Developing Digester Offsets Projects: Farm Power Rexville Case Study

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Overview

1. Case Study
   - Farm Power Rexville
2. Financial value of carbon to a digester
3. Aggregation
Harmony Dairy
~1,000 cows

Beaver Marsh Dairy
~500 cows
6,000+ mt CO2e methane emissions/yr
~ Annual emissions from 1,000+ cars
No co-digestion credits
750 kW co-generation
Digester provides each dairy with $100,000 of previously purchased bedding.
USDA Rural Energy for America Program
• $500,000 grant
• 80% loan guarantee
Guarantee enables private debt without balance sheet
Carbon Purchase Structure

- 10 year purchase at fixed price
- Upon commercial operation, The Climate Trust purchased 50% of the credits anticipated to be generated by the project
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What is carbon worth to a digester?

- 2,500 cow digester (which generates 3.5 credits per cow per year or 8,750 credits per year)

<table>
<thead>
<tr>
<th>Carbon price</th>
<th>$4.00</th>
<th>$8.50</th>
<th>$15.00</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average Annual Net Revenue</strong></td>
<td>$25,000</td>
<td>$64,000</td>
<td>$120,000</td>
</tr>
<tr>
<td><strong>Net Present Value</strong> (10 years, 7%)</td>
<td>$163,000</td>
<td>$440,000</td>
<td>$840,000</td>
</tr>
<tr>
<td><strong>% of Capital Cost</strong> (~ $2.1 million)</td>
<td>8%</td>
<td>20%</td>
<td>40%</td>
</tr>
</tbody>
</table>
## Eligible feedstocks

<table>
<thead>
<tr>
<th>Livestock Protocol</th>
<th>Organic Waste Digestion Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Manure</td>
<td>• Post-consumer food waste</td>
</tr>
<tr>
<td></td>
<td>• Industrial waste previously managed in an anaerobic lagoon</td>
</tr>
<tr>
<td>Endorsed by ARB</td>
<td>Not endorsed by ARB</td>
</tr>
</tbody>
</table>
Price is policy dependent

Certified offsets approved by CA regulators

Certified offsets NOT YET approved by CA regulators

Source: Adapted from Olga Chistyaksova’s “Offset supply in the California Carbon Market” presentation at the April 7th, 2011 EPRI Workshop in San Francisco.
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Barrier: Scale

Average Annual CRTs Issued

Potential for aggregation

- Third-party model
- Dairy regions
- Aggregation methodology
  - Centralized data collection
  - Site visit sampling
Thank you!

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