Agenda – CNG 101

• About IGS
• What is CNG?
• Types of Stations
• Why CNG? What are the Benefits?
• CNG Vehicles
• Tax Credits
• West Virginia Infrastructure
• The Market Looking Forward
About IGS Energy

- Natural Gas and Electricity supplier headquartered in Dublin, Ohio
- 450 employees
- Operations in 13 states and over 44 utilities
- Approximately 1,200,000 residential gas and electric customers, 30,000 Commercial and Industrial customer locations
- Founded in 1989
- Privately held with revenue over one billion per year
- Corporate headquarters recently awarded LEED Platinum status by the U.S. Green Building Council
What is CNG?

Compressed Natural Gas

3,600 PSI (US Standard)

4,500 PSI

Line Pressure
What is CNG?

One GGE of CNG ≈ 125 standard cubic feet of natural gas @ 3,600 psi

Gasoline
Volume: 1 gallon
BTUs: ~114,000
Cost: $3.69/gallon

Compressed Natural Gas
Volume: Roughly 3.5 gallons
BTUs: ~114,000
Cost: $2.10/GGE

CNG provides just as much energy as Gasoline at a fraction of the cost but it does take up more physical space.
Typical CNG Station Layout

Time-Fill CNG Setup

- NG Utility Line
- Gas Dryer
- CNG Compressor
- Temperature Compensation
- Time Fill Posts

Fast-Fill CNG Setup

- NG Utility Line
- Gas Dryer
- CNG Compressors
- CNG Storage @ 4,500psi
- Temperature Compensation
# CNG vs. Other Fuels

## NationWide Average Price (in GGEs)

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>$3.99</td>
</tr>
<tr>
<td>E85 (Ethanol)</td>
<td>$4.48</td>
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<tr>
<td>Propane</td>
<td>$3.70</td>
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<tr>
<td>Gasoline</td>
<td>$3.69</td>
</tr>
<tr>
<td>CNG</td>
<td>$2.10</td>
</tr>
</tbody>
</table>

Why CNG?

Affordable

We expect this trend to continue through the foreseeable future.

Why CNG?

Methane

\[ \text{CH}_4 \]

Diesel

\[ \text{C}_{16}\text{H}_{34} \]

Emissions Reduction

NGVs improve air quality through dramatic reductions in emissions, such as:

- Reducing carbon dioxide emissions by up to 30%
- Reducing carbon monoxide emissions up to 75%
- Reducing nitrogen oxide emissions by approximately 50%
- Reducing up to 90% of particulate matter emissions

Why CNG?

- Barrels of Oil Imported by the U.S.
  - 296 Million (In March 2013)
- Money Sent Overseas:
  - $32.1 Billion (In March 2013)
Natural Gas Vehicle Use?

Of the 15 million NGVs in the world only 123,000 are located in the United States.

- North America: 137,205 NGVs
- South America: 4.3 million NGVs
- Europe: 1.8 million NGVs
- Asia-Pacific: 8.8 million NGVs
- Africa: 159,000 NGVs

Source: International Association for Natural Gas
CNG Vehicles

Transit Busses
Brands: Gillig
Incremental Cost: $40,000+

Refuse Trucks
Brands: McNeilus, Autocar, others
Incremental Cost: $32,000+

Light Duty Vehicles
Brands: GM, Honda, Ford, Chrysler
Incremental Cost: $10,000+
CNG Vehicles (Light Duty)

OEM CNG Vehicles
• Honda Civic
• Chevy Silverado 2500
• Chevy Express Van
• Dodge Ram 2500

EPA Certified Kits for
• Chevy Impala, Malibu
• Ford Focus, Fusion
• Ford Transit Connect
• GMC Sierra
• Chevy Silverado
• Ford F-Series
• Ford E-Series
• Ford Expedition
• Chevy Tahoe, Avalanche
• Dodge Ram
• GM Savanna & Express
… And More
CNG Vehicles (Heavy Duty)

**Cummins ISX12 G**
The much anticipated release of this 12L engine occurred in August of 2013. This engine will have more power than any other truck CNG engine on the market and dramatically increase CNG penetration.

**Cummins ISL-G**
8.9L Engine has been the only viable option in the market up until this year. Max payload of 66,000lbs. Ideal for Refuse and Transit markets.

**Heavy-Duty Trucking**
Many CNG options available in the OEM heavy duty truck market. You can by “off the factory line” CNG trucks from brands like Kenworth, Freightliner, Volvo, etc. Incremental Cost: $40,000 +
Federal Tax Credits

• Current Federal Credits
  – 30% reimbursement of infrastructure up to $30,000.
  – $0.50 per GGE tax credit
  – No tax credits for vehicles at this time
  – Set to expire on Dec 31, 2013
State Tax Credits

West Virginia

- Vehicles under 26,000 lbs.
  - 35 percent of OEM purchase price up to $7,500
  - 50 percent of cost of conversion up to $7,500

- Vehicles over 26,000 lbs.
  - 35 percent of OEM purchase price up to $25,000
  - 50 percent of cost of conversion up to $25,000
CNG Stations in West Virginia

- **Bridgeport**: I-79 Exit 124, just at Jerry Dove Drive, inside Charles Pointe at 50 Genesis Boulevard.
- **Jane Lew**: I-79 Exit 105, Lewis County Industrial Park, in front of US Well Services, opening late December 2013 (targeted).
- **Charleston Westmoreland Dr.**: Exit 102 from I-77, Bigley Foodland – 10 Spring St.
The Future…?

Heavy Duty Vehicles – “Estimated” Demand (in million GGE)


3 Fold increase in next 5 years
Thank You!

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