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Biobutanol Firm Aims to Compete With Ethanol in 4 Years

By JESSICA LEBER of [ClimateWire](#)

Having launched its first pilot facility yesterday with Gov. Arnold Schwarzenegger looking on, California startup Cobalt Technologies is the latest in a growing number of biofuel ventures banking on biobutanol as an attractive ethanol alternative.

Like ethanol, biobutanol can be fermented from plant sugars, either food grains or cellulosic plant parts. But because its structure is heavier than ethanol and more similar to gasoline, the advanced biofuel has a wider range of end uses -- it can be burned as a stand-alone transportation fuel; blended with diesel, ethanol or gasoline; converted into jet fuel or plastics; or sold in existing industrial chemical markets.

Though the production technology has existed since World War I, bio-based butanol has always been too expensive to produce. Today, butanol is made from petroleum.

But now several companies like Cobalt are trying to change that. "We can be profitable in today's oil environment," said Chief Financial Officer Steve Shevick. The company intends to quickly scale up its technology, adding two additional small-scale plants and a commercial 15-to-50-million-gallon plant by 2014 and producing biobutanol that is competitive with corn-based ethanol by 2012, it said.

Biobutanol backers are quick to note its advantages over ethanol. Since butanol blends have almost a third more energy per gallon than ethanol, drivers who fuel up on them would see higher fuel economy, though still less than they would see using gasoline alone.

Major oil companies buying in

And because it doesn't readily mix with water, biobutanol can be used in existing petroleum pipelines and refineries and in higher blend volumes than ethanol in traditional car engines, said Jack Huttner, executive vice president for corporate development of Gevo Inc., another biobutanol company.

That could be a big bonus to oil companies, which might process biobutanol in their own facilities instead of having blending ethanol at the end of the line because of its incompatibility. Massive investments in the transport and fueling infrastructure and specialized car engines that are required to expand the use of ethanol have become a significant hurdle to the industry's continued growth.

"That's the reason why some companies are so interested in it," said Al Mannato, fuels issues manager at the American Petroleum Institute.

Major oil companies have backed up this interest with investments in biobutanol ventures. Total, a multinational oil and gas giant, last year invested an undisclosed amount in Gevo's plans to commercialize butanol through retrofits of existing ethanol production facilities.

Already, Gevo has opened a small-scale 1-million-gallon plant in St. Joseph, Mo., and hopes to open a commercial plant in another retrofitted ethanol plant in 2012. Huttner said he expected the company would announce plans for that facility in the next three months.

Another biobutanol demonstration plant backed by a partnership between BP PLC and E.I. du Pont de Nemours and Co., scheduled for completion this year, is now under construction in the United Kingdom, according to BP spokesman Tom Mueller. The oil giant is confident that the venture will be ready to follow with commercial quantities of the fuel by 2012 or 2013, Mueller said.

Proposals to retrofit existing ethanol plants

Both Gevo and BP have pursued the strategy of piggybacking their butanol production onto existing ethanol facilities, as that industry has suffered through a year of high corn prices and economic collapse. A \$30 million retrofit investment on a \$100 million ethanol plant could allow a facility to switch easily between producing ethanol or butanol from the same feedstock, Huttner said. And BP, Mueller said, is now exploring an ethanol industry partnership in the United States, with the objective to make a commercial investment by 2011.

The ethanol industry, however, does not see biobutanol makers as the competition. "Right now, it's far more expensive to produce compared to ethanol. Ethanol producers, down the road, may look at it as a potential product stream. I think the two fuels could work in a complementary form in the future," said Matt Hartwig, a spokesman for the Renewable Fuels Association, an ethanol trade group.

Corn ethanol makers, he said, have recently seen an upswing from a disastrous year during which many facilities sat idle.

Biobutanol ventures will also not escape the same challenges faced by the ethanol industry to begin making their product from cellulosic feedstocks that do not compete on the food market and have a smaller greenhouse gas footprint.

Both Gevo and the BP-DuPont venture have chosen to first deploy grain feeds as they commercialize biobutanol, with the intentions to use more climate-friendly cellulosic feedstocks as the conversion technology improves and drops in cost. Cobalt is taking a different approach by immediately using cellulosic feedstock from wood waste, a bid that would help it qualify under California's more demanding low-carbon fuel standard with its claim of an 85 percent greenhouse gas reduction compared to gasoline.

In the meantime, Mannato predicted it would still be a while before biobutanol could hope to overtake the ethanol market. "Ethanol is a very mature technology. We're just at the beginning of the learning of these other advanced biofuels," he said.

Reporter Debra Kahn contributed from San Francisco.

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