

Convenience Store News

WHAT'S NEXT IN CONVENIENCE AND PETROLEUM RETAILING

1/11/2010

Eyes on DEF

As new trucks equipped with selective catalytic reduction (SCR) begin hitting the nation's roads, truck stops serving them and other diesel fuel retailers are trying to get a handle on their role as sellers of diesel exhaust fluid (DEF), a solution of purified water and urea the trucks use to reduce their Nitrous Oxide emissions.

With most major truck makers meeting new Environmental Protection Agency standards by equipping heavy-duty trucks with SCR, which require a 3-percent DEF-to-diesel-fuel ratio, early industry estimates put 2010 demand for DEF at 60 million gallons. But the devastating impact the recession has had on the trucking industry has many industry watchers believing much less DEF will be used, at least in the next year.

"DEF demand might hit 30 million or 40 million gallons in 2010," said Dan Gilligan, president of the Petroleum Marketers Association of America. "If trucking companies advance-order the 2009 models without SCR -- we've seen from past behavior they are leery of new technology and try to buy up existing inventory -- the demand may be delayed until 2011."

As a significant number of trucks sit idle, trucking companies are facing capital constraints, while owning fleets with lower mileage than anticipated, noted Rich Moskowitz, vice president of the American Trucking Associations, based in Arlington, Va. "The new truck numbers for 2009 were down significantly and we haven't seen a significant pre-buy in anticipation of the new 2010 engines and their associated price premiums," he said. "But even in a bad year, 90,000 trucks will be purchased. There will be demand for DEF, though maybe not as robust as initially estimated."

The 2010 trucks with SCR, which sell at a \$9,000 premium, promise more fuel efficiency, Moskowitz noted, a feature that may drive demand. "Depending on the fuel savings, that \$9,000 investment could be recouped over time, but that will depend upon the price of DEF and diesel fuel and the number of miles traveled."

A large percentage of SCR systems will be in local delivery trucks, not large over-the-road (OTR) trucks, Gilligan noted. "Those smaller fleet companies will probably store DEF at their facilities and refill on an as-needed basis. One question is how many of the trucks with new engines in these fleets will go to cardlocks? Truck stops will serve OTR haulers."

Most travel centers are likely to meet demand by selling 2.5-gallon containers of DEF, which will supplement a driver's need until they get back to their shop. "But demand at this point is a big mystery," Gilligan said.

For heavy-duty OTR trucks -- averaging six miles per gallon of diesel -- one gallon of DEF would be required for every 300 miles traveled. At this rate, a truck traveling 120,000 miles annually would require approximately 400 gallons of DEF per year. With trucks expected to have on-board urea tanks of 15 to 30 gallons, drivers will not have to add DEF each time they refuel, though many may top off their DEF tanks each time they stop to fuel up.

Because urea is a commodity, the retail price of DEF is expected to fluctuate, perhaps varying as much \$4 per gallon (from \$2 to \$6, for instance), depending on the quantity purchased, according

to a fact sheet published by the American Truckers Associations.

The choice for retailers: sell 2.5-gallon jugs in the store, invest in aboveground bulk storage containers or underground tanks and DEF pumps?

While some fuel pump manufacturers are working to eliminate additional pumping devices on the diesel island by integrating DEF dispensing, until demand ramps up, few players are expected to invest heavily in them.

With just a few test trucks and the latest generation of Mercedes with the BlueTec exhaust system needing DEF, "there is very little demand out there right now," one diesel fuel retailer said.

Big truck stop player TravelCenters of America LLC (TA) is taking an economical approach to DEF retailing. All of its 232 TravelCenters of America and Petro Stopping Center stores now sell 2.5-gallon jugs. The product also is available to the retailer's 400 RoadSquad emergency roadside assistance vehicles, which could assist truckers who run out of DEF while on the highway.

Last May, the operator unveiled a DEF dispensing unit at its Ann Arbor, Mich., heavy truck repair facility, a move the company said was the first certified retail bulk dispensing unit in the country.

Putting the DEF additive indoors at TA's repair facility allows the retailer to solve product-freezing issues. The challenge: DEF is temperature sensitive. When stored between 10 and 90 degrees Fahrenheit, DEF can be stored for at least one year. But DEF freezes below 12 degrees Fahrenheit, though freezing and thawing doesn't degrade DEF.

Perhaps a greater issue in some climates is heat. Exposing DEF to temperatures of above 90 degrees for an extended period of time will reduce its shelf life.

"If we are talking about DEF storage in the South during the summer, the temperature often exceeds 90 degrees during the day, but usually falls below that at night, which will not impact shelf life too dramatically," Moskowitz said. "If it is stored at more than 90 degrees for an extended period of time, shelf life becomes an issue."

Pilot Travel Centers is installing bulk retail DEF pumps at 100 of its 307 locations. As of October, the chain had 18 sites installed and expected to have 30 completed by the end of the year, according to Alan W. Wright, Pilot's vice president of supply and distribution. The other 70 were scheduled for installation no later than midyear 2010. The retail price of DEF at the pump: \$2.79 per gallon as of press time.

Still, with each pumping station costing approximately \$30,000, the return-on-investment right now doesn't necessarily "make sense," Wright admitted. "Demand is very low and will be low for a couple of years until the 2010 and later trucks get on the road. For Pilot it is an investment to provide a service to our customers."

A driver, Moskowitz said, will want to get his DEF as conveniently as possible. "If the driver has to refuel diesel and then pull the truck somewhere else and mess with DEF jugs, but there are competing stations on his route with DEF at the pump, that will probably affect the decision of where he purchases fuel."

Gilligan predicts most truck stops and cardlocks will have at least one DEF dispenser per location within the next two or three years.

Whatever the delivery method, Moskowitz advises truck stop operators to sell high-quality DEF. "I understand you can save a few nickels making DEF yourself, but it has very tight tolerances and

our members will be looking for high-quality product. The API [American Petroleum Institute] certification, a voluntary program that monitors DEF quality, becomes important."