvesting -- could piggyback on a successful project here, Mandich said.

"I think it will come down to effective policy programs and political will to really look at cellulosic ethanol as a new industry," he said.

The commercial development of cellulosic ethanol is widely seen as a key to helping meet the nation's rising demand for biofuels. Its promoters say it would lower the costs of production and ease pressure on corn growers who are stretched to meet demand for both food and ethanol. Corn is the primary U.S. ethanol crop.

President Bush has set a goal of making cellulosic ethanol cost-competitive with gasoline by 2012. That, along with increased automobile fuel efficiency, would reduce the United States' gasoline consumption by 20 percent in a decade, DOE said.

Congress is developing a host of new incentives to try to get cellulosic ethanol production off the ground. The new five-year farm bill that Congress is hammering out this year is expected to include billions of dollars for research and incentives for cellulosic projects, some of which could go to operations like the one in Soperton. The House-passed farm bill includes a forest bioenergy research program and grants for state and local communities to use woody biomass energy projects.

Range Fuels execs say the key to their process is that it does not require enzymes or other microbial agents to convert sugars into ethanol. Rather, heat, pressure and steam are used to convert woody biomass into a synthetic gas. The "syngas" is then converted back into ethanol and methanol using a chemical catalyst.

Syngas-derived cellulosic ethanol, they say, also promises to pose fewer environmental problems due to its lower carbon dioxide emissions, and it enjoys a greater "energy balance" than conventional corn-based production, meaning it requires less energy to produce a unit of ethanol from woody biomass than from corn.

New opportunity for timbermen

The Range Fuels plant also promises a more secure future for lifelong timbermen like Hugh Gillis Jr., whose ancestors were among the first to settle in what was then part of Emanuel and Montgomery counties.

Gillis' family, whose imprint extends from Treutlen County to the state capitol, survived the Great Depression by tapping pine trees for turpentine, building a sizeable naval stores business and later by feeding paper mills and sawmills statewide.

Today, Gillis Ag & Timber Inc.'s 23 logging crews harvest an average 25,000 tons of pine timber per week to meet contracts with sawmills and paper plants throughout east-central Georgia. According to Gillis, roughly 30 to 40 percent of what is cut from the forest is not suitable for milling, meaning it is left behind as waste.

In recent months, Gillis' crews have conducted at least one "sweep" of a cutover timber parcel to collect debris that Range Fuels hopes to use as feedstock. Gillis described the process as "a lot of work for a small amount of material," but said he is optimistic that Range Fuels will pay a fair price for the material.

Risher Willard, a forester with the Georgia Forestry Commission who has been closely involved with the ethanol project, expressed optimism that Range Fuels would succeed. "We've got a pretty robust harvesting community out there," he said. "This will just be a new opportunity for those guys to market a lot of material that otherwise goes to waste." Range Fuels has also experimented with collecting wastes from sawmills, where tree tops and limbs are severed and chipped. The company has consumed several tons of chipped material for tests at its Colorado pilot plant.

In addition to sawmills that make plywood and other building-grade lumber, Georgia is home to 12 large paper and pulp mills, each of which consumes between 1 million and 10 million tons of wood fiber annually, Willard said. Given the mills' demand for wood fiber, Range Fuels should have little trouble getting feedstock, he said.

"Our forests are so vast and growing so much that we could have half a dozen or a dozen of these [ethanol] plants scattered around the state with minimal impact on our overall forest resource," Willard said.

Dale Greene, a University of Georgia forestry professor, agreed the state is suited to develop a new cellulosic ethanol market, but he cautioned that a significant influx of ethanol plants could change industry dynamics.

For example, he said, older, inefficient pulp mills may opt to close rather than compete for wood fiber at higher prices, especially if ethanol plants use mid-grade timber harvested in forest-thinning projects. Mid-grade timber is currently used for pulping. "If we had a dozen of these types of [ethanol] plants going in, it's fairly certain we're not going to keep all of the existing plants," Greene said. Most threatened by such operations, he added, would be oriented standboard and pulp mills.

Return of chip mills?

Environmentalists see another potential downside to a cellulosic ethanol movement: a possible resurgence of chip mills to supply ready-to-use wood fiber. During the 1990s, Southern chip mill owners cut thousands of acres.

Environmental groups staged rallies and filed lawsuits against the permitting of such mills, citing their harmful effects on wildlife, ecosystem health and water quality. The groups say chip mills' harvesting practices destroy forests' ecology and beauty.

But Willard said concerns about chip mills in Georgia are unfounded. He said the state supports about a dozen stand-alone chip mills that serve paper and pulp mills by preparing wood fiber for processing.

Moreover, he said, most of the chipping for ethanol plants would be done on sites already being thinned or harvested. What would be chipped, he said, would be otherwise left in the forest or burned.

"They're not taking so much away from the standing forest. They're helping clean up the forests," Willard said. "It also adds value to those products that the landowner traditionally wouldn't get anything for."

Reporter Allison Winter contributed to this story.