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## OIL INDUSTRY

# In push for new fuels, ethanol gets nudge

## A front-runner among alternative fuels, ethanol lags behind in terms of infrastructure.

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**PAROLE, Md.** - The handle on the ethanol pump at Wan Kang's Quik-Mart Citgo hasn't been lifted in more than a day. He's selling more water than he is the corn-based alternative to gasoline.

High oil prices and subsidies that Congress passed last year, however, are generating new interest in ethanol, which is made from corn and has been around so long that it powered Henry Ford's Model T.

President Bush weighed in on the issue in his State of the Union address last week, calling for boosting research on ethanol and other alternative fuel technologies to help reduce dependence on Middle East oil. Bush singled out cellulosic ethanol, which is made from plant fibers, and said it could displace up to 30 percent of the nation's current fuel use.

But on the outskirts of Annapolis, Kang sells 20 gallons of ethanol on a good day versus 1,500 gallons of gasoline. He sells ethanol through a U.S. Department of Agriculture program that's designed to promote ethanol use, and the weak sales suggest that ethanol has a ways to go before it replaces gasoline.

It's not that there aren't vehicles that can run on ethanol. More than 5 million of them are on American roads today. They can run on E85, a mix of 85 percent ethanol and 15 percent gasoline. The problem is that most owners still run their so-called flex-fuel vehicles on gasoline alone.

When gasoline prices soared to record highs last summer, Kang sold 300 gallons of ethanol a day. That suggests possibilities. But at \$2.99 a gallon, his ethanol is now 67 cents higher than the national average for unleaded gasoline, so "the customer is not interested right now," Kang said.

## REGIONAL BARGAIN

The story's different in the corn-growing Midwest, where ethanol production is centered. There, a gallon of ethanol can sell for almost 50 cents below the price of unleaded gasoline, now \$2.32 per gallon on average nationally.

Therein lies the ethanol industry's dilemma: How can it replicate its Midwest success far from its production centers?

Ethanol is an alcohol-based fuel made by fermenting and distilling crops that have been turned into simple sugars. U.S. ethanol producers make it from starch crops such as corn and sorghum. Ethanol production consumed 11 percent of all the corn grown in the United States in 2004, a figure that's projected to grow sharply in coming years.

Flex-fuel vehicles are almost identical to gasoline-run cars except for a slightly modified engine that requires a sensor in the fuel line to control fuel injection. More than 30 makes of flex-fuel vehicles are sold today in the United States. For example, Ford Motor Co. this year began offering a flex-fuel version of its popular F-150 pickup, and it will produce 250,000 flex-fuel vehicles at U.S. plants in 2006.

Despite that, Kang's is one of only about 635 stations nationwide that sell ethanol. Most are in the Midwest. Compare that with 167,000 filling stations and convenience stores that sell gasoline.

Rising production is also raising ethanol's prospects. Five years ago, ethanol makers struggled to produce 1 billion gallons; in 2006, they'll make more than 5 billion gallons. More than 30 ethanol plants are under construction today, and 150 more projects are in the works.

"I think everybody is realizing that [the era of] cheap oil is done," said Bob Dinneen, the president of the Renewable Fuels Association, ethanol's trade group in the nation's capital.

## **BIG BOOST**

The industry got a big boost from U.S. lawmakers last summer, when sweeping energy legislation required petroleum refiners to nearly double their use of ethanol as an additive in gasoline production to reduce greenhouse gas emissions. Refiners were effectively ordered to incorporate 4 billion gallons of ethanol into their production this year and 7.5 billion gallons by 2012.

The Natural Resources Defense Council and other environmental groups say carmakers deliberately under-promote flex-fuel vehicles. They believe that U.S. automakers use flex-fuel vehicles as a fig leaf. A loophole in federal law provides federal fuel-economy credits for makers of flex-fuel vehicles.

The perverse result, the environmentalists allege, is that carmakers manufacture a small number of flex-fuel vehicles so they can make more gas-guzzlers.

"If the auto companies are serious about this effort, then we need to see flexible-fuel vehicles running on ethanol, not gasoline," said Roland Hwang, the council's vehicles policy director in San Francisco.

Carmakers counter that flex-fuel vehicles aren't promoted nationally because ethanol isn't available nationally.

"We're doing our part, but the infrastructure needs to catch up," said Christine Morrisroe, a Ford spokeswoman in Dearborn, Mich.

Big Oil isn't anxious to lend a hand.

Red Cavaney, the president of the American Petroleum Institute, the oil industry's trade group in Washington, complained that oil companies are being asked to subsidize a competitor.

"At some point, ethanol needs to stand on its own merits. If they can operate and sustain themselves in a free market, then we ought to look at how we can get them to the point where they are relatively self-sufficient," he said.

The subsidy that Cavaney complains about is a 51-cent tax credit given by the federal government to oil refiners for every gallon of ethanol they blend with gasoline.

## ETHANOL FACTS

Here's a look at bio-fuels today across the globe:

- **Brazil and the United States** each produced about 4 billion gallons in 2005.
- **Brazil, the world's largest sugar producer**, makes its ethanol from sugar cane. The United States, the world's largest grower of corn, uses corn as the primary feedstock for its ethanol production.
- **The United States** has the most flex-fuel vehicles on the road today, more than 5 million capable of running on gasoline or ethanol. But most run on gasoline alone.
- **Brazil last year** sold 866,267 flex-fuel cars. Almost half of the 1.7 million vehicles manufactured in Brazil last year for the domestic market were flex-fuel vehicles.
- **Ethanol is widely available** in Brazil, but not in the United States outside the Midwest.
- **China is a distant third** in ethanol production, at just under 1 million gallons in 2004.
- **European nations traditionally use** more diesel fuel than gasoline. Bio-diesel made from crops such as rapeseed is growing fast. The European Union hopes that by 2010, all diesel vehicles sold in the EU will contain a blend of 5.75 percent bio-fuels.

SOURCES: RENEWABLE FUELS ASSOCIATION, ANFAVEA, EUROPEAN BIODIESEL BOARD