The 2013 Forum on Anaerobic Digester Production of Energy: New Opportunities for Projects in Michigan

FORUM OVERVIEW: THE ROLE OF ANAEROBIC DIGESTER-TO-POWER GENERATION IN CONSUMERS ENERGY COMPANY’S RENEWABLE ENERGY STRATEGY

Michigan State University
Consumers Energy Company Project
Phase 1
2013 Forum Overview

- The role of AD-P in Consumers Energy Co. in meeting renewable energy portfolio standards.
- MSU biomass-sourced research programs – screening project feasibility and cost.
- State renewable energy policies, regulations, incentives.
- New opportunities and approaches for PPAs, interconnect costing.
- Project planning, financing, and development – successes and lessons learned.
2012 Baseline Study:

- MSU was asked by Consumers Energy to conduct a study of anaerobic digester-to-power (AD-P) projects in Michigan to determine, in part, opportunities for and impediments to such projects.
  - Why has Michigan been slow to adopt AD-P as a renewable energy resource?
  - What are the uncertainties/gaps in information, perceptions, and expectations in the AD-P business?
  - Can AD-P play an increasing role in meeting 2015 (and future) RPS mandates?
  - How economically competitive are digesters with other renewables?
  - What can Consumers Energy do to stimulate AD-P projects within its service territory?
Survey Instrument

- The decision process used to adopt anaerobic digesters at their farm, company, or community.
- The quality and comprehensiveness of information used in the decision process.
- Contract negotiations, project costs and economics, and return on investment.
- What has worked successfully in anaerobic digester projects throughout the process of design, funding and approvals, obtaining PPAs, construction, and operation.
- What difficulties may have been encountered during each step of the decision process?
Recommendations for Consumers Energy Company’s Renewable Energy Programs:
(1) Increase Proportion of AD-to-Power Generation in the Renewable Energy Portfolio

- Increase role of AD-P projects as an important component within its overall renewable energy portfolio.
- Consider AD-P resources as a contribution to its base load capacity, in contrast with wind or solar energy generation.
(2) Create a PPA Template for AD-P Projects

- Promote more informed cost and RoI calculations.

- Consider:
  - Partnering with facilities.
  - Assisting with cash flow or bridge loans.
  - Assisting with due diligence.
  - Offering preferred pricing on hook-up/interconnection.
  - Functional net metering.
  - Providing technical support, especially on farms.

- Monetize:
  - Avoided costs and risks of implementing AD-P systems.
  - Social and environmental services provided.
  - Added-value revenue generation (e.g., tipping fees, compost, fertilizer, waste heat, etc.).
Monetizing the Benefits and Costs of Anaerobic Digestion-to-Power Generation

**On-Site Benefits**
- Waste-Handling and Storage
- Tipping Fees
- Bedding & Fertilizers

**On-Site Gas Use**
- Methane

**Waste System**
- Off-Farm Runoff Risk Avoided
- Odor Management
- Pollution Prevention
- Renewable Base-Load Generation

**On-Site Electricity Use**
- Methane

**Electric Market**
- Cents per kWh
- Capacity Market - $/mW
- Renewable Base-Load Generation

**Electric System**
- Renewable Energy Credits (RECs)
- Carbon Credits (TBD)
- Direct Gas Sales
- GHG Offset Project (Methane Destruction)

**Other Markets**
- Direct Gas Sales
- Sale of Bedding & Fertilizers

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Monetizing the Benefits and Costs of Anaerobic Digestion-to-Power Generation
(3) Build an AD-Power Project Information System

- Develop a renewable energy multi-attribute database to identify and map economically viable waste streams from agricultural, food-based, and municipal/industrial wastewater treatment facilities throughout the state.

- Merge this database with location and condition of power grid in the vicinity of potential AD-P resources.

- Sponsor a conference to share information and explore unified specifications for siting, designing, building, and operating AD-P facilities.
(4) Consider and Support Project Partnerships

- Investigate opportunities for promoting and partnering with AD-P projects around the state:
  - power purchase under EARP program, or
  - joint-venture, or
  - biogas purchase only, or
  - operate power generator side.

- Develop unified technical specifications for sourcing and operating on-site generators.

- Investigate options for reducing interconnection costs.
(5) Support State and Local Policies/Incentives to Increase the Role of AD-P Systems Statewide

- Continue support of Governor Snyder’s rural development initiative.
- Help promote the use of AD-P systems to reduce environmental contamination, provide jobs, and reduce Michigan’s reliance on imported energy.
- Work with state agencies and local governments to promote financial incentives, property and business tax credits, REC credit ratios, etc., as appropriate.
- Increase livestock head numbers for farms with AD-P systems.
- Develop an AD-P developer/operator certification program.
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