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Algae-to-ethanol proposal a win-win for Woodbine

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To Mayor Bill Pikolycky, Woodbine's old landfill has been a big headache.

Closed for decades, the 45-acre property is covered with scruffy vegetation and needs an environmental cleanup that would cost the tiny Cape May County borough millions of dollars.

The site began to look like an opportunity, however, after the mayor heard Andrew Greene's unusual proposal.

Greene sees the landfill as a prime location for Garden State Ethanol, a \$200 million biofuel plant that would use more than 100 bioreactor tanks to convert algae into ethanol and biodiesel oil.

And Pikolycky sees the venture as a way to generate tax income and jobs and to have the site remediated at no expense to the borough.

"It appears we have a win-win situation," said the mayor.

The project has many hurdles to clear, but there are signs of progress. An environmental study has revealed no endangered species at the location. A site analysis is planned, nearby rail lines are being upgraded at state expense, and the company is seeking regulatory approvals from the Pinelands Commission and the state Department of Environmental Protection.

"We only have a conceptual plan right now," said Pinelands Commission spokesman Paul Leakan. "They still have to submit survey work. We need information about the landfill capping and storm-water runoff."

Greene, president of Garden State Ethanol of New Brunswick, and former chief executive officer of the Robert Wood Johnson Health Network, is seeking funds for the project. He has been "in talks with an institutional investor," he said.

If approved, work on the plant, off Fidler Road, could begin by early next year, said Greene, of

East Windsor, N.J.

He said the project was expected to yield scores of construction jobs and about 60 permanent positions at the 24-hour-a-day plant.

Garden State Ethanol plans to work with Rowan University to identify the most productive species of algae and the best environment in which to grow it, Greene said.

"These are the early days" of algae bioreactors, said Jim Lane, editor and publisher of the Miami-based Web publication Biofuels Digest. "About 20 to 30 companies are actively developing pilot programs.

"We can make algae into fuel, and we can make it cost-effectively," he added. "It's very promising. Solar, wind, biofuels, and other technologies will be the components of a national energy solution."

Many companies are "attempting to commercialize" the algae-conversion process, said Dave Specca, assistant director for controlled-environment agriculture and bioenergy at the EcoComplex, part of Rutgers University's Environmental Research and Extension Center. Specca has advised Greene's company.

"There are none, to my knowledge, that are on that commercial level," he said referring to Garden State.

Algae has advantages over crops such as corn, canola, and soybeans as an alternative-fuel source, experts say. It can be grown in almost any enclosed space, and it multiplies quickly.

Garden State Ethanol originally focused on corn to produce ethanol, but turned to algae, which produces more than four times the amount of fuel per acre and doesn't attract the same opposition.

"We flat-out oppose the use of farm crops for ethanol," said Jeff Tittel, director of the New Jersey Sierra Club. "It takes more energy to create ethanol than you actually get from it. It only works when there are price subsidies. For the environment, it never works."

Ethanol, also known as ethyl alcohol, oxygenates and stretches the volume of fuel. It has been in greater demand in recent years after replacing the fuel additive MTBE, a possible carcinogen.

Federal energy measures have required wider use of renewable fuels, such as ethanol, in gasoline as a way to reduce the nation's dependence on foreign oil. It's produced in at least 20 states, including some in the Midwest that sell a blend of 85 percent ethanol and 15 percent gasoline.

The proposed Garden State Ethanol plant also would produce biodiesel oil for use in diesel cars and trucks.

The company has had false starts over the last seven years. Officials looked for a plant location in Burlington Township, two in West Deptford, and another in Bridgeton. The communities turned down the proposal, or land was too expensive. In one case, the discovery

of an eagles nest foiled the deal.

Woodbine, said Greene, has everything the company needs: property zoned for development next to a rail line, good sources of water, and a nearby airport. To pave the way for the project, Garden State Ethanol has pledged to clean up the site.

"We've been trying to develop the land to bring in [tax] ratables," said Pikolycky, adding that residents have been supportive of the project. "This looks like it will work economically, and it will mean jobs for local residents."

The town of 3,000 has a 9 percent unemployment rate, one of the worst in South Jersey, and is the 86th most economically distressed of 566 state municipalities, the mayor said

A water-treatment plant operated by the borough and another at the Woodbine Developmental Center would provide the 100 million gallons of treated but nonpotable water that would run through pipes to Garden State Ethanol.

There, the water would be fed into bioreactor tanks up to 20 feet high and 12 feet wide, with light and temperature controlled to grow algae, Greene said. Electricity at the plant would be supplemented by solar units.

Once the algae blooms, a third of the water is removed and sent through a centrifuge to produce an algae cake. That cake contains oil and carbohydrates that are separated. The oil is sent by rail to a nearby refinery and turned into biodiesel fuel. The carbohydrates are processed into ethanol, which is added to gasoline at the refinery, Greene said.

"You can do the whole thing again in 24 hours," Greene said. "Every year, we'll produce 13 million gallons of biodiesel oil and 25 million gallons of ethanol."

As alternative fuels become more popular, little Woodbine could have a viable business where now only off-road enthusiasts venture - illegally.

"We don't have a dollar of investment in this," Pikolycky said. "Garden State Ethanol is bearing all the costs and responsibilities.

Garden State Ethanol would occupy at least 40 acres on the former landfill and adjacent land. It "wouldn't even be visible from the road," the mayor said. "It has 100 acres of buffer around it."

"We're just getting started," Greene said. "We're not going to solve the country's energy problems, but with things like this and electric cars, we'll be an important piece of the puzzle."

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