Gaston County Landfill
Gas to Energy Project

A Self-Developed Approach
Background:

- Kyoto Protocol
- New Administration
- RGGI
- CCX
- Alt Fuels
  - Carbon management
Own and Operate?

- Permitting
- Licensing
- Facility design
  - First building designed and constructed under County’s new UDO
- Start up and certification
- Negotiation of PPA
- Carbon monetization
Where to go from here:

- **Self - develop**
- **Clear Solid Waste Goals**
  1) to reduce greenhouse gas emissions from the decomposition of waste occurring in the landfill
  
  (2) to produce renewable energy from the capture of biogas
  
  (3) to provide the infrastructure for development of a green Eco-Industrial Park
Major Program Development Elements

- FERC Licensing
- Utility Commission Approval/Certificate of Public Convenience
- Renewable Energy Credit Certification
- Solid Waste Permit
- Air Permits (Flare and Generators)
- Verified Emissions Reduction Purchase Agreement (VERPA)
- Purchase Power Agreement (PPA)
- Utility Interconnect Agreement
- Financing
- Design and Bidding
- Construction
- Marketing of Carbon Credits
- Climate Action Reserve (CAR) Registration
Renewable Energy Center

• Online in the fall of 2011

• Initially included
  • gas clean-up and compression equipment
  • gas transmission line
  • three internal combustion engine-generator sets

• Designed to accommodate fourth generator expansion

• Future development as landfill expands

The Gaston County Renewable Energy Center also includes a roof-type solar panel array that has the potential to produce 28.5 kW.
Overview of LFG extraction and compression system

Overview of Generator system
Eco-Industrial Park
The County has identified a partial list of businesses it wishes to attract to the Park through reduced-cost heat and excess landfill gas from the Renewable Energy Center and adjacent landfill, access to recyclable materials collected at the landfill, and traditional economic development incentives.
Carbon Market

The County became a project developer on the Climate Action Reserve and took full responsibility for registering and verifying their credits on April 9th, 2013. This includes all data collection and analysis, uploading of all data and information to CAR's website, verifications, and financial responsibility. The County is also self-marketing the credits and recently sold all available while choosing from multiple offers for vintage 2012 and 2013 credits.

VERs

6 year VER totals through March of 2013 that have been verified and registered through the Climate Action Reserve (estimated VERs are based on continuous data and are expected to be verified by CAR)
The economic vitality of any landfill gas-to-energy project is based on its ability to generate a revenue stream that offsets capital, operation and maintenance costs. Project implementation was formulated around the theory of aggregating revenue streams from the monetization of environmental attributes (carbon offsets and renewable energy credits) and energy generation potential resulting from the capture and collection of landfill gas from the facility’s active and closed MSW landfill units.

Based upon a 20-year economic pro forma, revenue from environmental attributes constitutes approximately 30 percent of the total revenue from the project, while the production of electricity makes up the remaining 70 percent.
Sustainability and Economic Benefits

Carbon Offset Revenue

- Funding for Renewable Energy Center
- Project financing
- VER proposals
- PPA
- Sale of RECs
- Future development

5 year revenue from carbon credit sells = $1,896,697
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