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## Separating the magical from the practical

IN RECENT YEARS, no more magical word has floated around the industry than “biorefinery.” By providing a typical pulp and paper mill the ability to produce bio-diesel, ethanol and syn-gas, adoption of the biorefinery concept could reduce the facility’s intake of fossil fuels, provide even more profits from sale of these energy sources on the open market or even save the mill from closure.

But is the concept practical as well as magical? While some academic institutions are looking at the feasibility of biorefinery processes for pulp and paper, paper companies in general seem to regard the idea as mixed with a bit of fairy dust. Since there are many technical obstacles to overcome, this may be accurate for the time being, but where is the vision and voice for this and other promising technologies within a struggling North American industry?

### **DOE takes a pass**

In late February, the US Department of Energy (DOE) announced that it would invest up to \$385 million over the next four years for six biorefinery projects. The proposal solicitation, announced a year ago, was initially for three biorefineries and \$160 million, but the amount was upped in an effort to expedite the goals of President Bush’s Advanced Energy Initiative and those of his Twenty in Ten Initiative, which aims to increase the use of renewable and alternative fuels in the transportation sector to the equivalent of 35 billion gal/yr by 2017.

The DOE selections were varied in that the three main pathways to cellulosic ethanol were represented: gasification, enzymatic technology and acid hydrolysis. As feedstock, everything from corn stover and wheat straw to yard, wood, vegetative and sorted landfill waste will be used. Also, the facilities receiving the funds are located all across the US.

But, of the six biorefinery projects, which are described at [www.energy.gov/news/4827.htm](http://www.energy.gov/news/4827.htm), not one hails from the industry that holds the technical lead on cellulose technology and lignin separation—pulp and paper. However, the odds were not good for such a choice, given that only one, smaller mill was in the position to go for a chance at the government funds, Flambeau River Papers in Park Falls, WI. (It is important to note

that Potlatch (a REIT) laid groundwork to qualify its Cypress Bend Mill in Arkansas, but did not raise funds in time to meet the DOE deadline.)

### **What the selections say about us**

In looking at the six projects chosen, two obvious commonalities come to light. First, most of the companies had demonstrated their process at the pilot level, some for several years. If they had not, they were currently building a pilot facility.

Secondly, and perhaps more importantly, the companies had well-known, financially sound partners, such as Waste Management Inc., DuPont, Novozymes, Goldman Sachs and The Royal Dutch/Shell Group. Combining the \$385 million of government funds with the industry cost share, the DOE says more than \$1.2 billion will be invested in these biorefineries.

What do these commonalities say about our industry? First of all, just because we missed this boat doesn’t mean we won’t catch the one behind it, but we might be rowing hard to catch up. Still, the ability to foresee the promise in a new technology in time to grasp the opportunity appears beyond a cost-cutting focused North American industry that sometimes appears resigned to managing decline rather than embracing the possibility of growth.

And, regarding the partnerships that the six companies developed, have paper companies become so focused on Wall Street and cost cutting that they have insulated themselves from lucrative partnerships outside the industry, either government or private? With its wealth of access to cellulose, this cash-strapped industry should be the frontrunner for such collaboration.

The industry needs to develop a collective vision and voice in order to take advantage of the biorefinery concept, if any hint of openness to change and new ideas still exists. Partnerships within and outside the industry should be seriously considered as a means of keeping North American mills competitive. If so, perhaps the biorefinery is not just fairy dust after all.

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