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DANNY KLUTHE FARM – DODGE, NE

SYSTEM DESIGN

When Danny and Josie Kluthe decided to expand their 6,000 head swine operation, they were concerned about the adverse effects of a large-scale feeding operation on their neighbors. Through a partnership with the Nebraska Public Power District (NPPD) and grants from the USDA and Nebraska Environmental Trust, the Kluthes installed Nebraska's first digester system to produce electrical energy from recovered methane.

Manure from the operation is fed to an in-ground concrete tank with an insulated flexible cover. The complete mix digester system generates methane as it stirs and heats waste. The gas is used to fuel an internal combustion engine, which produces electricity that is sold to NPPD under a buy-all, sell-all contract. The farm produces 730,000 kilowatts-hours of energy annually—enough to power 53 homes per year. Recovered heat from the system is used to maintain the digester temperature. In 2013, the Kluthe's used the anaerobic manure digester to capture natural gas to supplement fuel for their farm's vehicles and for other uses. The Kluthe's alternative energy enterprise, called Olean Energy, is operated as a separate company. It is Nebraska's first on-farm generator powered by manure methane.

PROJECT BENEFITS

- Odor reduction
- Electricity production
- Prevented release of methane into the atmosphere
- Nutrient-rich fluid created as a by-product of the process for fertilizing agricultural lands
- Producing compressed natural gas (CNG) to fuel truck (80 percent compressed methane and 20 percent diesel) and farm tractors (90 percent compressed methane and 10 percent diesel)

In 2013, Bacon Hill was selected by the Pork Checkoff as 2013 Pork Industry Environmental Stewards.



Photo: Olean Energy

"You know, I think these digesters make so much sense that once producers understand them and see the value of them, there will not be a hog unit built or a dairy put in that probably will not want these installed immediately on it."

—Danny Kluthe
Danny Kluthe Farm

- **Population Feeding Digester:** 8,000
- **Baseline System:** Storage Tank or Pond or Pit
- **Digester Type:** Complete Mix
- **System Designer:** RCM International, LLC; Digester cover installed by Environmental Fabrics, Inc.
- **Biogas Generation:** 35,000 ft³/day
- **Biogas Use:** Cogeneration
- **Generating Capacity:** 80 kW
- **Receiving Utility:** Cuming County PUD/Nebraska Public Power
- **Project Funding:** USDA