

## Studies will document biodiesel benefits for truck fleets

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Two Studies seek to build greater awareness of the benefits offered by biodiesel as a truck fuel. One looks at the ability of the fuel to reduce carbon dioxide emissions from diesel engines. The other compares fuel economy of biodiesel versus ultra low sulfur diesel.

For the carbon dioxide reduction study, the National Biodiesel Board (NBB) teamed-up with Chicago, Illinois-based Indigenous Energy LLC, developers of emissions tracking systems, and Los Angeles, California-based States Logistics, a refrigerated fleet and logistics company using clean technology.

The six-month pilot will culminate in a report quantifying States Logistics' emissions and carbon dioxide (CO<sub>2</sub>) reduction from using biodiesel. Initial results for May and June showed a 16.5-ton reduction in CO<sub>2</sub> emissions.

A 1998 biodiesel lifecycle study, jointly sponsored by the Department of Energy and the Department of Agriculture (USDA), showed that biodiesel reduces net CO<sub>2</sub> emissions by 78% compared to petroleum diesel. Biodiesel has been shown to have a 1:3.5 ratio of energy gained to energy used to produce it, meaning for every unit of fossil energy needed to produce biodiesel, return is 3.5 units of energy, according to a 2008 study conducted at the University of Idaho in cooperation with USDA.

“The pilot program uses our patent-pending technology and reporting system with inputs from States Logistics over-the-road activity to show carbon and emissions reduction,” said Peter Probst, president and director of research and development at Indigenous Energy.

States Logistics uses B5 and B99 in seven 2007-model trucks, running approximately 27,000 miles a month. The pilot program takes into account several areas to measure carbon footprint including vehicle type, distance traveled, number of gallons used, percentage of biodiesel

used, and biodiesel feedstock type (such as soybean oil).

### **Carbon offsets**

The end result will be a report on total CO<sub>2</sub> emitted by the petroleum diesel and biodiesel, CO<sub>2</sub> reduction from using biodiesel, and the quantifiable cost to offset petroleum diesel CO<sub>2</sub>. The results will be presented at the Mid-America Trucking Show in March 2009.

“Many of our customers on the west coast and other areas of the country are looking to reduce carbon footprint and emissions,” said Ryan Donovan, vice-president of operations and business development at States Logistics. “Since we use biodiesel in all of our trucks, our customers already have an advantage.”

Eventually, these figures may be used to sell carbon offsets, according to Donovan. However, today they can be used to show States Logistics' customers and their customers' customers how they are all contributing to reduction of CO<sub>2</sub>. By providing this information to customers, they can see the transparency and understand why States Logistics uses biodiesel.

Participants in another study, the Two Million Mile Haul over-the-road B20 (20%) biodiesel demonstration, presented initial results during the Great American Truck Show in Dallas, Texas. With about 400,000 miles left to go in the two-year demonstration being conducted in the upper Midwest, the head-to-head B20 biodiesel versus petroleum diesel testing showcases positive performance effects and valuable cold weather findings. Data collected from each truck's electronic data recorder this summer shows fuel efficiency for the B20 blend comparable to that of petroleum diesel.

“In recent months, we have learned that driver variability makes more difference in fuel efficiency than biodiesel utilization does,” said Don Heck, coordinator of biotechnology and biofuels programs at Iowa Central Community College in Fort Dodge, Iowa, where Two Million Mile Haul test data are analyzed.

In addition to fuel efficiency data, the Two Million Mile Haul aims to demonstrate operability of a B20 blend year-round in cold weather

situations. “Although both the petroleum and B20 groups experienced some fuel filter plugging in zero-degree Fahrenheit weather, the B20 trucks did not experience any considerable challenges because test partners implemented proper handling and storage measures,” said Grant Kimberley, Iowa Soybean Association director of market development. “If B20 can work for a fleet in the upper Midwest December through February, it can run in any fleet across the nation year-round.”

### **NBB report**

These findings mimic fuel efficiency test results released during the summer by the National Renewable Energy Lab and the National Biodiesel Board, showing comparable mileage between B20 and ULSD.

There may be additional benefits for a trucking company using biodiesel, as well. “We are receiving positive feedback from customers who see the ‘green’ benefits of using a trucking company that runs on biodiesel,” said Steve Lursen, special projects manager for Decker Truck Lines Inc. “By using a renewable fuel, Decker is actually picking up additional business.”

The two-year study is sponsored by the Iowa Soybean Association, Iowa Central Community College, Decker Truck Lines Inc, Caterpillar Inc, NBB, Renewable Energy Group, and USDA. The study is believed to be the first comprehensive, publicly documented demonstration of B20 in over-the-road trucks.

Launched in the fall of 2006, it consists of two groups of 10 Decker tractors hauling flatbeds on matched routes to either Minneapolis, Minnesota, or Chicago, Illinois. The control group uses 100-percent Number 2 ULSD. The B20 test group uses a blend of 20-percent biodiesel from Renewable Energy Group and 80-percent Number 2 ULSD. Data have been routinely analyzed for fuel efficiency, maintenance records, fuel quality, and cold weather performance.