

Mixing Alcohol & Politics

Is ethanol the fuel of the future or another giveaway to farmers?

By Paul Woods

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Although our economy has morphed into something that would make Adam Smith turn over in his grave, the U.S. still generally permits more old fashioned capitalism than the rest of the world. However, there is one glaring exception. This industry is protected from free market competition with subsidies and welfare payments that single mothers with too many children can only dream of. The undisputed kings of welfare in this country are big farmers and food processors, and they did it the old fashioned way. In many states, they're the biggest contributors to politicians.

Although most large farmers pay pennies on the dollar for water while city folks make up the difference, the big money is in price support payments. These payments were originally designed to help farmers when crop prices were low. However, once politicians begin writing checks to powerful constituencies, those checks tend to keep coming even when circumstances change. With most crop prices now high, the practical effect of continuing price supports is to encourage too much production. Besides wasting taxpayer dollars, the unfortunate result is that these excess supplies hold world crop prices down and keep third world farmers at poverty levels.

Finding a Use for All That Excess Corn

Given that rising energy costs are finally making alternatives look better, it was probably inevitable that politicians would notice all that corn sitting around in warehouses. Creating subsidies for turning it into ethanol is a politician's wet dream, which is why both parties support it. It makes them look as though they're doing something about the energy problem, gets rid of those embarrassing corn surpluses that annoy the third world, and allows them to throw even more taxpayer dollars at folks who already know how to play the game and will gladly return a portion in the form of bigger campaign contributions.

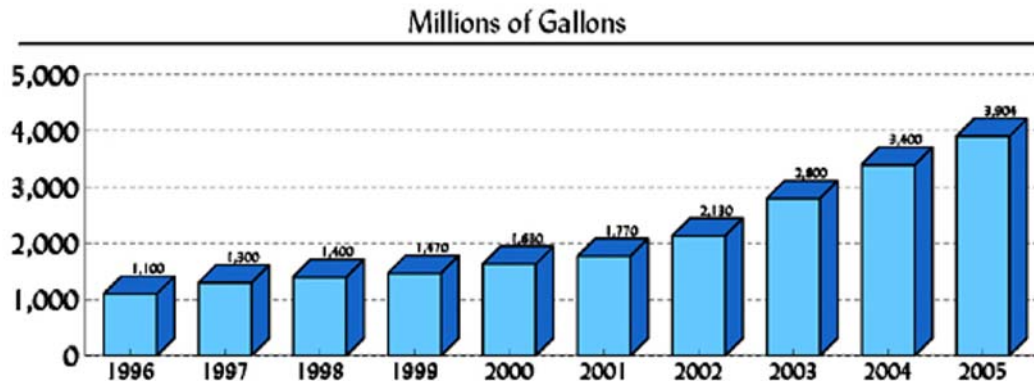
The Market

The ethanol made in this country, also known as ethyl alcohol, is basically 100 proof corn whiskey. The production process isn't exactly high tech and hasn't changed much in over a century. Ethanol can be distilled from a wide variety of plant materials, but is produced most efficiently from those with more sugar as there's a direct correlation between sugar content and the resulting amount of alcohol that's produced.

Ethanol got a boost in the last few years when some states began to ban MTBE as an additive in gasoline because traces of it were beginning to show up in drinking water. MTBE is used primarily to oxygenate gasoline and make it burn cleaner, which reduces emissions. For consumers in states like California that oxygenate their gasoline, the result is a gasoline that also costs more and produces poorer mileage. Some California consumers are less than thrilled at having to put this in their cars, which explains why the ARCO station on I-80 in Nevada a few miles from the California state line is one of the busiest gas stations in the country.

In looking at ethanol production over the last few years, it's important to tune out the fuel of the future hype and understand that most of the demand is coming from another source. Ethanol also oxygenates gasoline, and has begun to replace MTBE as an additive. That's the primary reason for production increases in the last few years and is likely to be the primary driver of demand over the near term. The open question is, once ethanol has mostly replaced MTBE in gasoline, will its use as a fuel allow demand to continue to grow?

U.S. Ethanol Production



Source: Renewable Fuels Association

Ramping Up

According to the Renewable Fuels Association

<http://www.ethanolrfa.org/industry/statistics/>, there are currently 97 ethanol plants in the U.S. with a total production capacity of 4.48 million gallons.

The Energy Policy Act of 2005 requires U.S. fuel ethanol production capacity to increase to 7.5 billion gallons by 2012, and more plants are currently under construction. According to the RFA, there are another 33 ethanol plants under construction that will increase production capacity by about 1.9 million gallons.

At present, there's a 51 cent per gallon tax credit given to refiners and blenders that mix ethanol into their gasoline (the biggest beneficiary, Archer Daniels Midland, will receive OVER \$500 MILLION from this even though Congress can't find any more loopholes to plug). Numerous states are also offering incentives at present. As a result, there are undoubtedly more plants on the drawing board.

Infrastructure Issues

At the end of 2006, there will probably be around 700 gas stations offering ethanol fuels, out of a total of about 170,000 in the U.S. Not surprisingly, most of these are located in the corn growing states in the Midwest. It's safe to say this number has to expand a bit for ethanol to have any impact on our demand for gasoline.

Even though more ethanol plants are going to be built, getting it to consumers will take time and a huge capital investment. The biggest problem is that it is very corrosive when it comes into contact with anything containing iron. This is one of the reasons cars have to be retrofitted before using it. However, the biggest problem comes in transportation. Not only does ethanol evaporate quickly, but it can't be pumped through existing gasoline pipelines because it corrodes them. As a result, it has to be shipped on trucks, trains, and barges in relatively small amounts to special storage facilities where it's blended with gas. Finally, fuel pumps at existing gas stations have to be specially adapted for its use.

Brazil

Brazil is the world's leading manufacturer and low cost producer of ethanol. It isn't rocket science to figure out that, if there's a correlation between sugar content and the resulting amount ethanol that's produced, the best stuff to make it from is sugar cane or sugar beets. That's precisely how it's made in Brazil, and they'd happily ship ethanol to the U.S. for less than it probably costs to make and distribute here. However, in our efforts to protect U.S. farmers and food processors from free markets and competition at all costs, there's currently an import duty of 54 cents per gallon on Brazilian ethanol.

The tariff on low cost Brazilian ethanol speaks volumes about the motives behind the current push for ethanol. If the goal was really to help consumers deal with rising energy costs, this import duty would be removed, Brazilian ethanol would be brought in, and the savings would be passed on at the pump. Since that isn't happening, it's hard not to be cynical about the politics here.

It's probably fair to say that the reasons for using corn to produce ethanol in the U.S. are political, not practical. Corn prices are going up and the starch in corn has to first be converted into sugar, which is a less efficient production process. It's questionable whether ethanol that uses expensive corn as a feedstock will provide enough profit to build out the required infrastructure while also allowing it to be priced sensibly enough to create demand.

Pricing

The most common ethanol based fuel is known as E85, which is 85% ethanol and 15% gasoline. In states with an established infrastructure, it's generally priced at 40–50 cents per gallon less than gasoline. However, in states that have just begun to offer it, the cost of building the infrastructure can result in E85 being priced as much as 50 cents per gallon MORE than gasoline.

In comparing E85 with gasoline, we'll use the best case scenario as far as ethanol pricing. Assume gasoline costs \$3.00 per gallon and E85 costs \$2.50. However, keep in mind that the EPA recently tested the gas mileage of the 2006 flexible fuel vehicles. For the 31 models tested, the average was a 26% reduction in gas mileage when E85 was used <http://zfacts.com/p/436.html> . In other words, a flexible fuel vehicle that gets 20 MPG on gasoline will get 14.8 MPG with E85. For comparison purposes, here's the cost of driving 15,000 miles per year on each fuel using that vehicle:

Gasoline @ \$3.00 per gallon will cost \$2,250 to drive 15,000 miles

E85 Ethanol mix @ \$2.50 per gallon will cost \$2,534 to drive 15,000 miles

In this example, the lower miles per gallon of E85 makes it 12.6% more expensive to use as a fuel, even when it's priced 50 cents per gallon less than gasoline. To equalize driving costs in the above example, E85 would have to be priced at \$2.22 per gallon.

The Inconvenience Factor

Even if ethanol is priced at enough of a discount to equalize the cost using gasoline, it still may not be used widely because of its inconvenience. If a consumer with a flexible fuel vehicle fills it with gasoline once a week, using ethanol will require a fill up about every 5.2 days. Over the course of a year, that's an additional 18 days that have to be spent looking for a gas station. Everyone places a different premium on their time, so pricing this into the equation is difficult. However, my guess is that, if the ethanol infrastructure is built and no one uses it, this will be one of the reasons.

The Biofuel of the Future?

There's a fuel under development made from biomass that produces slightly better gas mileage than gasoline, can be used as a fuel without retrofitting existing cars, and can be transported through existing gasoline pipelines. The fuel is butanol <http://www.butanol.com/>, which is part of the alcohol family. Since this is a new technology, it costs more to build a plant and break even costs are higher.

The biggest thing going for butanol might be that there's a limit to how much ethanol can be produced from excess corn, while butanol can be made from any plant material containing cellulose. Like any number of technologies under development, it sounds good, is expensive, and remains to be seen what will happen with large scale production.

All Things Considered

Ethanol has been around a long time, and the powerful corn lobby and producers like Archer Daniels Midland seem to dress it up and trot it out every time the price of oil goes up. Ethanol was also touted as the fuel of the future and received significant incentives and subsidies during the last energy crisis in the 1980's. At that time, the number of ethanol plants increased from less than 10 in 1980 to 163 in 1984. By the end of 1985, 89 of these plants had closed as the price of oil came back down <http://www.eia.doe.gov/kids/history/timelines/ethanol.html>.

The chances of oil prices staying high look better this time and consumers now appear to be more serious about finding alternative fuels. Ethanol manufacturers are ramping up production capacity again and appear to be betting that consumers will be willing to pay a significant premium and will also be willing to spend more time finding gas stations. Some people will undoubtedly use this as a fuel, but we're less confident that ethanol will overcome these problems and find widespread use. As a result, the odds of a capacity glut in the future appear significant. For now, we're happy to sit on the sidelines.

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