

Filling up on fat

China's major biodiesel player has made its debut on the New York Stock Exchange, but most companies remain in the backwaters

Fried chicken isn't the best source of energy for your body. It's too oily, for one thing. But William Kao, an entrepreneur in the southern city of Xiamen, spends his time hunting down fried chicken shops and other greasy spoons.

"Fried chicken chains, everybody's going after them!" he said. "I also look for Western restaurants, places that do deep-frying – roast duck places generate a lot of oil too."

Kao wants as much oil and grease as he can get his hands on, but not because he has a cavalier disregard for his health. He runs a business that turns used cooking oil into bio-diesel, a clean fuel for buses, trucks and ferries.

His plant, named Grease Monkey 1, turns out three to six tons of biodiesel a day. He hopes to build another capable of producing 10,000 tons of the fuel a year.

Unlike other renewable energies, China's bio-diesel industry has remained under the radar of most investors. In December, however, the country's biggest bio-diesel producer, Gushan Environmental Energy, raised more than US\$170 million as it listed shares on the New York Stock Exchange. Gushan is the exception to the rule in a market that is highly fragmented and largely unregulated. It has a capacity of 190,000 tons annually and plans to add a further 400,000 tons by the end of 2008.

A couple of other producers are listed on smaller exchanges; China Clean Energy is listed on America's OTC Bulletin Board while China Biodiesel International trades on AIM in London. The rest of the market is strictly small time.

All about the oil

Biodiesel refers to fuel made of vegetable oil, animal fat or used cooking oil. It is usually mixed with ordinary diesel in a 20-80 blend called B20 to use as transportation fuel. Vehicle engines do not have to be modified to accept biodiesel. According to the US National Biodiesel Board, B20 produces 20% less sulfates and unburned hydrocarbon emissions than regular diesel.

High crude oil prices have led to demand for alternative fuels like biodiesel, which has resulted in increased pressure on feedstock supplies. The problem for



GOING SOLO: Bio-diesel is energy-saving but still unloved in Beijing

biodiesel producers is that raw materials account for nearly all the cost of making the fuel – 70-80% according to research firm Frost & Sullivan. This means producers are particularly exposed to volatility in the commodities markets.

However, China's biodiesel producers are sheltered from the markets because they tend to use waste cooking oil and grease instead of soybean or palm oil.

While cooking oil can be made of soybean or palm oil and therefore affected by a rise in the price of those vegetable oils, the impact is cushioned by inefficient pricing mechanisms for the waste product. Some Chinese producers, like China Clean Energy, which uses waste cooking oil, say they have not been affected by high global commodity prices.

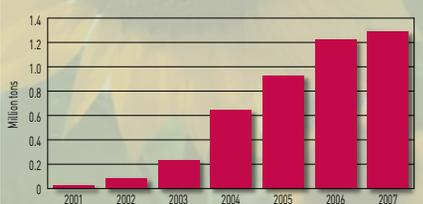
"[Feedstock prices] for 2008 are relatively stable – about RMB3,000 (US\$360) a ton, including transportation costs," said Gary Zhao, the company's CFO.

But using cooking oil may also limit the supply of raw material. Producers have to deal directly with restaurants and hotels and this makes for convoluted supply chains. Kao, for example, collects used oil from 40 suppliers, including fast-food chains, a hotel and small restaurants.

"We identified no specialized collec-

The fried chicken express

China's annual biodiesel production



Source: biodieselinfo



China Foto Press

tors of [waste cooking oil] in China,” said Frank Xie, an analyst at Frost & Sullivan. “The model is for manufacturers to collect feedstock themselves, so that contributes to the current shortage of feedstock.”

The result is widely differing prices. Kao says he paid about US\$206 for a ton of used oil two years ago but now pays up to US\$550. Zhao, at China Clean Energy, says prices are stable at US\$413 a ton.

Out in the cold

What the country’s biodiesel industry lacks is government backing. China’s other burgeoning bio-fuel, fuel ethanol, is state-supported and regulated with some provinces mandated to use an ethanol-diesel blend. Ethanol producers receive government subsidies – which amounted to about US\$180 a ton in 2006. But that is changing as food price inflation crept up last year.

Fuel ethanol in China generally uses corn as a raw material, and the government has been trying to boost grain supplies to keep prices down. Last year the government banned the use of food crops as bio-fuels and is now moving toward a flexible subsidy system.

Although Beijing officially supports the promotion of renewable energy, biodiesel producers claim to have seen little evidence of this in their industry.

They complain that the national oil companies are still reluctant to carry biodiesel, waiting for Beijing to push them harder. They also say that government regulation of mineral diesel has kept prices too low, preventing biodiesel from being as attractive as it could be. A national biodiesel standard similar to the one used in the US has been published, but enforcement will remain a problem.

So biodiesel in China remains largely unregulated. Producers are locked in a Darwinian struggle to survive – which suits some of them just fine.

Brian Lee, a vice president at venture firm United Capital Investment, which held a stake in Gushan before it went public, said he invested in the firm precisely because it was profitable without relying on subsidies.

Meanwhile Kao, the hunter of greasy restaurants in Xiamen, says he relishes the challenge. “There’s still room,” he said. “The bear market is great for people who want to push the limit on costs.” ♦

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