Co-Digestion of Manure and SSO
FROM CURBSIDE TO FARM AND BACK

Jay Kilbourn, Vice President, New England Organics
New England Organics is

- A division of Casella Resource Solutions
- Servicing industrial and municipal generators
- Focused on beneficial use and recycling of organic and mineral residuals
- In business since 1983
- Operating throughout New England and New York
AGreen Energy: 5 Farm Project

- Partnership built on collaboration
- Collect, divert and process Source Separated Organics (SSO)
- Food scraps, byproducts and FOG
- Anaerobic co-digestion with manure
- Generate energy from methane – renewable power & heat
- Producing fertilizer
Fulfilling Public Policy Goals

- Solid Waste Master Plan
- Farm Policy
- Economic Development
- Environmental Stewardship (air, water, climate)
- Renewable Energy

= Favorable Regulatory Environment
Financial Overview

• <$4m capital investment per facility
• Multiple revenue streams
• Low operating & maintenance costs

• Host of positive financial benefits for:
  • Customers – generators and end product users
  • Farmers
  • New England Organics
• Viable under certain circumstances
## Jordan Dairy Farm Anaerobic Digester Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
<th>Units</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomass Processing</td>
<td>54</td>
<td>Tons/day</td>
<td>Manure + Non-Farm Source Separated Organics</td>
</tr>
<tr>
<td>Capacity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retention Time</td>
<td>34</td>
<td>Days</td>
<td>Variable</td>
</tr>
<tr>
<td>Engine/Generator</td>
<td>300</td>
<td>kW</td>
<td>Nameplate</td>
</tr>
<tr>
<td>Power Production</td>
<td>&gt; 3 million</td>
<td>kWh/yr</td>
<td>About 300 homes equivalent annual use</td>
</tr>
<tr>
<td>Captured Heat</td>
<td>&gt;10,000</td>
<td>MMBTU/yr</td>
<td>Not using currently</td>
</tr>
<tr>
<td>Anaerobic Digestion</td>
<td>Mesophylic</td>
<td>Modified single-stage</td>
<td>Continuous Mix</td>
</tr>
<tr>
<td>Process</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parasitic Load</td>
<td>20</td>
<td>%</td>
<td>electrical operation</td>
</tr>
</tbody>
</table>

[Image of biogas digester]

New England Organics
A Goudie Company
Co-digestion in Action

New generation of a proven technology:

- Flexibility
- Remote
  - Access
  - Monitoring
  - Control
- Focus on
  - Energy Production
  - Efficiencies
  - High value end products
Remote Control

- Pneumatic valves
- Sensors
- Security cameras
Remote Monitoring
Focus on Energy Production
Feedstock

• Acceptable Feedstock
  • Priority Sources
  • Quantities
  • Characteristics
• Quality & Recipe
• Collection & Handling
Recipe Considerations

- Goal of Recipe Management
- Feedstock Specification
- The Recipe Challenge
- Our Management Tools
Collection & Handling of SSO

• Separation, Training & Audits at Source
• Transportation Equipment
• Pre-processing
Finished Products

• Liquid fertilizer
• Peat-like Fiber
The Future

- Enhancements
- R&D
- SSO expansion
- Growth plan
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Learn more at www.agreenenergylc.com
& www.newenglandorganics.com
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