

Innovative Texas Partnership Aims to Attain Clean Air

Denton, TX, and Partner Manufacture Biodiesel to Use in City Garbage Trucks

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Denton, Texas is one of the fastest growing cities in the Dallas-Fort Worth metroplex. Located in an Environmental Protection Agency (EPA) designated non attainment area, recent surges in population and economic development have exacerbated its environmental problems. Adding to its environmental problems was noxious methane gas leaking from local landfills. Under federal and state regulations, the city could no longer ignore this problem.

City officials looked into various options to deal with the landfill gas problem. Embarking on a plan to trap the methane gas to power a biodiesel plant would enable the city to efficiently use a renewable energy source to produce a renewable, biodegradable fuel. This plant would help to control greenhouse gas emissions, explosion hazards and reduce ground level ozone responsible for smog. Also, using locally produced biodiesel to fuel garbage trucks would help the city comply with the federal government's Clean Air Act and the Energy Policy Act of 1998. The latter promotes usage of such alternative fuel in government owned fleets. The project plan received unanimous support from the city council and public

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utilities board.

Denton entered into a collaborative agreement with a private company, the Biodiesel Industries, a California based environmental engineering firm. This partnership allowed the city to benefit from the latest technology in biodiesel production. Under the contractual agreements, the city provided the land and capital funding for the project. In return, the company has set up a modular plant in the peripheral limits of the landfill site with potential for future expansion. The close proximity of this plant to its source of fuel, the landfill gas, has minimized transportation cost. Also, the plant's location adjacent to the garbage trucks' parking lot has made fueling these trucks very convenient.

The biodiesel plant began production in March 2005. It uses waste vegetable oil collected from local restaurants in the Dallas Fort Worth area as a feedstock. Restaurants in the city alone generate approximately 300,000 gallons of waste cooking oil per year. If a fraction of it is collected, the city will see a great reduction in sewer clogs from grease. The experimental plant can also process white and yellow grease along with other virgin

oilseeds like soybeans in the production of biodiesel. This has made the local farming community reconsider the possibilities of growing fuel crops in their fallow land to reap the financial, environmental and political benefits of a locally produced fuel.

Currently, Biodiesel Industries sells to the city a blend of biodiesel (B20) which is 20 percent biodiesel and 80 percent petrodiesel. This blend can reduce criteria pollutants like carbon monoxide by 12 percent, sulfur oxides and sulfates by 20 percent, particulate matter and air toxins by 20 percent. The city buys this fuel at \$1.30 per gallon exclusive of fuel taxes. This price has been fixed for a period of five years or until the city recovers its investment from the project, whichever comes first. "With the current market price of petrodiesel being more than twice the price of the locally produced blend of biodiesel, the city has benefited a lot from its huge savings in fuel costs," said Mike Conduff, the city manager of Denton.

According to Vance Kemler, the city's director of solid waste department, "substituting petrodiesel with a biodiesel blend does not require any expensive retrofitting of vehicular equipments in the city's fleet of garbage trucks." Maintenance costs and mileage have also remained about the same. Since the

switching to biodiesel, garbage truck drivers have not reported any significant problem in routine garbage pickups. Now trucks do not leave a trail of black noxious smoke. Instead, the white smoke and the aroma of french fries from these trucks have pleased many local residents.

The production of biodiesel is not a new technology. However, this is the first time a local government has partnered with a private company to construct a biodiesel facility. The city's bold decision to produce biodiesel, despite the 2 to 3 percent increase in emissions of nitrogen oxides, has been primarily based on its overall ability to reduce emissions of several criteria pollutants. Recently, the mixing of an additive to biodiesel has helped to reduce emission of nitrogen oxides and meet the requirements of Texas Low Emission Diesel (TxLED) program.

The biodiesel plant has become the pride of the city and its residents. It has received a lot of national attention and rekindled interest in biodiesel, particularly at a time of an oil crisis. As pointed out by Euline Brock, the city's mayor, "the usage of locally produced fuel has helped to partly alleviate the city's dependence on imported fossil fuel." She and the city manager acknowledged the assistance they received from the two local universi-

ties in the decision making process. They also attributed the progressive outlook of the community much to their presence.

The city's partner, Biodiesel Industries has equally benefited from this partnership. According to Charles Fiedler, the plant's operations manager, "the publicity received from the media has helped to generate great interest in the facility among elected officials state and nationwide." Their interest and support has helped the plant to overcome many of the early challenges in its operation through their timely intervention.

The biodiesel plant is striving hard to meet its production goal. Future increase in production and profit sharing from the sale of biodiesel in the Metroplex would generate additional revenue for the city. A plan to switch to biodiesel in the city's commuter buses has recently been proposed. Biodiesel could also be made available to local residents. This means not only savings in fuel costs but also involvement of the community in the city's efforts to reduce air pollution and meet clean air goals.

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