

### **(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

The project team has:

- Poured and completed the foundation pads for the digesters and stem wall for bio-reactor
- Placed control building on site
- Accepted delivery of bio-digester units
- Started modifications on one bio-digester unit
- Finalized working plans with New Mexico State University engineering student groups to include assistance in construction of pads and equipment with Civil Engineering Technology, Mechanical Engineering Senior Design Students to participate in modification of engine generator set to accept biogas as fuel, perform thermal analysis for digester units with recommendations and design an instrumentation system for digester and bio-reactor, Manufacturing Technology and Engineering Center to modify digesters for development of air-tight seals needed in the anaerobic digestion process.
- Initiated dialogue with El Paso Corporation to assist in development and construction of biogas flare
- Performed soil analysis of pad at site for stability and compactness. Results confirm that the soil can handle weight of digesters
- Obtained a GA 90 Gas Analyzer from Camino Real Environmental Center, unit sent to LandTech for recalibration with delivery scheduled for mid-February
- Obtained bids for flexible gas storage tank.
- Conducted the advisory board meeting
- Conducted presentations to attendees of the New Mexico Environmental Health Conference on the project
- Gave 10 presentations to middle schools students 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.
- Met with representative from the Southwest Energy Alliance to explain the project and future plans

#### Plans for Next Quarter

The team will:

- Initiate pouring of additional pads in front of digesters, gas storage tanks, and engine generator set
- Complete modifications on bio-digester and begin modifications on second digester
- Expected delivery of flexible gas storage tank scheduled for this quarter
- Complete construction of site.
- Continue review and purchase necessary instrumentation.
- Finalize and construct biogas flare for excess gas.
- 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.