

**By Rick Geise**

**Over the past six months, alternative fuels have received more publicity than in the past six years. Not surprisingly, this sudden interest directly corresponds to the increased prices at the pump. During this election year, fleet managers want solutions and as a result, alternatives to conventional fuels and OPEC reliance are in vogue.**

## **Understanding EPAct**

For certain regulated fleets, such as utility/energy providers, AFV's (alternative fueled vehicles) had fallen previously under the category of big government flexing it's controlling muscle. In accordance with the Energy Policy Act of 1992 (EPAct), alternative fuels are to be developed for a three pronged purpose. In 1992, the Gulf War was still a fresh memory, so EPAct's primary emphasis was to provide energy security from foreign oil. Secondly, alternative fuels were expected to address growing environmental concerns. And lastly, in the true spirit of capitalism, EPAct would promote domestic economic development. What we've been missing is initiative. Not only did EPAct's mandates for utility providers have minimal checks and balances from an enforcement standpoint, but the price of conventional fuel was simply too cheap.

## **Comply Without Change**

Now we have the catalyst for positive change in the alternative fuels arena. But which alternative fuels are best? Currently, the Department of Energy recognizes natural gas (compressed and liquid), propane, electric, ethanol and

biodiesel as approved alternative fuels. The challenge with alternative fuels has centered around the inconvenience of refueling, as well as the expense associated with purchasing AFV's or retrofitting existing vehicles with costly kits to switch from conventional to alternative fuels. In addition, alternative fuels often times significantly limit range, power and payload capabilities. Biodiesel, the newest entrant into the changing world of alternative fuels doesn't require users to purchase new vehicles or retrofit an existing fleet. There is no significant impact on the vehicles operating characteristics. Biodiesel can power any compression ignition engine. In fact, many fleet managers using biodiesel report that they do not tell their drivers anything initially about the alternative fuel, which minimizes the "resistance to change" challenges often incurred with other fuels/vehicles.

## **From French Fries to Fuel?**

In the early 1990's, U.S. agriculture became interested in the development of nonfood uses for its abundant soybean and oilseed harvests. At the same time, the rendering industry also began evaluating the potential of value-added processing for its raw materials. Taking the lead from the emerging biofuels industry in Europe, farmers and renderers joined forces to develop a new and promising domestic biofuel, known as biodiesel.

Today, this fledgling industry has an approved ASTM "PS 121" specification for biodiesel. To describe how it is basically created, biodiesel is a methyl ester produced by combining methanol to the oil or feedstock, then adding a catalyst. Glycerine is spun off during the refining process, with the remaining product being termed a mono-alkyl ester, known as biodiesel. Biodiesel is practically non-toxic and biodegradable. In its pure form, it can be handled, stored and transported with the same guidelines as vegetable oil.

Biodiesel can be made from a variety of feedstocks to include soybeans, rapeseed, canola and palm oil as well as recycled vegetable oils. Currently there are slightly less than 10 producers of biodiesel in the United States. The most



cost competitive producers commonly use recycled vegetable oil as a feedstock. In addition to lower costs, studies conducted by the National Renewable Energy Lab (NREL), a division of the Department of Energy, have found that these recycled feedstocks have a comparable quality to other, more expensive oils.

## **A Cost-Effective Solution**

As a fully compatible liquid fuel, biodiesel can be used as an additive, blending component or complete replacement to diesel fuel. In order to be classified as an alternatively fueled vehicle, biodiesel must be mixed with diesel at a minimum of 20% (B20) in the blend. One AFV EPAct credit can be earned for every 450 gallons of biodiesel purchased, which translates into 2,250 gallons of B20.

From an economic impact standpoint, the price of biodiesel has come down dramatically over the past 6 months alone. Today, biodiesel can be routinely purchased for under \$2/gallon with additional price reductions for larger volume orders. While these costs are still higher than conventional fuel, they are dropping. Coupled with the rising costs of diesel fuel, not only is the gap beginning to narrow, but can possibly disappear in the near future. When evaluating the total cost per EPAct credit, biodiesel can offer a clear advantage compared to other alternative fuels. In particular, since biodiesel does not require capital outlays in new vehicles or refueling infrastructure, biodiesel is often the most cost-effective alternative fuel available to earn EPAct credits.

## A Fresh Breath

Environmentally speaking B20, along with the use of a catalytic converter, can reduce particulate matter by 30%, carbon monoxide by 21%, and total hydrocarbons by 47%. Biodiesel is completely free of sulfur and can also, even in very low blend ratios, have significant positive impacts to lubricity. Biodiesel also serves as a mild solvent, which actually cleans the fuel system. The only standard maintenance suggestion when converting an existing diesel engine to biodiesel is that after the first 30 days, a fuel filter change is recommended.

## Choosing Your Provider

When selecting a supplier, ensure the company supplying your biodiesel is reputable and has the ability to meet ASTM PS 121 specifications. It's also important from a quality and control standpoint to know if you are dealing

with an actual biodiesel manufacturer, or simply a marketer or reseller of alternative fuels. For questions regarding biodiesel quality, contact the National Renewable Energy Laboratory at (303) 275-4616.

## Keep Your Fleet

Alternative fuels will continue to be key factors for fleet managers, especially those challenged with EPA's mandates. As volumes increase, production efficiencies will be realized by manufacturers, resulting in continued downward pressure on pricing. In addition, tax incentives are a very real possibility in the not-so-distant future. Across the United States, biodiesel is available and implementable. For medium to heavy-duty vehicles, biodiesel offers a clear option that maximizes the utility of an existing fleet. A conventionally fueled truck today, can be an alternatively fueled vehicle

tomorrow. Biodiesel can be received in 55 gallon drums, tanker/truck loads or railcars. From maximizing engine life and performance to complying with stricter EPA air quality regulations, find out why more fleet managers are changing their fuel, not their fleets with biodiesel.

*Rick Geise is the current President of the Kentucky Clean Fuels Coalition and the Director of Marketing for Griffin Industries, a leading biodiesel producer. For more information on biodiesel, contact Hart Moore, at (800) 743-7413.*

