

# Consider a ride in emerging biofuels industry

**THE 2007 STATE** of the Union and State of the State speeches highlighted once again the burgeoning renewable fuels industry in the United States and Minnesota.

President Bush has called for the use of 35 billion gallons of renewable fuels by 2017 and Gov. Pawlenty is calling for 25 percent of Minnesota energy to be produced from renewable sources by 2025.

In a short five years, U.S. ethanol production has increased from approximately 1.7 billion gallons per year in 2001 to more than 4.3 billion gallons per year in 2005. Estimates for 2007 ethanol production exceed 8 billion gallons.

Biodiesel production has not exploded as quickly, growing from 5 million gallons in 2001 to 75 million gallons in 2005. Biodiesel production capacity was about 580 million gallons in mid-2006. However, industry sources estimate that at least 1.4 billion gallons of additional capacity are under construction and more are planned.

In Minnesota, 16 ethanol plants produced about 550 million gallons in 2006. Eight plants are under construction or have been announced. Four current biodiesel plants can produce just over 63 million gallons of biodiesel per year. At least one additional biodiesel plant has been formally announced, adding another 4 million gallons of

**[tips]** **1** | If you want to try to build an ethanol or biodiesel plant, you will need a good site. Obtaining a feasibility study from an industry expert is the best way to ensure your site is acceptable.

**2** | Ethanol and biodiesel plants are expensive, so start looking for financing. Each financing option has its advantages and disadvantages.

**3** | The renewable fuels industry, still relatively young, is constantly evolving and looking for better technologies and processes.

capacity.

Sound interesting? These statistics reflect only officially announced plants, and it is likely there are plans for more than twice these capacity figures in various stages of development. Not all plants being considered will be completed, of course, but the recent government statements about dramatically increasing renewable fuels usage will continue to spur new development.

This surge in renewable fuels interest is making many business people won-

der how they can get involved. There are two obvious ways to do so: Build a plant or provide a good or service to a plant. Here are considerations to get in this emerging game.

## Site selection is key

If you want to try to build an ethanol or biodiesel plant, you will need a good site, with access to plentiful water, feedstock such as corn for ethanol and soy oil for biodiesel, transportation, power and skilled employees.

Obtaining a feasibility study from an industry expert is the best way to ensure your site is acceptable. Feasibility studies often take three months to complete and cost about \$40,000. Many financing sources, and every bank, will require a feasibility study prior to committing any money.

Building a plant also requires selecting a design-builder. Years ago, there were only a few builders in the industry. Now, those firms have waiting lists until 2010 and beyond.

New entrants have emerged, most with excellent reputations and abilities, but unfortunately, a few groups are simply looking to make a quick buck in a high-growth market, sacrificing quality. Project developers end up hurt by such groups, so be careful.

Part of the design-build selection is the process technology. Like builders, until recently there were only a hand-

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— Todd Taylor, Fredrikson & Byron

ful of process technology providers. Now, companies that previously only operated in Europe and Asia have entered the U.S. market and are providing high-quality process-technology packages.

Ethanol and biodiesel plants are expensive, so start looking for financing. An ethanol plant may cost \$2 per gallon or more to build, or \$100 million for a plant that produces 50 million gallons a year. A biodiesel plant may cost \$1 per gallon to build, or \$30 million for a plant that produces 30 million gallons a year.

Plants are typically financed with a combination of debt and equity; currently that ratio is 50-50, or even less if your project is not considered prime by the banks. Most developers start by raising a seed round of \$1 million or more, enough money to prepare feasibility studies and hire consultants and lawyers to get the project off the ground.

Note that many banks, bloated with biofuels loans, are now lending only \$1 per gallon of capacity. As a result, expect to raise significant equity for a plant. Equity can be raised from local investors in an intrastate offering, from national investors in a public offering

or from institutional or wealthy private investors.

Each option has its own advantages and disadvantages. Local, farmer-based investor participation remains the most common form of funding, but may take longer to commit funds and such investors often seek a distinct local flavor to the project, including management.

A public offering can be expensive, time-consuming and obligates that company to file periodic reports with the Securities and Exchange Commission, but it allows access to a wider variety and number of investors.

Institutional investors, such as private equity funds, only invest if they can achieve a preferred return and will be very selective on the deals they will do. On the plus side, they can fund the entire cost of a plant.

Renewable fuels plants also require a number of environmental and other permits. Issues such as air quality, water usage and wastewater discharge, increased traffic on both rail and roads and noise and light pollution must be addressed with the appropriate governmental agencies. It is important to have an idea of how these issues will affect the surrounding community and

how any negative impacts can be minimized.

Some risks to consider when deciding to build a renewable fuels plant involve potential over-capacity issues, feedstock and energy supply and costs, product demand, changes in governmental incentives and increased environmental compliance. Each of these is a significant risk and must be considered.

### Better processes sought

Another way to get involved in the renewable fuels industry is to provide goods or services. The renewable fuels industry, still relatively young, is constantly evolving and looking for better technologies and processes.

Many technologies and processes already in use in other industries could be used to help the renewable fuels industry. Distribution and logistics are among the most vexing issues currently facing the industry.

Alternative feedstocks, including cellulosic ethanol and non-soy-based biodiesel, are also important advances that need further development.

Energy supplies such as biomass, coal gasification, wind and waste to energy, rather than natural gas and coal, have a place as the industry advances, but require more development.

The biofuels industry is still full of opportunities, many undiscovered and waiting for those with a vision to take advantage. Those who apply their expertise and energy to this exciting industry may even end up making a difference in the world.

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