The ethanol effect

Toby Kolstad

Soon, ethanol will become a significant source of automobile fuel in the United States. And railroads and tank cars will play a central role in transporting it.

Three years ago, ethanol looked as if it were just an expensive government-sponsored program for farmers. Now, the growth of the ethanol industry is the most significant development to drive new railroad traffic in decades.

With gasoline selling at or near the production and distribution costs of the mostly corn-based product, it took a 51-cent-per-gallon government subsidy to entice companies to build the expensive plants — $75 million for a 55-million-gallon-a-year facility — to make the stuff. Since 2003, the price of gasoline rose from $1.50 to $3.00+ per gallon; ethanol production increased from 2.8 billion gallons to 4.7 billion gallons annually; and railroads' ethanol carloads rose from 108,000 in 2003 to a projected 175,000 this year.

Last year, when the ethanol industry's annual capacity was slightly more than 4 billion gallons, the Bush Administration mandated the use of 7.5 million gallons of ethanol per year by 2012. It now appears there may be enough capacity and corresponding demand to meet that goal by 2009. If production keeps expanding at the current rate, it won't be long before the annual total exceeds 12 million gallons, which would generate more than 425,000 rail carloads of ethanol per year and — if production remains concentrated in the Midwest — require 50,000 new tank cars.

It costs twice as much per gallon of ethanol to ship corn by rail to West Coast and East Coast distilleries as it does to ship ethanol produced in the Corn Belt to the coasts, which is why almost all the plants are in the Midwest. One factor that could change the transportation equation: the sale and disposition of the byproduct of ethanol production — dried distillers grains (DDGs).

DDG DISPOSITION'S A FACTOR

Up to now, Midwestern dairies and feedlots have been able to use all of the DDGs as supplemental feed for their livestock. But just as automobiles can only take a 15 percent mixture of ethanol with gasoline, cows and steers can only tolerate a 15 percent mixture of DDGs with their normal feed. Most of this product has been shipped by truck from the distilleries, with railroads handling less than 20 percent of the total production. However, Midwestern livestock probably won't consume much more of this product, and that any increases in DDG production would have to be shipped out of the region, according to research presented recently by the National Corn Growers Association.

But shipping DDGs has been problematic in the past. The stuff doesn't flow out of the gravity gates of covered hopper cars very easily, and using long poles to unstick DDG clumps can cause structural damage to the cars. Miner Enterprises Inc. has designed a new 42-inch by 42-inch gate and shippers are saying they'll leave their distillers grains in the drier for a longer period, but the jury is still out on whether these fixes will be enough. Since the product is lighter than corn, a larger car is needed to optimize the net-to-tare ratio, one that measures more than 6,000 cubic feet. Unless these cars are manufactured to plastic-pellet-car specifications for possible conversion (a very expensive process), the cars would have but one use. And if they're only suitable for DDG moves, the cars are risky investments and, as a result, less attractive to the leasing industry.

In short, the disposition of DDGs from the next 8 billion gallons of ethanol might change the transportation economics and, in the end, could prompt ethanol producers to justify building plants outside the Midwest. Regionally located plants would require fewer tank cars and no additional DDG covered hoppers; existing covered hopper cars would be more than sufficient to move the corn formerly exported to new distilleries.

Ultimately, it could mean less traffic for the railroads to handle.

TANK CARS & TIPPING POINTS

The ethanol boom poses other risks for railroads, particularly a loss in corn traffic. There is more than enough corn in the United States to make 12 billion gallons of ethanol annually, but without significantly higher yields, not much will be left to export after 8 billion gallons of ethanol are produced. To reach 12 billion gallons, producers may need to distill some of the corn currently being used to make sweeteners. The latter products have been protected by high tariffs on sugar imports, but if the corn is needed for ethanol, why continue to subsidize the sweetener industry?

The ethanol industry is still evolving; other biomass feed stocks may replace or supplement corn in fuel production. It's too early to make accurate predictions about the course of these developments. But one projection looks fairly certain: Ethanol will become a significant source of automobile fuel in the United States in the near future, and railroads and tank cars will play a central role in transporting it. PR

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