

The Rise of Biofuel and Fall of Ethanol?

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A funny thing happened on the way to the New Energy revolution: the movement's leader lost its way. For years, corn and soy-based ethanol reigned as the alternative energy establishment's fuel of choice to replace gasoline and other liquid combustibles in the American energy portfolio. Ethanol was thought to be a viable domestic substitute to foreign oil, producing less adverse environmental effects and being largely compatible with the nation's existing vehicle fleet and driving habits. Perhaps most importantly, ethanol was seen as politically expedient, dovetailing the interests of the nation's farmers with environmental advocates. Industry and political leaders were singing ethanol's praises and crafting national policy to encourage ethanol's growth.

Over time, the ethanol market became flooded with cash from government subsidies and tax breaks that encouraged entrepreneurs. Federal law soon mandated that commercial gasoline be mixed with ethanol at increasingly higher percentages, creating a mechanism by which ethanol could be introduced into American cars and society. These factors spurred investors, and the relative ease in obtaining funding led to a surge in the number of independent ethanol producers backed by various types of capital. Large numbers of ethanol producers came on-line, even before the technology found a niche, and even as the fuel began to face harsher criticisms from environmentalists who downplayed or dismissed its beneficial effects.

Ultimately, though, the surge in supply, unreliability of federal tax credits

and subsidies, and growing environmental criticisms came crashing down on the ethanol industry. 2008 and 2009 have seen a rash of bankruptcies as oil prices - a leading indicator for ethanol prices - swooned, squeezing margins for ethanol producers. The heavy debt financing obtained by many ethanol start-ups eventually dragged down companies who faced declining revenue, even as the federal government continued to require ethanol blending into commercial gasoline. Recently, the industry has seen the bankruptcies of some of its biggest names, including VeraSun, five production units of Pacific Ethanol, and more than a dozen other companies.¹ Further complicating the industry's problems (whether justly or not), ethanol production took the brunt of public criticism for rising food and commodity prices in 2008, as critics attacked the use of traditional farm land for the production of ethanol feedstock. All the while, the environmental movement's opinion regarding ethanol continued to deteriorate following new studies questioning the fuel's effects on climate change. Now, ethanol's future place in the renewable fuels world appears at best uncertain.

Meanwhile, the outlook appears very different for biofuel enthusiasts. The term "biofuel" encompasses the broad and somewhat varied world of alternative energy production through non-food biological feedstocks, biological waste, and biological processes. Ethanol continues to be an end-product created by some biofuel technologies; however, these ventures use feedstocks other than corn or soy. So-called cellulosic ethanol utilizes existing

biomaterial (such as wood chips, hay, and corn stover) for the distillation of the fuel, thereby reducing the competition between energy and food for the use of corn and soy beans. Other cutting edge companies are exploring a variety of processes to create non-ethanol biofuels. Both cellulosic ethanol and non-ethanol biofuels have the potential for addressing many of corn and soy-based ethanol's shortcomings. The goal is to create advanced biofuels that can produce energy at a higher rate per gallon of fuel, while not competing directly with the American food supply and achieving net gains in the fight against climate change.

Some cutting edge biofuel processes, such as the cultivation of algae for biofuel production, appear poised to be industry-changing in a way ethanol promised during its early years. Industry pioneers like Jonathan Gal, President of Texas Clean Fuels, which produces a critical component in the algae-to-fuel process, notes that algae could be a panacea for the current criticisms of alternative fuels.² Algae is not a food product, Mr. Gal notes, and its growth requires significantly less land than corn or soy beans. Further, algae can be raised in semi-arid regions unsuited to the production of other crops. Its cultivation requires less water and can be used for the sequestration of carbon dioxide, which algae processes in its creation of biofuel. Finally, the biofuel produced has characteristics that solve several logistical problems that plague ethanol, including that it can be safely conveyed via pipelines that corn and soy ethanol cannot.

Perhaps recognizing the shifting industry forces, the Obama administration has taken steps to encourage biofuel development - separate and distinct steps from the ethanol mandate currently in place. The American Recovery and Reinvestment

Act ("ARRA") devotes \$78.6 million to accelerate advanced biofuels and research and development, and to provide additional funding for commercial-scale bio-refinery demonstration projects. ARRA also provides for an extension of the renewable energy production tax credit for biomass projects through December 31, 2013. However, according to the Department of Energy's press release announcing the funding of biofuels research, only \$20 million is specifically planned for continuing ethanol research. EPA Administrator Lisa Jackson told reporters that "corn-based ethanol is a bridge" to next generation fuels, further suggesting that ethanol is less of an administration priority than other alternative energy strategies.³ The move away from ethanol and towards biofuel production appears to be accelerating.

Questions remain, though, as to whether the nascent biofuels industry represents the logical next step following the country's ethanol experiment, or if it is facing a repeat of the boom and bust cycle seen for corn and soy-based fuel. The potential for algae and other biofuel production seems great, and cutting edge biofuel technologies appear impervious to many of the complaints regarding ethanol. However, big businesses, especially Big Oil, appear to be less convinced of biofuel's superiority. A number of industry players, like Archer Daniels Midland and Valero, have been buying up ethanol industry assets at rock-bottom prices following the recent slew of bankruptcies.⁴ The companies, which have ample funding and strong political connections, are betting on ethanol's expansion. Meanwhile, biofuel research has yet to hit the mainstream. Further, or perhaps as a consequence, there are mixed political signals emanating from

Washington about the next step in the march towards widespread use of alternative fuels.

Ethanol advocates recently petitioned the EPA to increase the mandate for the percentage of ethanol blended into commercial gasoline up to 15%. Agriculture Secretary Tom Vilsack recently supported such a move, even discussing a greater increase up to 20%.⁵ Such a mandate would no doubt encourage continued focus on the ethanol creation process, and likely expand the refining of corn and soy beans. Backed by federal mandates, the funding for ethanol production could continue and perhaps increase, possibly crowding out investors for the newer biofuels technologies. Big Oil's involvement, with its obvious competitive concerns and significant political sway, could tip the scales even more in ethanol's favor. An ethanol-based gasoline additive may be seen as less of a commercial threat to Big Oil's fuel monopoly than a wholesale change to a new technology. These politically powerful owners of ethanol assets could encourage an ethanol-driven energy policy at the expense of biofuels.

The implications of this market and policy competition for deal-makers (and, potentially, their attorneys) are legion. The ethanol industry suffered from the uncertainty of tax credits on which many of its investors relied as incentives. An Administration emphasis on ethanol, with its ready market for blending with commercial gasoline, threatens to raise further questions for investors and entrepreneurs regarding future federal support for the biofuels industry. Further, the political pressure from an ethanol industry uniting farmer-friendly corn and soy-based ethanol advocates with

corporate America threatens to derail biofuels research and stave off both venture capital and government funding opportunities.

Deal-makers structuring investments in the ethanol or biofuels industry must consider the potential ramifications of these policy changes when making business decisions, and could expect counsel to craft documents that accommodate changing political concerns. A company's equity capitalization, its level of debt, whether to issue preferred or common shares to investors (or whether such investors should accept such classes), and tax planning for both the investor and the company, could all be influenced by the market and political dynamics between ethanol and biofuel. Ethanol start-ups and investors risk falling victim to the pressures that led to the 2008 and 2009 bankruptcies. Meanwhile, the mixed messages regarding ethanol's future could doom the biofuel industry's attempts to get off the ground. Investors and start-ups alike must position themselves to weather a wide variety of potential market storms. Attorneys, accordingly, could benefit from identifying and understanding the business concerns facing their clients.

Companies and investors in the industry should pay continued attention to the EPA's ethanol mandate, as well as future actions taken by the Department of Energy's Biomass Program. Administration efforts and market dynamics should guide forward-looking strategies for businesses and investors in these fields. The potential in both the ethanol and biofuel industries appears great. However, the competition technologies could leave one set of investors wondering what went wrong.

¹ See "More details emerge on VeraSun bankruptcy; current shareholders facing wipeout," *Biofuels Digest Online*, <http://biofuelsdigest.com/blog2/2008/11/04/more-details-emerge-on-verasun-banruptcy-current-shareholders-facing-wipeout/>, last visited 7/21/09; see "Pacific Ethanol units file bankruptcy," *Portland Business Journal*, www.bizjournals.com/portland/stories/2009/05/18/daily9.html, last visited 7/21/09.

² E-mail from Jonathan Gal, President of Texas Clean Fuels, to Matthew Penny, Cokinos, Bosien & Young (May 2009) (on file with author).

³ See Reuters, "EPA issues rule to lower CO2 output from biofuels," *Reuters AlertNet*, <http://www.alertnet.org/thenews/newsdesk/N05476101.htm>, last visited 7/21/09.

⁴ See Max Schultz, "The Ethanol Bubble Pops in Iowa," *The Wall Street Journal Online*, <http://online.wsj.com/article/SB124000832377530477.html>, last visited 5/1/2009.

⁵ See Associated Press, "U.S. Should Boost Ethanol Production in Gasoline, Vilsack Says," *The Wall Street Journal Online*, <http://online.wsj.com/article/SB123661267686771979.html>, last visited 3/9/2009.