



Piedmont
Natural Gas

Moving to Natural Gas as a Transportation Fuel: NC Success Stories

NC Sustainable Energy Conference
April 27, 2011

Positive Attributes of NGVs

- Better for the Environment
- Lower Operating Cost
- Abundant North American Supply Base
- Proven Technology



Fueling With CNG (Compressed Natural Gas) Is Easy

- **Timed Fill (or Slow Fill)**
 - Connect the NGV to a fueling hose that connects directly to a natural gas compressor
 - Fill time depends on compressor capacity (GGE/hr), number of connected vehicles, and tank size
 - Used for applications where vehicles are parked for 4+ hrs/day
- **Fast Fill**
 - Compressed gas is stored typically in a 3-bank storage (or cascade) and delivered through a dispenser
 - Typical fill time of 5 to 10 minutes depending on vehicle tank size, storage capacity, and compressor refill time
- **Combination of Fast and Timed Fill**



Fleets are Early Adopters of NGVs

- High fuel use combined with a return-to-base model can be used to justify CNG station
- Typical applications include:
 - Refuse haulers
 - Transit and school buses
 - Airport shuttle buses and taxis
 - Courier and package delivery services
 - Industrial lift trucks
 - Local government
 - Utility and commercial services



Success Story : Small Municipal Fleet Edgecombe County Timed-Fill

Five Honda Civic GX (dedicated CNG)
using timed-fill at County Services
location

Supported in part by NC Solar Center
CFAT grant

Able to replace five Crown Victoria
sedans and achieve significant
reduction in emissions & petroleum use

Average cost of natural gas fuel less
than \$1.50 per GGE (Gasoline Gallon
Equivalent)



Success Story : Major Telecom Embraces NGVs as part of Sustainability Strategy

- Major telecommunications company makes national commitment to NGV dedicated technology for its service vans
- Through end of FY2010, more than 2400 have been deployed across the US at multiple locations
- Proximity to Piedmont's NGV Fueling stations will lead to deployment of ~45 vehicles at Charlotte and Greensboro
- Vans fast-fill each evening at Piedmont's public access station for less than \$1.70 per GGE (Gasoline Gallon Equivalent)



Success Story : Utility Fleet Makes the Grade with Heavy-Duty Dump Truck

- Piedmont Natural Gas' Green Fleet program led to first NC use of natural gas in a new heavy-duty dump truck
- Powered by a dedicated Cummins Westport ISL G engine (produced in NC)
- Supported in part by funding from NC Solar Center CFAT program
- Combined environmentally and economically superior performance in a work-truck daily use application



NC Publicly-Accessible CNG Stations

<u>Location</u>	<u>City</u>	<u>Operator</u>	<u>Status</u>
112-B Verbena Road	Charlotte	Piedmont Natural Gas	24/7
45 McCormick Place	Asheville	City of Asheville	24/7
2618 Hendersonville	Arden	TransEco	24/7
800 Gaston Rd	Gastonia	PSNC Energy	Upgrading now
Global Street	Raleigh	PSNC Energy	Opening 6/2011
1441 9th Ave NE	Hickory	City of Hickory	24/7
Randleman Road	Greensboro	Piedmont Natural Gas	24/7
601 S White St	Wake Forest	City of Wake Forest	Business Hours
2712-A Discovery Dr	Raleigh	PSNC Energy	Opening 9/2011
Houston St @ Hwy 21	Troutman	PSNC Energy	Planning 2012
Whilden Drive	Durham	PSNC Energy	Planning
Williams St	Hendersonville	Henderson County	Operational
15 Overland Ind'l Blvd	Asheville	PSNC Energy	Planning

For the latest list of fueling stations, go to :
http://www.afdc.energy.gov/afdc/fuels/natural_gas_locations.html

Thanks for your interest !

Contact Information :

Greg Johnson

Commercial Markets Manager

Piedmont Natural Gas

P. O. Box 33068

Charlotte, NC 28233

www.piedmontng.com

704.731.4392 telephone

704.763.6688 cell

greg.johnson@piedmontng.com