

## **Energy Answer in a Deep Fryer?**

### Vegetable Oil Could Be Solution to Nation's Fuel Problems

By David Stevenson, Tech Live

July 22 — French fries, donuts, and salad dressing all make for good snackin', but they are also rich in a not-so-new fuel source: vegetable oil. Natural, renewable resources such as soybean and canola oils and even restaurant greases are being transformed into biodiesel fuel.

Biodiesel is made from ethanol or methanol alcohol married to common cooking oil. The fuel burns cleaner because it contains oxygen and is safer to handle and transport because it's less likely to explode than other fuel forms.

Even better, biodiesel is healthier for the environment and people than its plain diesel fuel counterpart. The fuel produces 78 percent less carbon dioxide (a major cause of greenhouse gases) than regular diesel, and it reduces cancer risks by 94 percent, according to the U.S. Department of Energy.

In addition, biodiesel can be used in cars, boats, and generators as is. The caveat: Engines made prior to 1993 may require a little retrofitting to replace rubber seals that could fail if pure biodiesel is used. Performance and fuel economy degrade by about 10 percent with pure biodiesel, according to the DOE's National Renewable Energy Laboratory, but many drivers may not notice that. Some fuel makers are offering a blend that mixes 80 percent diesel to 20 percent biodiesel.

#### **Costly Alternative**

So why isn't biodiesel catching on like wildfire? In a word: price.

Low demand means low output — and that means biodiesel can cost about three times as much as regular diesel. Advocates say they hope the price will drop as the demand increases.

The Environmental Protection Agency will require refineries to make cleaner (and possibly more expensive) diesel fuels by 2007. Biodiesel fans say they hope that mandate will soon erase the price difference between the two fuels.

#### **Generating Electricity**

Despite the costs, some entrepreneurs, such as Mike Hart, CEO of PowerTrainUSA, are enthusiastically moving forward into a biodiesel future.

Hart's privately owned railroad in Oakdale, Calif., has been hired by state energy officials to turn 48 biodiesel-based locomotives into portable power stations. The idea is to attach AC power converters to the locomotives and tow them into energy-strapped towns.

"The output of all the locomotives is brought together, put into transformers, and that transformer steps up the power to transmission line levels," Hart said. "A couple of these locomotives parked in a small town would be all they need to avert a blackout."

The state has signed a letter of intent that'll have PowerTrain supply 100 megawatts of power to about 100,000 California homes over a five-year period. It's part of a state effort to provide green energy while anticipating a power crunch this summer.

Hart says he looks forward to other railroads jumping aboard the biodiesel line.

According to Hart, "We, as an industry, can do enormous things to reduce emissions in this country and to reduce our dependence on foreign oil."

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