

# CAYUGA REGIONAL DIGESTER AND BIOENERGY ENTERPRISE

## Phase-I: Feasibility

Cayuga County Soil and Water Conservation District, Auburn, NY

### Objectives:

The Cayuga County Soil and Water Conservation District desires to construct and operate a regional digester-bioenergy facility to address the needs of Cayuga County dairy farmers and nearby communities. In November 2004, the District contracted ECO Technology Solutions to develop the conceptual design and assess the commercial viability for such an enterprise.

### Description of System:

The facility will be built on the district campus to process manure from several nearby dairy farms, food waste from food processing industries and waste fats from local sources. It will produce 625 kW of “green” electricity, useful heat at the rate of 2.7 mmBTU/h, 25 tons/day of anaerobically composted solids, and 31,000 gallons/day of separated liquids. The combined heat and power system will power the district campus buildings and export power to the grid. The heat produced will support the operations and supply most of the campus building’s needs.

The digester choice is an aboveground mesophilic “hydraulic-mix”, which is capable of utilizing different organic co-substrates. It features optimum blending without moving parts and an integrated sediment removal system, and provides full control of digester operations. The design will be modular, providing for future expansion when the feedstock supply grows beyond the initial design.

### Outcome:

The feasibility study has concluded that the regional digester-bioenergy enterprise located at the district campus is commercially viable. The key findings also include:

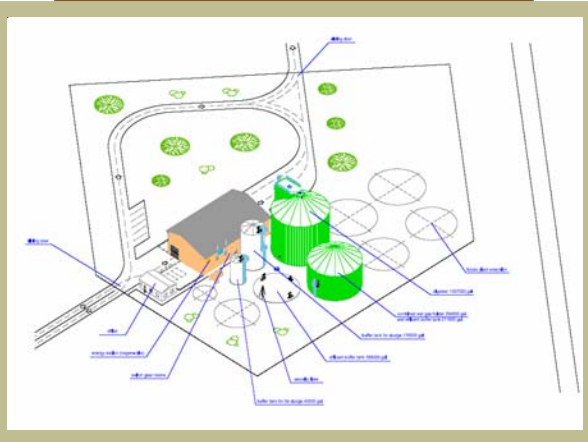
- Feedstock is available within reasonable travel distances from the site. The district has successfully secured commitments from local dairy farms and food processors.
- The energy from the facility will be used by the county buildings located on the campus to offset current purchases. Agricultural customers also exist for the liquid and solid byproducts.
- Safe and economic delivery of the feedstock and byproducts can be accomplished with locally available transport trucks and equipment.
- The type and estimated feedstock volumes confirm that an aboveground mesophilic “hydraulic-mix” digester is ideal for the facility.
- A sustainable business model that is community owned and operated is feasible, returning additional benefits to the participants and the community.

### Further Information:

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Digester site location



Plant layout

“This innovative renewable energy facility will be a model for other communities who want to improve their management of animal waste, enhance water quality, and reduce our country’s dependence on fossil fuels.”

- Jim Hotaling,  
Executive Director  
Cayuga County Soil and  
Water Conservation District

