Greensboro (NC) News and Record: Fighting the power structure

By Taft Wireback – Dec. 8, 2013

GREENSBORO — A big part of North Carolina's energy future just might be bubbling up behind Gabe Neeriemer's business on Chimney Rock Road.

His key ingredient bears little resemblance to the crude or shale oils from subterranean depths that fuel much of America these days.

Neeriemer's eureka substance? Algae — pond scum — marinating in waist-high tubs under plastic tents in the yard behind Patriot Biodiesel, the company that Neeriemer and several partners run at the edge of Greensboro's monument to all things petroleum — the 600-acre tank farm near Piedmont Triad International Airport.

"You have no pesticides in there, nothing that's genetically modified. It consumes carbon dioxide and its by-product is oxygen," Neeriemer said last week of his algae crop. "How can you go wrong?"

Neeriemer's project to create a potentially expansive supply of non-fossil, renewable fuel represents just one initiative in the Tar Heel State's fledgling biofuels industry.

Proponents said this homegrown sector's potential for both ethanol and biodiesel production seems boundless. They believe the two fuels could dramatically cut transportation-related pollution. And they think the industry could bring new life to agriculture statewide, while giving communities greater control over their energy needs and the fate of their local economies.

But biofuels haven't been feeling much love lately from either the state or federal government. The U.S. Environmental Protection Agency wants to back away from renewable fuel standards that encourage growth in the industry. And in Raleigh, state officials closed a facility recently that played a role in attracting a $200 million ethanol project to eastern North Carolina.

The federal threat comes from an Obama administration proposal to soften the renewable fuel standards that require that nation's fuel supply to contain small percentages of ethanol in gasoline and biodiesel in diesel products.

Neeriemer and other biofuel producers said they need these guaranteed markets to keep growing, the same way "big oil" needs the tax breaks that it receives.

But new EPA standards would keep biodiesel levels at current rates rather than increase them about 24 percent, in line with growing production levels. The agency proposes taking similar actions on ethanol.

Clean-energy advocates attribute the decisions to the hoopla surrounding fracking, the industrial process that promises national, energy independence by extracting huge amounts of natural gas from underground shale deposits, but with potentially damaging environmental consequences.

“Otherwise, you wouldn’t have the EPA rolling back the (biofuels) standards,” said Anne Tazewell, manager of the N.C. Solar Center’s clean transportation program at N.C. State. “This is something that President (George) Bush put in place, the renewable-fuel standards, and now you have the Obama administration wanting to reduce them.”

Meanwhile, at the state level, the General Assembly shuttered the Biofuels Center of North Carolina five weeks ago, cutting off financial support for the nonprofit Oxford facility that was formed six years ago with a goal of enabling North Carolina to produce 10 percent of its liquid fuels from “biomass.”

The center used an annual budget of about $4 million to promote the biofuels industry in general, recruit innovative projects and provide grants to scientific researchers in the Triad and elsewhere.

Last week, one of the now-defunct Biofuels Center’s projects came to fruition when ethanol-maker Biochemtex announced it would create 65 jobs at a new plant in Sampson County producing the gasoline additive from switchgrass and similar plants.

The Biofuels Center “did all the recruiting for us” on Biochemtex, said Lyle Estill, founder and vice president of Piedmont Biofuels, a co-op that produces biodiesel at its plant in Pittsboro.

“This is a terrific loss for our state,” said Estill, who served on the center’s board of directors. “We went from a national leadership role to nothing. We decided, ‘We’ll let someone else do it,’ and so now you’ll see something just like it in Tennessee or Georgia or somewhere else.”

Game changer

Despite the fate of the biofuels facility, the General Assembly’s new Republican majority seeks “a comprehensive approach to increasing our state’s domestic energy production, ensuring our energy independence and helping create energy-sector and agribusiness jobs,” said state Sen. Andrew Brock, R-Davie, chairman of the Senate Appropriations Subcommittee on Natural and Economic Resources.

“In addition to passing legislation removing many of the needless regulatory hurdles faced by the biofuels industry, we also included nearly $2.5 million in this year’s state budget for a new Office of Biofuels within the N.C. Department of Agriculture — a model we expect will operate

more efficiently, with greater accountability and with an actual return on the investment of tax dollars," Brock said Friday in a written statement.

Indeed, the arrival of Biochemtex could be a "game changer" that helps attract other similar plants to boost both the state's industrial and agricultural economies, said Brad Ives, the state Department of Environment and Natural Resources' assistant secretary for natural resources.

"We're optimistic that this plant is really the first of several to come to North Carolina," said Ives, who worked in the renewable fuels industry before joining the department earlier this year.

Ives sees special significance in Biochemtex's plan for "second-generation" processing, meaning it will ferment its fuel from materials not linked to the human food chain.

"First-generation" ethanol facilities rely heavily on corn as their feedstock, which has drawn criticism that they drive up the cost of groceries by competing for a source of food for people and cattle.

Biochemtex diverges from that model by using grassy plants that grow on eastern North Carolina farmland used mainly to dispose of hog waste, Ives said.

That provides an additional cash crop for farmers at the same time it benefits the environment by consuming the waste as fertilizer, removing excess nitrogen and preventing contaminants from running off into neighboring streams, ponds and lakes, Ives said.

He said the whole concept fits neatly into Gov. Pat McCrory's "all-of-the-above" energy strategy, meaning that state officials hope to pursue all forms of energy as opportunities present themselves, from biofuels to off-shore drilling and fracking North Carolina's relatively modest underground shale formations.

'Right thing to do'

Although they both fall in the biofuels category, ethanol and biodiesel differ in significant ways.

Ethanol works as a gasoline additive for conventional engines and is routinely dispensed from commercial pumps in concentrations up to 10 percent.

Biodiesel runs diesel engines most popular in trucks and buses. Pure biodiesel is hard to get for local motorists with cars that could use it — the National Biodiesel Board lists no local retail outlets. But blends with 2 percent to 5 percent are common.

And Neeriemer said he is doing increasing amounts of business with large companies that have diesel fleets and leaders who said, "This is the right thing to do and we're going to do it."

On the ethanol-making front, Biochemtex would become North Carolina's only ethanol plant and the first of its kind in the U.S. An earlier, corn-based plant opened under different ownership in Hoke County but folded in 2011 after less than a year.

By contrast, the state has a half-dozen, successful plants making biodiesel in relatively small quantities.

Biofuels, particularly biodiesel, bring with them the potential to completely reshuffle the economy, said Stokesdale resident Dean Price of Green Circle NC, a Garner-based company that works with school districts to increase their use of biodiesel.

For feedstock, biodiesel makers often rely on used cooking oil from nearby restaurants or oil extracted from such regionally grown crops as soybeans. That creates an opportunity for communities to meet substantial amounts of their residents' fuel needs and build a locally based energy economy, Price said.

"The time is exactly right for this," said Price, formerly of Red Birch Energy, which has a biodiesel plant in Bassett, Va. "As a society, we don't produce anything anymore. We have massive unemployment and so many other things — farmland laying fallow, tobacco gone, textiles gone, furniture gone."

He said international corporations control America's future by setting fossil-fuel prices that trigger the export of good jobs and make survival ever more difficult for local business owners.

"We're not going to come out of our conundrum until we start providing our own energy locally," added Price, who was profiled by author George Packer in "The Unwinding," this year's National Book Award winner for nonfiction. Packer's acclaimed book focused on the changing political, social and economic landscape of "the New America," where old solutions and old attitudes no longer work so well.

Battling finite limits

As much as biofuels could offer a pathway to localizing a bigger chunk of energy spending, they face finite limits not all that different from fossil fuels.

A community's restaurants only produce so much cooking oil waste. There's only so many acres available to grow soybeans, which produce about 50 gallons of biodiesel an acre per season.

"Algae makes that much every day," said Neeriemer, who sees his algae project as a promising answer to such limitations. He plans to buy 100 acres of farmland in or near Guilford County to augment 20 acres he already owns and outfit them all with algae-growing greenhouses.

"We estimate that between my 20 acres and the 100-acre farm, we can make about 5 million gallons of biodiesel a year," Neeriemer said.

An oil similar to the standard vegetable variety makes up 30 percent of the algae, he said. And Patriot Biodiesel plans to extract algae oil with a recently patented process it licensed from out-of-state researchers.

The beauty of the process is that after killing some of the algae and removing the oil, the remains are pumped back into the tank as food for the surviving organisms.

It's a continuous cycle with an end product that works just as well as oil from restaurants and farm products, only it's produced in much greater quantities, Neeriemer said.

"This has opened up doors for us that I never knew were there," he said.

Now all he and his industry need, Neeriemer said, is continued support from Uncle Sam for business efforts that are in the nation's best long-term interests.

And, Estill adds, innovative programs in Raleigh that keep North Carolina in the vanguard of an industry with so much untapped potential.