

(13) Distributed Energy Resources – Expanding DER Applications in Target Markets

This two-year project will develop and demonstrate a two-phase biofermentation system to produce methane from dairy manure and reuse resulting solids as a beneficial amendment to the soil while producing heat for internal use and electricity for sale. The process also involves a low water usage technology. Results will be documented and disseminated nationally.

Total project cost: \$749,431

Funding request: \$336,949

Project Lead: New Mexico Energy, Minerals, and Natural Resources Department

Project Participants: Texas State Energy Conservation Office; New Mexico State University; Terra Verde; North American Development Bank; Burcham & Associates; New Mexico Economic Development Department, Office of Science and Technology; Public Citizen; West Texas A&M; Gonzalez Dairy, Inc.

Patents

None.

Presentations/Publications

None.

Progress in Past Quarter and Current Status

1. The project team has:

- Completed all concrete work at the site
- Completed modifications and delivery of bio-digester units
- Ordered biogas flare
- Completed recalibration of GA 90 Gas Analyzer
- Obtained 8000 gallon biogas storage tank from NMSU Salvage yard to replace flexible gas storage tank; A & M Tank Company will refurbish unit
- Conducted presentations to students at Gadsden High School in the Gadsden Independent School District in support of the public education and outreach initiatives on the project. The school is located within 5 miles of the project site and Gonzalez dairy
- Made a presentation to the local Lion's Club on bioenergy
- Sponsored a task on Conversion of Biomass Resource to Useful Forms of Energy and Other Products at the international Environmental Design Contest conducted April 1-4. The competing teams had to develop, evaluate and demonstrate a system (excluding landfill options) that will convert biomass to biofuel including biogas or liquids. The design should propose a form of useful energy for consumption. Ideally the converted energy will be in the form of electricity, natural gas, or bio-diesel with relative cost per unit of interest (i.e. kilowatt/hour or cost per gallon). The proposed solution addressed final disposition of secondary by-products, environmental, economic, and cost benefit issues. The teams that participated were: Duke University, Iowa State University, Montana Tech University, New Mexico State University, Oregon State university, Roger Williams University, Universidad de las Americas, University of Arkansas, University of California at Riverside, University of Idaho, University of Manitoba, University of New Hampshire, Grady High School, Logan High School, Mosquero High School, San Jon High School, and Tatum High School

Plans for Next Quarter

The team will:

- Receive delivery of flare stack at the site

- Complete the refurbishment of 8000 gallon biogas storage tank is underway by A & M Tank Company
- Staff a booth at the Southwest Energy Alliance's Energy Fair on biomass
- Continue review and purchase necessary instrumentation
- Continue with plans to fill digester units.
- Continue working with El Paso Electric on engineering study and interconnection issues and delivery of electricity to the site.
- Continue gathering data on biogas production and growing cultures in bioreactor
- Continue to affirm that all permitting requirements are being satisfied
- Finalize modifications on at least one digester