Coachella plant converting used cooking oil into biodiesel

By K Kaufmann

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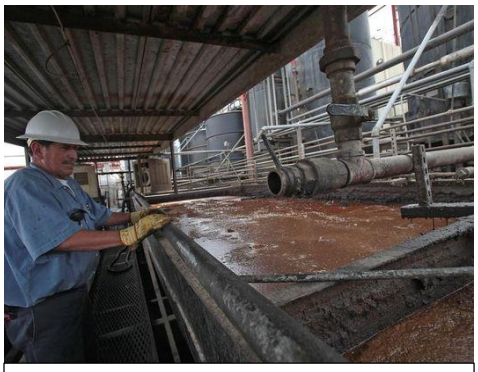

Grease plant operator Lorenzo Gutierrez looks over a large tank of recycled cooking oil at Imperial Western Products, where the goop was being converted into biodiesel in Coachella on Tuesday.(Photo: Jay Calderon/The Desert Sun)

COACHELLA – The smell rising from the vats of recycled restaurant grease at Imperial Western Products sticks to your nostrils — heavy, with undertones of days-old fried food — long after you've left the plant where it is turned into renewable biodiesel.

"We're collecting used cooking oil from all over California, Arizona and southern Nevada," said Curtis Wright, division manager at Imperial Western, which last year pumped out 8 million gallons of biodiesel.

Dozens of large blue plastic containers lined up at the plant go to restaurants and hotels, including many in the Coachella Valley, that fill them up with their used grease. One gallon of used cooking oil produces one gallon of biodiesel fuel, which Imperial Western sells under the brand name Biotane, Wright said.

While keeping a low profile locally, Imperial West is part of a highly visible boom in the use of biodiesel nationwide, as well as current efforts to hold off proposed revisions to federal renewable fuel standards that could put a brake on the industry's progress.

In the past two years, production of biodiesel jumped 63 percent, from 1.1 billion gallons in 2012 to 1.8 billion in 2013, and continues to accelerate, said Joe Jobe, CEO of the National Biodiesel Board, an industry trade group. The organization's goal for 2015 — having biodiesel make up 5 percent of all diesel fuels in the U.S. — was reached last year, he said.

But the U.S. Environmental Protection Agency last year proposed holding its requirements for biofuel use at 1.28 billion gallons per year for both 2014 and 2015.

Imperial Western's own growth reflects the industry's expansion in the past decade. When the company started producing biodiesel in 2001, sales were mostly to a niche green market, Wright said.

With the rise of state and federal renewable fuel targets and incentives, customers these days are often mainstream oil companies that blend the biodiesel with their own fuels.

Imperial Western's Biotane is typically used in blends of 5 percent, called B5, and 20 percent, called B20, Wright said.

The company still has some specialty customers such as Fred Hayes, 68, who designs and races high-performance diesel motorcycles. The holder of the land speed record for 750-cc diesel motorcycles,

about 121 mph, and six successive records on fuel economy, most recently scoring 162 miles per gallon, he swears by Biotane's B20.

The former owner of Hayes Diversified Technologies, a Hesperia company that designed motorcycles for the U.S. military, Hayes first tried Biotane in 2007, when he was looking for a cleaner-burning fuel for his racing bikes.

"I'm not a big environmentalist or anything. I liked the idea of being able to use waste products," he recalled. "We ran a whole series of bio tests and fuel mileage tests. I found out we got measurably better performance on it."

Move to diversify

In the valley more than 50 years, Imperial Western was founded and continues today as a family-owned recycling business. Started by Lee Trawick and now run by his son, Bill Trawick, the company began by processing cotton seed oil from cotton farms along the Colorado River, turning it into cattle feed.

Mountains of cotton seed are still processed at the plant, and what look like huge rotating vats, two stories high, once used to process the seed now serve as storage units for biodiesel. Between cotton seed processing and biodiesel the Coachella location has about 150 employees, Wright said.

The company also recycles bakery products and other foods and uses other kinds of vegetable oils to make lubricants.

The company's diversification efforts eventually pulled in Wright, a chemical engineer, who back in 2000 was exploring options for starting a biodiesel plant. By 2001, the plant was online.

"We started building on Day 1 to run on used cooking oil," he said. "The whole operation here runs on biodiesel. We use it in all of our cars and trucks."

In the process, Wright has become a cooking oil and fat aficionado, with a row of jars containing different kinds of oils and lards, all colors and thicknesses, lined up on a book case behind his desk.

"Fats and oils are chemically very similar; they are all triglycerides," that is, long chains of hydrocarbons, he said. "The only difference between, let's say, the fat on a cow versus sunflower oil is just the chemical makeup of that triglyceride.

"So any of those fats or oils can can be made into biodiesel, and any place you can get fat or an oil from can be a feedstock to make biodiesel."

But producing biodiesel involves more than heating up recycled cooking oil, he said. At Imperial Western, the recycled oil is first filtered to remove solids and water — a process that does involve heating the oil in large vats and then running it through a couple different machines that shake and squeeze out the impurities.

It is then mixed with methanol and a chemical base to create methyl ester — basically a long carbon chain similar to diesel fuel but with an extra oxygen molecule attached.

"That's the reason biodiesel burns cleaner than diesel fuel. Because of the oxygen in there, it burns more completely," he said. "Then because it's made from a fat or oil, there are no carcinogenic compounds or toxic components."

Figures from the California Air Resources Board show biodiesel made from used cooking oil produces about one-fifth or less of the greenhouse gas emissions of standard diesel produced by California refineries.

It also doesn't have a "blend wall" — the point now reached by ethanol where the standard 10 percent blend cannot be increased; higher blends require specially designed engines. Biodiesel can be used at blends ranging from 2 percent to 100 percent without affecting vehicle performance, Wright said.

The main blot on the fuel's clean profile is its nitrogen oxide emissions — which can trigger other pollutants including ozone and particulate matter, tiny particles that cause respiratory problems. Depending on the kind of oils used, biodiesel can produce about the same or slightly more nitrogen oxides than regular diesel, Wright said.

But that's not why the EPA wants to limit the production of biodiesel. The agency is proposing a rollback on all biofuels as part of a general revision of the federal Renewable Fuel Standard (RFS) aimed at accommodating the ethanol blend wall.

The EPA maintains it is still committed to expanding the use of biofuels and working with all industry stakeholders. At the same time, the agency defended its 2014 proposal as an effort "to put the RFS program on a steady path forward — ensuring the continued growth of renewable fuels while recognizing the practical limits on ethanol blending."

Both Wright and Jobe counter that with no blend wall, biodiesel could help offset the limits of ethanol. The National Diesel Board is lobbying the EPA to raise its 2014 biodiesel targets to at least 1.7 billion gallons, Jobe said.

Still, uncertainty over the EPA's final decision on biofuels is shaking up the market in ways that could affect Imperial Western's business, Wright said.

"We're seeing lower sales prices, more competition from Midwestern biodiesel," he said.

Even if the EPA rolls back the federal biodiesel limits, the California market could remain strong due to the state's own Low-Carbon Fuel Standard. Established in 2007, the standard requires a 10-percent reduction in transportation-related greenhouse gas emissions statewide by 2020.

Biodiesel is considered a "fuel pathway" toward that goal and should benefit, said David Clegern, a spokesman for the California Air Resources Board. Unlike the federal approach, California's law is not aimed at setting limits on specific kinds of fuel — effectively picking winners and losers — but multiplying options, he said.

When the standard went into effect, "there were not enough fuel blends, there were 26-27 approved. There are now 200," Clegern said. "What that means now is Californians have a lot more choice. The idea is to steer things into a more sustainable environmental and economic direction, and this regulation is written with those things in mind."