

Item #6
November 3, 2010
Energy Commission Business Meeting
EAST BAY MUNICIPAL UTILITY DISTRICT
Grant Agreement ARV-10-022
for
Cost Effective Fats, Oil and Grease to Biodiesel Production
at a Wastewater Treatment Plant

Summary

East Bay Municipal Utility District (EBMUD) will develop a Fats, Oil and Grease (FOG) to biodiesel process that fits into existing waste water treatment plants. While lighter fats and oils can be well suited for recycling to biodiesel fuel, heavy greases such as brown grease have proven challenging to convert. EBMUD has been investigating FOG to fuel technology since 2007. If successfully developed this technology and feedstock supply is envisioned to produce 300,000 gallons of biodiesel annually from the EBMUD site.

California's growing demand for diesel fuel and the State adopted bio-energy goals are well served by this FOG waste feed source to biodiesel fuel opportunity. Theoretically 100 million gallons could be produced from California's total estimated FOG waste. Realistically, however, 50 million gallons of biodiesel is anticipated if a cost effective biodiesel plant can be proven.

This project will fund the construction of a FOG receiving facility that will install two 30,000 gallon FOG storage tanks. EBMUD will also investigate, test and demonstrate improved methods to cost-effectively harvest brown grease from FOG. In addition, this effort will investigate, test, and demonstrate methods to reduce the sulfur content of the biodiesel oil. EBMUD will also prepare a conceptual design report for a biodiesel facility using FOG to produce biodiesel fuel. The Energy Commission is providing \$1,000,000.00 in Alternative and Renewable Fuel and Vehicle Transportation program funds and the project team will provide a minimum of \$1,575,000.00 match funding.

Benefits

Successful completion of this research project may result in developing a pathway to convert waste stream greases to a biodiesel fuel for the Bay Area and hopefully for all waste water treatment plants in California and the nation. The biodiesel provided by this site will reduce diesel exhaust emissions, especially from older less emission controlled vehicles. Local air quality will be improved due to biodiesel's estimated criteria pollution reductions.

EBMUD plans to hire one full-time junior engineer for the duration of this project to assist with the FOG-to-biodiesel process and to test equipment. The construction of the FOG receiving station will directly employ approximately 3 ½ people for 1 ½ years. Using as an estimate 3-5 employees per one million gallons of biodiesel produced, the potential California production of 60 million gallons per year would create 150-300 permanent jobs.

Biodiesel reduces greenhouse gas emissions by 88 percent when it is made from waste grease like FOG. Biodiesel has an Air Resources Board Low Carbon Fuel Intensity estimate of 11.76 (gCO_{2e}/MJ).

Participants

East Bay Municipal Utility District will be the principle investigator for the research, testing, and demonstration. Proven Construction is the FOG receiving station contractor.

Implementation Schedule:

- Build a FOG receiving station by mid-2012
- Build and operate a Biodiesel test facility for test fuel batches by mid-2012
- Conduct test and collect data mid-2012 to end of 2012
- Provide a Conceptual design mid-2013