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Bob Keefe COX NEWSPAPERS

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Kevin Bolin is president and CEO of Atlanta-based EnerTech Environmental Inc. The company's plant in Rialto, Calif., is expected to start converting sewage sludge into fuel by the end of the year. 'What we're doing is basically addressing a problem in need of a technical solution,' Bolin said.

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ENERGY

Experimental plant turns poop to power

Company is working on the next new energy source: fuel from human waste.

By Bob Keefe WEST COAST BUREAU

Monday, July 07, 2008

RIALTO, Calif. — At the end of a dusty dirt road, next to a cement factory and a junkyard, an Atlanta company is working on the next new energy source: fuel from human waste.

By the end of the year, the \$160 million plant that EnerTech Environmental Inc. is building in this community east of Los Angeles is expected to take hundreds of tons of sewage sludge — which isn't only treated human waste, but is anything and everything that passes through the drain — from local sanitation districts. The plant will process the sludge with a mixture of high heat and high pressure, turning it into a pelletlike substance dubbed "e-fuel" that can run small power plants.

The poop-to-power process is the brainchild of former Atlanta ad man Kevin Bolin and his grandfather, 92-year-old Norman Dickinson of Melbourne, Fla.

In addition to being a former chemical engineer, "my grandfather is kind of a mad inventor," said Bolin, 45.

A former accountant and advertising executive for Atlanta TV station WAGA-TV, Bolin is fluent in the workings of effluent and sharp in the ways of finance and business.

"It was really a dream of mine to help form a company and commercialize some of these inventions," he said.

Although untested on such a large scale, the project is getting accolades from local officials and investors who say it could become a viable way to address high energy costs while simultaneously relieving overburdened sanitation systems.

"This stuff comes to us seven days a week, 24 hours a day," said Ed Torres, director of technical services for the Orange County Sanitation District, one of five Southern California sewage systems that have signed on with the EnerTech plant. "We can't just turn the valve off. We have to do something with it."

Orange County and other local sanitation districts currently dispose of their sludge mainly by trucking it to farms — some of them hundreds of miles away in Arizona — where it fertilizes livestock feed crops or inedible plants.

Tougher environmental regulations and high diesel fuel costs,

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however, are making that practice increasingly prohibitive.

The five Southern California sanitation districts have agreed to pay EnerTech \$390 million for taking about 670 tons of sewage sludge per day for the next 25 years.

"In the past, that might have been fairly expensive," said Mike Sullivan, supervising engineer for the Los Angeles County Sanitation District, another participant. "But with other alternatives disappearing and the cost of diesel fuel rising, it's becoming much more" attractive.

Getting paid to process the smelly sludge will generate about 97 percent of EnerTech's revenue, Bolin said. He expects the other 3 percent to come from selling the e-fuel, first to local cement kilns and other businesses that run their own power plants and perhaps eventually to utilities.

Bolin said the fuel generates about the same amount of energy per pound as coal but is cleaner in terms of carbon emissions. As with other renewable fuels, EnerTech's e-fuel emits only the carbon dioxide that is already contained in the unprocessed sludge when it is burned. By contrast, fossil fuels such as coal or oil release carbon that has been stored and naturally sequestered for millions of years when they are burned. Therefore, EnerTech says, there is no significant net increase in carbon dioxide emissions with e-fuel, unlike fossil fuels.

The State of California has certified e-fuel as a renewable fuel, and local air-quality regulators have issued a permit for EnerTech's processing plant.

"What we're doing is basically addressing a problem in need of a technical solution," Bolin said. "We're converting a waste — sludge — into something that's beneficial."

Bolin and his grandfather aren't the only ones betting big on the idea. In April 2007, the company raised \$160 million to start construction on the Rialto plant through the sale of bonds to Deutsche Bank. This year, it raised an additional \$42 million from investors, including Citigroup Inc. and the Masdar Clean Tech Fund, a United Arab Emirates venture fund.

In May, EnerTech was selected to build a small demonstration plant in Masdar City, a first-of-its-kind city being built in the United Arab Emirates that will use only renewable energy.

"Investing in EnerTech Environmental is a key part of the overall Masdar ambition," Alex O'Conneide, a partner in the Masdar Clean Tech Fund, said in a statement. "Their innovative technology is the kind of smart clean technology that has the potential to alter the way developers consider future projects."

This isn't the first time that someone has tried to turn sludge into something more beneficial. In states across the country, including Texas, cities operate sludge incineration plants that produce power or ash that can be used as fertilizer.

About two decades ago, officials spent hundreds of millions of dollars on a sludge-processing operation in Los Angeles that was designed to do exactly what EnerTech's plant is supposed to do: turn sludge into fuel. However, that project failed.

Bolin is quick to point out that EnerTech's project is much different. The so-called Carver-Greenfield project used oil and forced evaporation to separate biosolids from sludge, but the process gummed up pipelines and ultimately shut down the system.

"It was much more complicated," said Bolin, who wasn't involved with that project. "We dumbed it down into what's actually a very simple process."

Through a system of pipes and tanks, EnerTech's plant will essentially heat up and pressurize biosolids to the point where they break down. The resulting mushy "slurry" mixture is dried and turned into e-fuel.

Still, nobody is sure that EnerTech's "SlurryCarb" process will work on the scale planned in Rialto. The company has tested the process only with much smaller demonstration plants in Atlanta and Japan, tests that Bolin says worked better than expected.

Officials in California say they aren't too worried about the plant's prospects, especially because — unlike with the project 20 years ago — they do not have any money at risk upfront.

"We're all hoping it works, but at this scale it's never been proven," Torres said. "But at least here, we're not investing a dime. If it doesn't work, we'll just go someplace else" with the sludge.

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