

Biofuels' Big Picture

Despite some challenges, biofuels should experience market growth going forward.

BY DR. JIM BUDZYNSKI

WHAT is the outlook for biofuels? We must admit that initially, we were quite guarded about the industry. In addition to a lot of "hot" money chasing it, we felt there were high degrees of both political and economic risk. But after a year of studying the industry further and looking at several opportunities, we've become convinced that the bioenergy industry in this country is maturing rapidly and is definitely here to stay. In addition, we believe that it will look far different in five years than it does today.

We feel the drivers of future change in this industry will fall into four primary categories — economic, feedstock, political, and operational.

Economic Drivers. The reality is that any industry whose goal is to replace some portion of a volatile commodity is likely to experience some of the same price volatility itself. Therefore the core economics of oil dramatically impact the economics of biofuels. Over the long term, the economics of oil seem very favorable to the biofuels industry.

The oil crisis in the 1970s was caused by a supply squeeze, and prices inevitably retreated when supplies expanded. This lesson may foretell some challenges in the ethanol space, as very aggressive ethanol capacity expansions over the next few years will inevitably cause ethanol pricing (and production profit) erosion.

Remembering The Key Drivers

But the key driver of today's higher oil prices is *both* a demand *and* a supply squeeze. China and India are rapidly industrializing and their

emerging middle classes are buying cars (and gas) at breakneck pace. At the same time, the global oil industry has been challenged to replace depleted oil reserves through new discoveries. It seems very plausible that we are entering a new era where \$40 to \$70 per barrel, rather than \$15 to \$40 per barrel, is the norm for oil prices.

Feedstock Drivers. Corn has been the historical feedstock for ethanol plants, and this made great sense when the industry was very small and consumed a limited amount of corn. However, as the industry has exploded, the hypothetical conflict between corn's use for animal feed and ethanol production is starting to become a real one.

Nowhere will this be more acute than the upper Midwest, where there is a very high concentration of corn production, hog production, and ethanol production. Today hogs are, at best, marginal users of distillers dried grain (DDG), so much work will need to be done to make changes to corn (or hogs) that improve the suitability of ethanol byproducts for feed.

While cellulosic ethanol production may or may not be the primary next generation feedstock, it does seem clear to us that #2 yellow corn will *not* be the feedstock of the future. While this feedstock transition is still several years away, it will change this industry in very big ways.

Political Drivers. In its infancy, the biofuels industry was heavily dependent on high levels of government subsidies. These subsidies were constantly undermined by low oil prices and spotty political support. On this front, there is reason for long-term optimism. The discussion on global warming is getting louder all the time, and biofuels have a very positive profile. In addition, there seems to be growing awareness about U.S.

vulnerability to oil supply disruptions from hostile or unstable global oil suppliers. Lastly, as the "footprint" of biofuels has expanded beyond the Midwest, the base of political support for the industry is also expanding.

Operational Drivers. In the earliest, entrepreneurial phases of its growth, the biofuels industry was supported by fervent believers. However, there seems to be wide variability in the management skills and sophistication of many operators. This will change as the industry matures, and higher levels of professional management and expertise will be required for survival.

Transportation, Production Issues

In addition to day-to-day management, the level of logistics sophistication and downstream linkages will also need to increase dramatically. Getting the biofuels and byproducts delivered to customers will be key, and significant bottlenecks are already beginning to appear. Too many facilities have no clear plan on how they'll effectively utilize production byproducts.

Finally, many biofuels plants are not as efficient as they need to be. They use too much water, too much energy, and produce too much waste. Much time, effort, and energy in the coming years will be applied to solving these challenges, and operators who neglect to change will be squeezed out as profitability declines.

How will the biofuels industry evolve? Nobody can say for sure. Our assessment is that the future is bright for managers who are aggressive and open-minded and who recognize that the industry's maturation should be embraced, not avoided. ▀

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