Fundamentals of Electricity
Purchase Agreements for Anaerobic Digesters

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Overview

- According to the EPA AgSTAR program, 85% of on-farm digesters involved electricity production in 2010.

- Electricity sales remain an important source of income.

- Three main options:
  - Surplus Sale
  - Buy-All Sell-All
  - Net Metering
Initial Planning

• **Production Potential:**
  • Estimate feedstock levels (i.e., manure, other organic waste)
  • Estimate electricity production (kWh)
  • Size (or capacity in kW) of generator

• **On-Site Electricity Use**
  • Consumption levels

• **Financial**
  • Estimate payments you would receive under the Energy Purchase Agreement
  • Compare in context with other project revenues and costs (i.e., total project cost, O&M)
Surplus Sale

- On-site electricity use offset at the retail rate (i.e., $0.10/kWh)
- Excess production sold at the wholesale rate (i.e., average of $0.03 to $0.04/kWh)

Points to Consider

- Important to examine consumptions patterns and estimate excess electricity
- Standby service may be needed for when the system is not meeting expected production
**Standby Service**

- Provides backup power to the facility when engine-generator is not meeting expected potential. It includes two types of charges:

  **Fixed**
  - Cost to reserve capacity in the system
  - System access charges (i.e., meters)

  **Variable**
  - Energy actually consumed (i.e., power supply and distribution)

**Points to Consider**
- Maintaining proper operation of digester system can reduce charges
- Planned maintenance during off-peak hours can also reduce charges
**Points to Consider**

- No need for standby power
- May be appropriate when on-site consumption is low
Net Metering

- Referred to as Category 3 “modified” net metering
  - Generation capacity between 150 kW and 550 kW
- On-farm electricity usage offset at the retail rate
- Net excess electricity used to credit the power supply component of next month’s utility bill.
- Generation capacity limited to the electrical need of the facility.

Points to Consider

- System may be able to produce more electricity than is consumed on-site
- Needs to be considered in the beginning of project
- Standby power may also be needed
# Electricity Sale Option Summary

<table>
<thead>
<tr>
<th></th>
<th>Surplus Sale</th>
<th>Buy-All Sell-All</th>
<th>Net Metering</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Offset On-Site Electricity</strong></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Value of Electricity Produced ($/kWh)</strong></td>
<td>Wholesale Rate</td>
<td>Wholesale Rate</td>
<td>Power Supply Component</td>
</tr>
<tr>
<td><strong>Eligibility (kW)</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>150 kW to 550 kW</td>
</tr>
<tr>
<td><strong>Generation Capacity Limit</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>Electrical Need of the Facility</td>
</tr>
</tbody>
</table>
Summary

• The most appropriate purchase agreement depends on the specific characteristics of the digester and the facility.

• Important to incorporate electricity sale options in the planning phase of the digester.

• Other options in the future – Experimental Advanced Renewable Program.

• If RPS is extended, likely more opportunities to negotiate favorable purchase agreements.
For More Information

Electric Sales to Consumers Energy
http://www.consumersenergy.com/content.aspx?id=1807
http://www.consumersenergy.com/content.aspx?id=1832

Consumers Energy - Frequently Asked Questions
http://www.consumersenergy.com/content.aspx?id=1812#Eligible
Questions?

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