

## DeKalb County Renewable Fuels Facility

SWANA SC Palmetto Chapter 2013 Spring Conference



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- According to EPA's Landfill Methane Outreach Program:

The DeKalb County Georgia Seminole Road Landfill will be the second landfill in the United States that will produce both Compressed Natural Gas (CNG) to be used on-site and Renewable Natural Gas (RNG) that will be injected into the natural gas pipeline to be used elsewhere as transportation fuel.

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## Landfill Gas (LFG) Uses

- “Low-Medium BTU” Gas Processing
  - For Direct utilization as boiler or furnace fuel
    - 25% of all LFG Projects in the United States
    - Earliest beneficial use of LFG
    - For large full time industrial gas users
    - Corrosive molecules removed from LFG
  - For internal combustion engines or turbines for the production of electricity
    - 70% of all LFG projects in the United States
    - Gas burned at landfill creating on-site emissions
    - Sold after combustion, engines have low efficiencies

## Landfill Gas (LFG) Uses

- “High BTU” Gas Processing

Criteria	Pre-Process	Post-Process
Methane	45 - 60 %	> 96 + %
Carbon Dioxide/ Nitrogen	42 - 65 %	< 3 %
Oxygen	0.1 - 1.0 %	< 1 %

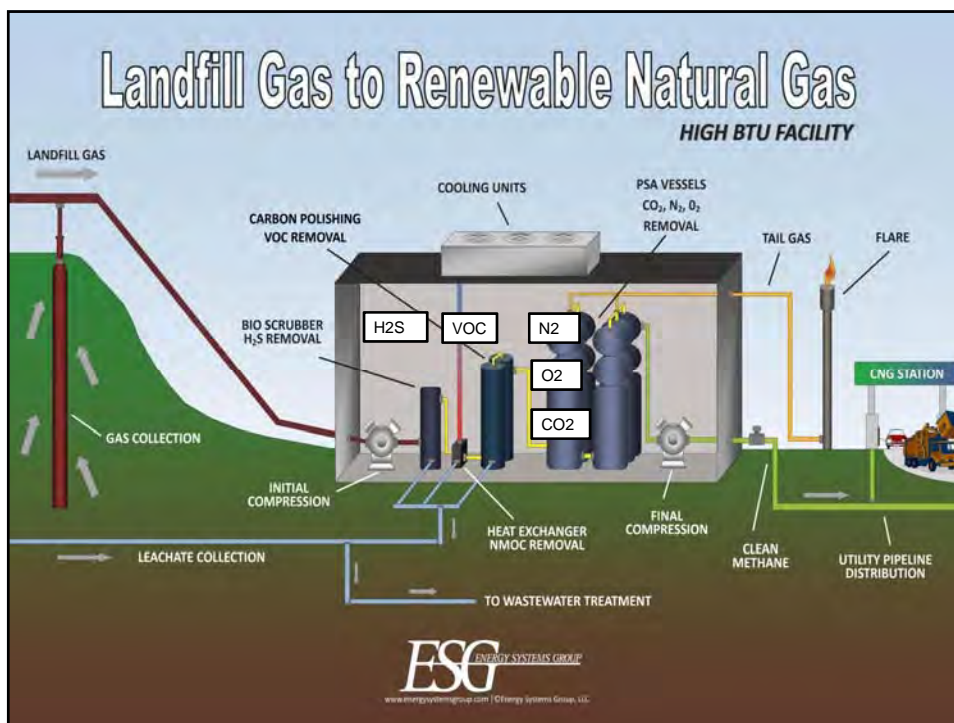
- Approximately 32 High BTU projects in the US
- Gas sold as Renewable Natural Gas (RNG) or “Green Gas”
  - Meets or exceeds quality of natural gas in the pipeline
- Gas converted to Compressed Natural Gas (CNG) or Liquefied Natural Gas (LNG)
  - A handful of CNG or LNG projects in the United States
  - Nitrogen and oxygen don't need to be removed when only making vehicle fuel

## Maximizing Usage of RNG and CNG

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- CNG is typically not a large public demand at first
  - An immediate demand is created with converting a fleet
- Conversion to CNG requires vehicle modification
  - Typically done through vehicle replacement cycle
- Combination of RNG and CNG to maximizes usage
  - After gas processing, the RNG will go to CNG Fueling Station until capacity then into the Natural Gas Pipeline and sold as RNG
  - The CNG created is pipeline quality Natural Gas
  - Thru a combination of diesel fuel savings from CNG conversion, CNG sold to the public, and excess gas sold to the pipeline as RNG

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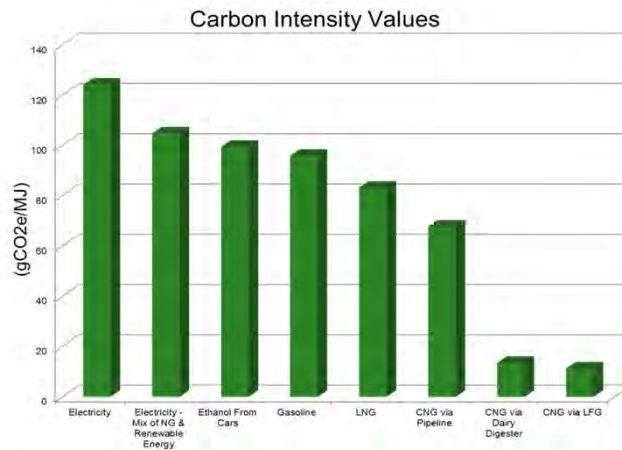
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## Low-Carbon Fuel Standard Emission Comparison for Various Fuel Sources

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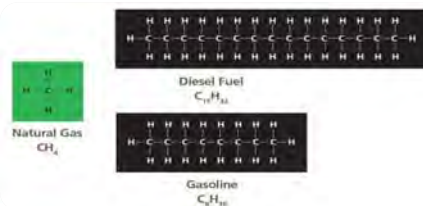
\* Values generated by California EPA Air Resources Board



## Environmental Benefits of Renewable Fuels Facility

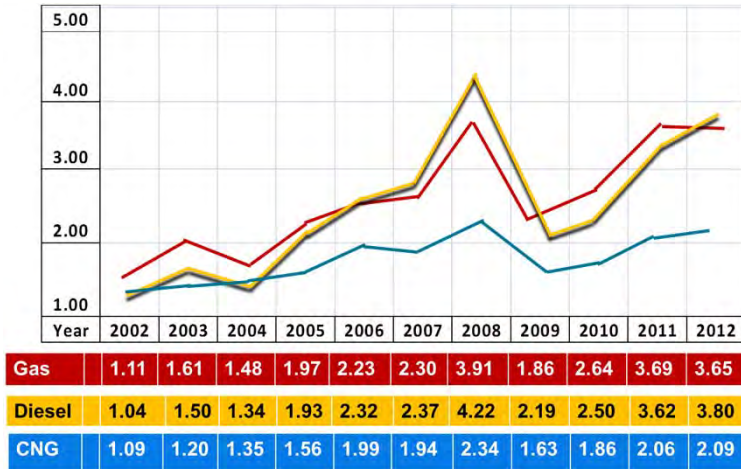
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- With utilizing clean methane as vehicle fuel, the County realizes a major reduction in CO<sub>2</sub> emissions.
- The reduction in emissions allows the County full compliance with ever increasing air quality regulations.
- CNG Vehicles are significantly quieter and produce lower unburned hydrocarbons emissions than diesel or gasoline fuel.



## History of Transportation Fuel Costs

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## Federal Fuel Standard (RIN's)

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- 2005 - The Federal Renewable Fuel Standard (RFS) was created under the Energy Policy Act (EPAct) established the first renewable fuel volume mandate in the United States
- The original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012
- 2007 - Under the Energy Independence and Security Act (EISA), the RFS program expanded, requiring 36 billion gallons of fuel by 2022
- RFS2 allows biogas (Renewable Processes – MSW Landfills) to be used as Transportation Fuels are eligible for Green Tag Attributes or Renewable Identification Numbers (RIN's) credits
- Most of these Transportation Fuels are used by Refiners, Fuel Importers and Commercial Fleets

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## Summary and Conclusions

- Reduction in overall emissions from the landfill = 17 million gallons of gasoline consumed annually
- Reduction in vehicle emissions by using CNG which has a Carbon Intensity value of approximately 1/6 of gasoline
- Reduction in noise of approximately 90% from quieter CNG vehicles.
- Reduction in vehicle fuel cost from producing CNG at a fraction of the cost of diesel or gasoline
- Predictable long term vehicle fuel costs
- Increased revenue from the sale of CNG, RNG and RIN's
- Continued efforts to support the County's goal of being a Green and Sustainable County thru Innovation

## Thank you

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