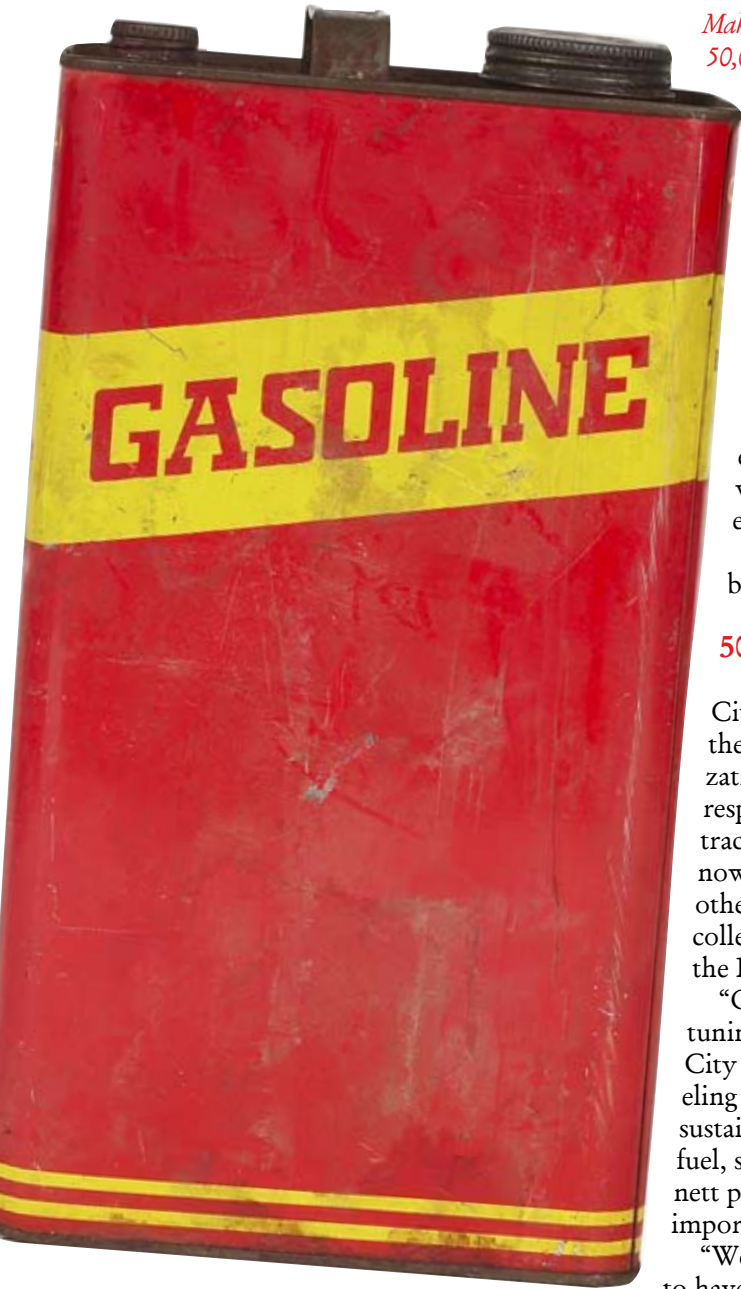


Green Conversion

Article provided by the Renewable Energy Group

Making the switch to biodiesel helped the City of Des Moines reduce fossil fuel use by 50,000 gallons per year, but the process to get there required an open, change-management approach



When the Des Moines City Council voted to adopt a renewable fuels and sustainability policy, Brian Bennett's brain was already spinning with innovative ways to reduce the fossil fuels used by the city's fleet.

After researching the conversion process for biodiesel utilization, Bennett learned biodiesel would be one of the easiest transitions the city could make to reduce harmful emissions and "go green." After reading scientific study results, he knew a 20 percent biodiesel/80 percent petroleum diesel blend called B20 reduces hydrocarbon emissions by up to 20 percent, carbon monoxide emissions by 11 percent and particulate matter, or smog, by up to 10 percent. After analyzing engine test results, he learned that biodiesel is a natural lubricating agent which reduces engine wear, prolonging engine life. All of the city's diesel engines could use biodiesel without retrofitting or modifications.

He also knew putting biodiesel into the city's diesel fleet was going to be easier than busting the myths of his constituents.

500,000 gallons of diesel per year

Bennett is no stranger to change management. After six years with the City of Des Moines, Bennett was charged with managing the transition of the city's fleet services from a privatized group into a city-operated organization. Today, the 37 employees at Des Moines City Fleet Services are responsible for maintenance, repairs and fuel purchasing for 1,150 trucks, tractors and other equipment; half of which have diesel engines. Bennett, now the Fleet Manager, oversees the group which supports almost every other department in Iowa's capitol city; public works, police, solid waste collections, parks and recreation, community development, engineering and the Des Moines Public Library.

"Other departments are our ultimate customers. We'll do a repair from tuning up a chain saw to overhauling a bulldozer," Bennett explained. The City of Des Moines uses 500,000 gallons of diesel fuel a year at their main fueling location so the potential to reduce fossil fuels and meet the city council's sustainability policy was great. "We operate under city contract to purchase fuel, so we publicly go out for bid with our diesel fuel," Bennett said. As Bennett prepared for the biodiesel bid process, he included several important specifications in his request.

"We wanted to start with a B5 blend and work up to B20. We knew we had to have biodiesel that met or exceeded the industry's ASTM D 6751 quality

specifications. In our bid specification we asked for fuel from a BQ-9000 Producer to help ensure we received good quality biodiesel from the manufacturer," Bennett said.

Keck Oil, a Des Moines-based fuel wholesaler, has been selling biodiesel for more than 10 years and serving the City of Des Moines for about four. Mark Meyer, business development manager worked with Bennett to meet his biodiesel transition bid requirements and now delivers blended biodiesel on a weekly basis.

"When the city council got involved in renewable fuels, biodiesel was a natural," Meyer said. "Brian has been a proponent of biodiesel."

Biodiesel myth-busting team

"Policy makers and elected officials in Iowa are aware of the benefits of biodiesel. We're the capitol city of the nation's leading biodiesel producing state, so the acceptance process into the city council's policy was easy," Bennett said.

But as he prepared his 22 mechanics, fuel purchases and other "customers" for the use of biodiesel, he discovered some myths about biodiesel had to be busted.

"We had some internal hesitation," Bennett admitted. "My internal customers didn't have all the current information about biodiesel and were reacting to myths such as the solvency, filter plugging and cold weather attributes of biodiesel. We decided to hold a couple of round-table meetings to share common knowledge."



Brian B. Bennett, City of Des Moines Fleet Manager (standing on the ground)
Bill Voitel, Fleet Services Vehicle and Equipment Coordinator (up on the truck)

To get ready for those meetings and the biodiesel transition, Bennett said he relied on three things 1) his staff's research 2) his fuel supplier's prior biodiesel knowledge and 3) Ames-based Renewable Energy Group, Inc. who would be manufacturing the biodiesel the city would use.

Meyer shared biodiesel quality analysis reports to assure Bennett's group that his group was going to be delivering the highest quality biodiesel available. He also worked with Bennett to clean his storage tanks. "Cleaning the primary tanks prior to the first load is some good advice for maintaining good quality fuel since they weren't new tanks and had been filled with other fuels."

Dave Slade, the biodiesel technical manager for Renewable Energy Group, Inc., walked Bennett through the biodiesel production process and reiterated Meyer's comments on maintaining biodiesel quality and explained how their 10-year biodiesel experience could help maintain quality from the production plant to the bulldozer's fuel tank. "Brian's mechanics had heard horror stories about biodiesel. I shared with them that biodiesel blends of B20 or less, like Des Moines would be using, wouldn't require any retrofits or service to any modern engine. Learning that relieved their hesitations," said Slade.

During the roundtable, Bennett's team presented a position report encouraging adoption of B5 into the fleet and ramping up to B20. "Original equipment manufacturers (OEM) are recommending B20. Cummins, International and Caterpillar encompass a high percentage of our centrally fueled fleet, so it was important for the users of our off-road equipment to

know the OEMs recommend biodiesel. We also referenced the Two Million Mile Haul test taking place in Ft. Dodge which was showing scientific analysis of B20 head-to-head with diesel. They were getting great results, no loss in mileage and cleaner, smoother running engines. That busted the final myths and focused our team on the benefits of using biodiesel in our city fleet."

Displacing 50,000 gallons of diesel

When Keck Oil arrived at the city's central fueling location with their first load of biodiesel blended fuel in the fall of 2006, Bennett and his entire team were ready for them. "We chose to take the extra steps to add the extra insurance for our departments," he explained.

After a year of using biodiesel, the City of Des Moines has displaced 50,000 gallons of petroleum diesel. Bennett would recommend other cities in Iowa do their research, work with their teams and make the conversion to renewable, clean burning fuel.

"We know from research and science that biodiesel reduces emissions. We're lucky in Iowa to have clean air and we're doing our part to keep it that way," Bennett said. "The City of Des Moines Fleet Services group chose to have an open approach, and work with concerns as we transitioned into biodiesel use," he said. "The use of biodiesel has not had a negative effect on performance of our fleets. We've had absolute, good acceptance among users."

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