WCA & Fort Bend Power Producers: Generating High BTU Gas from Landfill Gas in Texas

WCA’s Ft Bend Regional Landfill Needville, TX

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Quick Project Overview:

- **Project Owner:** Fort Bend Power Producers, LLC (FBPP)
- **Landfill Owner:** Waste Corporation of Texas, LLC (WCA)
- **Location:** Fort Bend Regional Landfill – 14115 Davis Estate Rd, Needville, TX 77461
- **Developer:** Enerdyne Power Systems, Inc. & Morrow Renewables
- **Major Partners Involved:** WCA, GHI Energy, Morrow Renewables, Enerdyne Power Systems, Advance One Development, GC Environmental, SCS Engineers & Field Services, TCEQ, & Fort Bend County.
- **Output:** 5500 scfm Designed Plant with anticipated growth
- **Fuel:** Landfill Gas
- **Treatment:** Selexol
Overview Continued:

- **Expected Life:** 30+ years
- **Operational As Of:** June, 2013
- **Gas Offtake Agreement:** GHI Energy
- **Renewable Identification Numbers (RINs):** Sold to GHI
Ft Bend Power Producers, LLC & WCA
Fort Bend MSW Landfill

- Site Opened in **2004**
- Site takes approx. 3000/tpd of MSW, currently
- Approx. **7,000,000** Tons in Place
- GCCS:
  - 102 Collection Points
    - 53 original wells in 2011
    - 49 additional wells in 2013
  - 1100+ scfm, current.
  - Expect to be 1600-1800 scfm by August, 2013

- WCA wanted to do more than just ‘flare the gas’ – they wanted to use it!

- To be Proactive – Future...
GCCS – Pics
2013 GCCS Expansion
Permitting

- GCCS
- Type IX
- Local Building Permits
Project Sizing / Development Approach

- Gas Curve
- End-Use Options
- Power, Direct Use, High BTU
- Life Expectancy of LF/End Use

Key Items:
1. Landfill
2. End-User
3. Permit
4. Money
5. Knowledge / Patience
Project Challenges

- Pipeline Interconnection/Spec
- Changing Regulations/Legislation
- Off-Take
- ROW
- Utility Power
Preparation
Utility – Upgrade Incoming Service

- The Project Consumes Approx. 1MW of power to run @ full load.
Equipment:

- PD Blower
- Gas Cooling
- Reciprocating Compression
- Pre-Treatment
- Incineration of Pre-Treatment Reject
- CO2 Treatment with Physical Solvent
- Oxygen Removal
- Glycol Dehydration
Plant Operation:

• 24/7 Operation
• 95% + online time @ full capacity
• 5 MW Equiv.
• 3 full time technicians
Benefits to the Landfill Owner

WCA will receive several benefits over the life of this project...

A few include:

- Revenue from gas payments
- A Clean/Green Image.
- Avoided Costs - FBPP will operate and manage the project at no cost to WCA.
  - Including capital improvements to the well-field and equipment,
  - general well-field O&M,
  - and all associated responsibilities to the end-use project.
Environmental Benefits

Produces enough power/fuel for about 5000 homes!

The **Annual Reduction** of GHG attributable to this project is approximately the same as the annual GHG emissions of:

- More than **7,400** passenger cars
- Carbon Dioxide emissions from **85,000** barrels of oil
- Carbon sequestered by **8,000** acres of pine forest!
Project Costs & Financing

- $9.2 Million Total Project Value – partial equity and partial bank debt for:
  - Pipeline Tap & Meter
  - Easements & Pipeline
  - Permits, Design, Engineering, etc.
  - Site Work
  - Blower-Flare
  - Office Building/Maintenance Shop
  - Gas Treatment
  - Interconnection
  - Transformers
  - GCCS
  - Installation & miscellaneous items
Tax Credits

- High BTU projects currently do not qualify for Any Tax Credits!

- Push your representatives to support these projects!
Overall Plant
Compression – 1st Stage
Compression – 2\textsuperscript{nd}/3\textsuperscript{rd} Stage
Dehydration
Dehydration, 2
Incinerator
O2 Removal
Pre-Treatment & Stripper
Pre-Treatment Pump & Cooler
Blower
CO2 Removal
CO2 Removal
Moving Forward…

- If you have a landfill, public or private...
- Use this project and others that have been done as an example...
- LFG projects from medium BTU to high BTU, power, or simply flaring are POSTIVE and beneficial in a number of ways.
- Act ahead of the cure...
- TAKE ACTION!
- ACT NOW!
- Everyday without a project is a day of lost revenue and it causes undo harm our environment!
Advance ONE Development, LLC