RNG – A Developers Perspective & Insight on a New Project in Lawrence, KS
SWANA/LMOP 2018

www.landfillgroup.com
The Landfill Group

Company Overview

The Landfill Group offers a comprehensive solution to the Biogas industry through our three branded operating businesses: Enerdyne Power Systems, Advance One Development and Advanced Biogas Systems.

**Enerdyne Power Systems Inc.**
- Develops, owns, operates and consults on landfill gas to energy projects
  - National footprint with projects throughout the U.S.
- Current portfolio includes five operating LFG projects with various end uses:
  - Electricity
  - High Btu
  - Medium Btu

**Advance One Development, LLC**
- Provides complete landfill gas construction services including:
  - Wellfield construction
  - Plant construction
  - Equipment installation
- Ability to operate nationally with General Contractor Licenses in multiple states

**Advanced Biogas Systems**
- Manufacturer of equipment for the Landfill Gas Industry
- Product offering includes:
  - Blower / Flare Skids
  - Siloxane removal
  - Gas dehydration
  - Hydrogen Sulfide removal
  - O2 Removal
  - CO2 Removal
  - Custom Fabrication
Landfill Gas to High BTU
Process Overview
Our Proven Process

<table>
<thead>
<tr>
<th>The Opportunity</th>
<th>Expected Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review preliminary information</td>
<td>1 – 2 months</td>
</tr>
<tr>
<td>Conduct site visit and due diligence</td>
<td></td>
</tr>
<tr>
<td>Determine fit</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Formalize Relationship</th>
<th>1 – 2 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborate on strategic plan and identify objectives</td>
<td></td>
</tr>
<tr>
<td>Outline regulatory and safety responsibilities</td>
<td></td>
</tr>
<tr>
<td>Define economic consideration</td>
<td></td>
</tr>
<tr>
<td>Execute Gas Rights Agreement</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Development Process</th>
<th>6 – 9 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engage affiliated entities and strategic partners on design</td>
<td></td>
</tr>
<tr>
<td>Complete major development milestones – offtake, permitting, engineering, financing.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Construction</th>
<th>6 – 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engage affiliated entities and strategic partners on construction</td>
<td></td>
</tr>
<tr>
<td>Collaborate with customer on best plan to minimize operational interruption and maximize safety</td>
<td></td>
</tr>
<tr>
<td>Communicate plant construction plans and progress with full transparency</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commercial Operation</th>
<th>1 – 3 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commence Project start up</td>
<td></td>
</tr>
<tr>
<td>Prioritize safety and regulatory compliance</td>
<td></td>
</tr>
<tr>
<td>Minimize local environment impact</td>
<td></td>
</tr>
<tr>
<td>Maximize production and economic gain for all</td>
<td></td>
</tr>
<tr>
<td>Turn over operations to third party (if applicable)</td>
<td></td>
</tr>
</tbody>
</table>

Total Timeline | 15 – 28 months
RNG Project Development Challenges

There are many challenges in the development of an RNG project. The following have been identified as the most significant.

• Scale and Gas Flow

• Wellfield Control

• Capex and Interconnection

• RNG End Use Market

• Speed to Market
Renewable Power Producers

Project Overview

Renewable Power Producers ("RPP") is a new landfill gas to high-btu renewable natural gas plant that came online in August 2017.

Project Summary

- Located at the Hamm Sanitary Landfill in Lawrence, KS
- Project converts raw landfill gas to high-btu pipeline quality renewable natural gas
- Plant capacity is 2500 scfm, expandable to 4000 scfm
- End use is vehicle fuel market as part of EPA’s renewable fuels program
  - 2018 expected production is over 4 million gallons of cellulosic biofuel
- Constructed 7.2 mile pipeline to interconnect with natural gas transmission line
- With exception of CO2 removal unit and compressors, all equipment fabricated by our internal fabrication division – Advanced Biogas Systems

Development Timeline

<table>
<thead>
<tr>
<th>March 2015</th>
<th>August 2015</th>
<th>September 2016</th>
<th>October 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executed Gas Rights with Landfill</td>
<td>Executed Offtake Agreement</td>
<td>Financial Close</td>
<td>1. Sign Interconnection Agmt</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Begin Construction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Order Long-Lead Time Eqpt</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Permit Application</td>
</tr>
<tr>
<td>January 2017</td>
<td>May 2017</td>
<td>August 2017</td>
<td>December 2017</td>
</tr>
<tr>
<td>1. GCCS Complete</td>
<td>Submit EPA Registration</td>
<td>1. Commence Commercial Operations</td>
<td>Final EPA Approval and completion of Quality Assurance Program (&quot;QAP&quot;)</td>
</tr>
<tr>
<td>2. Permit Complete</td>
<td></td>
<td>2. Store Produced Gas</td>
<td></td>
</tr>
</tbody>
</table>

www.landfillgroup.com
Renewable Power Producers

Project Overview
Renewable Power Producers

Gas Collection System

• Construction of GCCS commenced in October 2016 and was completed in January 2017
• Over 150 collection points
• Combination of vertical and horizontal wells
• All work completed internally by our affiliate company Advance One Development
Renewable Power Producers

Pipline

- Construction of pipeline commenced in November 2016 and was completed in February 2017
- 7.2 Miles from plant outlet to pipeline natural gas transmission tap
- 11 Private Easements
- 2 Levee Crossings
- 1 Airport Crossing
- 4-1/2” High Pressure Steel line
Developers should anticipate a few months of cash burn while the project finalizes its registration with EPA and completes the Quality Assurance Plan.

Process Overview

- In order for RPP to generate RINs, a project needs to submit an application to EPA which will register the project under the Renewable Fuels Standard.
- Once EPA registration is approved, the project will be enrolled in a voluntary program which helps verify the validity of the RINs generated.
  - This is known as QAP or Quality Assurance Plan.
  - Exact timing varies.

Process Timeline

- **Engineering Review/Application**
  - Third party engineering report
  - On-site review (major equipment in place)
  - 90-120 days to complete and submit

- **EPA Registration Approval**
  - Approval generally takes 90-120 days
  - Store gas while producing and awaiting approval
  - Begin working on QAP documentation

- **QAP Approval**
  - QAP process begins quarter following EPA Approval
  - Ex. June approval, July QAP begins. July approval, October QAP begins
  - 45-60 days
Before – January 2017

After – August 2017