

Hot Topic: Can Ethanol Solve the Nation's Energy Problems?

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THE MAIN EVENT

Ethanol stirred Wall Street last week when the second-largest ethanol producer went public, a sign that the corn-based fuel has become hot as gas prices soar.

IN ITS FIRST DAY OF TRADING, VeraSun Energy Corp.'s stock jumped 30% to \$30 a share. Production capacity of ethanol in the U.S. has more than doubled since 1999, and the total number of ethanol plants has nearly doubled as well, to 97, with at least 30 more under construction.

In April, Bill Gates, chairman of Microsoft Corp., bought a large stake in Pacific Ethanol Inc., which produces ethanol. Wal-Mart Stores Inc. recently said it may start selling E85 -- fuel that is 85% ethanol -- at the stations it owns and operates. Also, auto manufacturers recently announced that they will ramp up production of ethanol-friendly cars.

Could ethanol be the answer to the nation's energy problem? Here is a look at some of the issues:

-- Why is ethanol suddenly so popular? Investors and consumers have been seeking alternatives to oil as gas prices hover near \$70 a barrel. President Bush, in his 2006 State of the Union address, called for more research into renewable energy, namely so-called cellulosic ethanol, the non-corn-based ethanol that is derived from natural products like switch grass, sweet potatoes, even pineapple tops. Today, nearly all ethanol on the market is corn-based, since there is a lack of technology to make cellulosic ethanol economically.

Fueling ethanol demand, refiners this year started phasing out MTBE, a gasoline additive that is potentially linked to groundwater pollution. Ethanol will replace MTBE in most cases, creating incremental demand for an additional estimated 2.2 billion gallons of ethanol in the near term, according to Jacques Rousseau, an

energy expert at investment bank Friedman, Billings, Ramsey & Co., an investment bank in Arlington, Va. Last year, Congress passed a bill that requires refiners to use 7.5 billion gallons of renewable fuel a year by 2012, up from about four billion gallons last year. Most of that will come from ethanol.

-- Is ethanol cost-effective? At the moment, no. Demand for ethanol has caused the spot price to rise to more than \$4 a gallon, which in turn is adding about 20 cents to each gallon of reformulated gasoline, according to Tom Kloza of the Oil Price Information Service. Ethanol also is less efficient than gasoline: A vehicle that gets 20 miles a gallon using conventional gasoline would get only 14.2 miles a gallon on E85.

Analysts expect ethanol prices to drastically dip in the coming months, after the summer driving season ends and new production capacity comes on line. The production costs for ethanol are lower than those for gasoline. At current oil prices, it costs about \$1.67 to produce a gallon of gasoline, compared with about \$1.10 to produce a gallon of ethanol. Moreover, every gallon of pure ethanol produced in the U.S. receives a 51-cent tax break when it is blended with gasoline.

-- Is ethanol good for the environment? Past studies showed that the amount of energy expended while producing ethanol exceeded the amount of energy obtained from its combustion. As a result, it was unclear whether ethanol did anything to reduce so-called greenhouse gases, which are believed to cause global warming. But the U.S. Department of Agriculture now says that more-efficient production allows ethanol to produce 67% more energy than the amount expended during production. In a separate study, the Argonne National Laboratory estimates that overall greenhouse-gas emissions for a car driving on E85 are 20% lower than one using gasoline.

-- Will my car run on ethanol? Nearly all cars made after 1970 can run on E10 -- fuel that is 10% ethanol. But only about 2.5% of cars are now considered "flex fuel," or capable of running on E85, and of those, just a small fraction regularly run on E85. About 1% of fuel- ethanol consumption in the U.S. is from cars using E85.

-- Compiled by Lauren Etter

POINTS OF VIEW

"Someday a president is going to pick up the crop report . . . and the first thing that's going to pop in the president's mind is, we're less dependent on foreign sources of energy. It makes sense to promote ethanol and biodiesel."

-- President George W. Bush

"The fast growth in the ethanol industry over the next few years is going to face many obstacles, including the difficulty in transporting it, ramping up corn production . . . and the difficulty in splash- blending ethanol into gasoline as a product for the consumer. Nonetheless, ethanol still seems poised for possible strong growth ahead."

-- Robert Wilder, CEO of WilderShares LLC, which tracks the clean- energy sector
"Ethanol has been under the radar for a long time -- now it's not. The only guys

making a lot of money using corn, it's not the guys who feed chickens. It's the guys who make ethanol."

-- Steve Bruce, a corn and wheat broker with Man Financial
"There's a certain speculative rush that reminds a lot of people about the dot-com" boom.

-- Kevin Book, analyst at Friedman, Billings, Ramsey & Co.
FACTS

Henry Ford's first car -- the quadricycle, built in 1896 -- was made to run on pure ethanol. His Model T was built to run on gasoline, ethanol or a combination of both. Ethanol is distilled in a similar way to moonshine, or bootlegged alcohol. Corn and water are mixed into a mash, enzymes turn starch to sugar and heat ferments yeast. After further distillation, out comes ethanol and high-protein animal feed. Brazil is the largest ethanol producer, and hopes to achieve energy independence this year. Ethanol accounts for about 20% of Brazil's transport fuel market, and about 2% of combined gas and diesel consumption in the U.S.

About 80% of the nation's ethanol is made in five states: Illinois, Iowa, Nebraska, Minnesota and Indiana. Most ethanol use is in the Midwest, although it is spreading to the coasts. California and New York now account for at least 22% of U.S. ethanol consumption, up from 5% in 1999.

Of about 170,000 gas stations nationwide, 774 sell E85, according to the National Ethanol Vehicle Coalition. Minnesota has the most E85 stations with 214. Illinois has 127, Missouri has 52 and Pennsylvania has two.

This year, the racers of the Indy 500 used E10 fuel. Next year, the Indy racers will use E100 -- fuel that is 100% ethanol. A 1927 Indy 500 car ran on ethanol and started in third position.