Clean Energy®

North America's leader in clean transportation

Natural Gas Powered Refuse Trucks: Cleaner-Cheaper-Domestic

August 21, 2008

About Clean Energy

- **Largest provider of vehicular natural gas (CNG & LNG) in North America**
  - Design, build & operate NG stations
  - Over 170 in operation
- **Full service**
  - Vehicle & Station Grants (Over $100 Million)
  - Financing
  - Station Build & Operate
  - Fuel and Fleet Marketing
- **Industry leading statistics**
  - Over 14,000 customer vehicles fueled daily
  - Fuel over 800 refuse trucks daily
- **Publicly-traded as CLNE on NASDAQ**
  - 75 million gallons and $117 in revenue in 2007

Why Operate NG Trucks?

- **Cleaner**
  - Cummins ISLG engine meets 2010 EPA standards
  - 23% reduction in GHGs
- **Domestic**
  - 97% of NG servings U.S. is produced in North America
- **Cheaper**
  - Turnkey fuel cost, including infrastructure, is $0.50 to $2.00 per gallon less than diesel depending on location in US
  - Commodity (“fuel”) costs can be fixed for multiple years
  - Truck operation costs are similar to diesel
- **It Works**
  - ISL G engine has 320 hp, 1000 lb ft torque, and outperforms diesel
  - Certified to 2010 emission standards

Pasadena Fast-Fill Station

Burbank Fast-Fill Station

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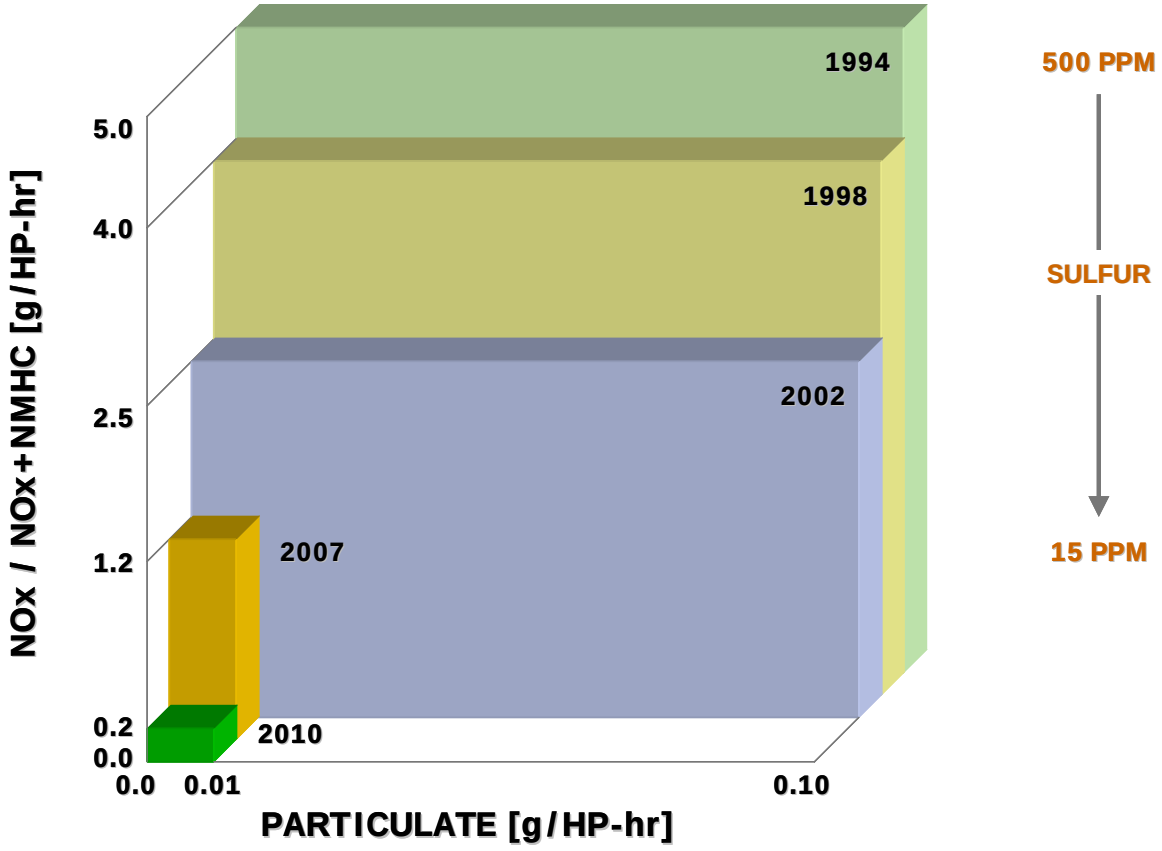
Cleaner

Tighter Emission Standards

U.S. EPA HD Engine Emissions Standards
CWI, ISL G meets 2010 standards in 2007

- ISL G will require catalyst to meet 2010 standards
- No DPFs needed with natural gas engines
- 2007 Diesel engines require DPF & ULSD
- 2010 Diesel engines will likely include urea or ammonia injection

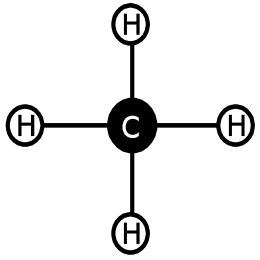


Natural Gas Molecular Structure

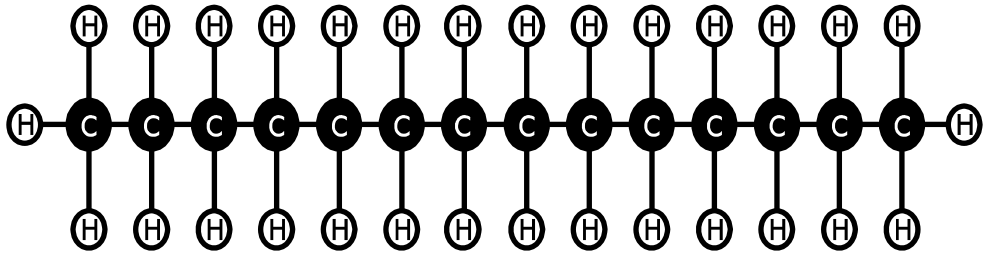
- **Natural gas is >90% methane**
  - Simple Hydrocarbon
    - Near complete combustion
  - Up to a 23% reduction in Greenhouse Gas (GHG) emissions versus diesel
- **Compare Diesel Fuel**
  - Complex Hydrocarbon
    - Incomplete combustion

AW CNG Trucks

Methane CH_4



Diesel $C_{14}H_{30}$



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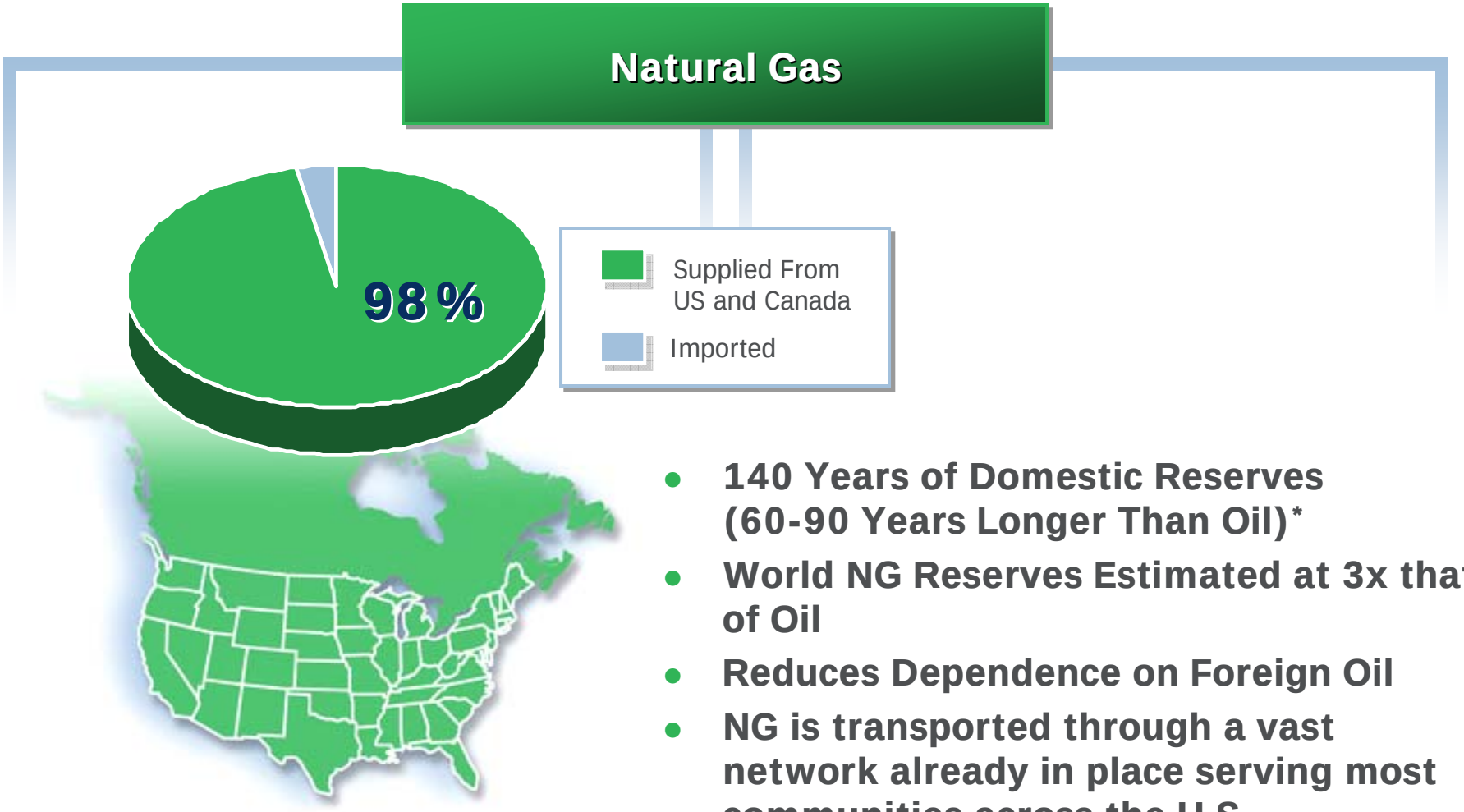
Domestically Available

Large, Domestically Available Supply of NG



- 140 Years of Domestic Reserves (60-90 Years Longer Than Oil)*
- World NG Reserves Estimated at 3x that of Oil
- Reduces Dependence on Foreign Oil
- NG is transported through a vast network already in place serving most communities across the U.S.

*Based on Current Rate of Consumption
Sources: EIA 2006, Clean Energy

Renewable NG from Bio Methane

- **NG is "Green" & "Renewable" too**
  - Significant Greenhouse Gas reduction
- **Landfill Gas (LFG)**
  - > 200% GHG Reduction
- **Digester Gas**
  - Sewage Treatment
- **Dairy Farms**
  - PG&E
  - > 400% GHG Reduction
- **All of these sources produce pipeline NG at market rates without government subsidies!**

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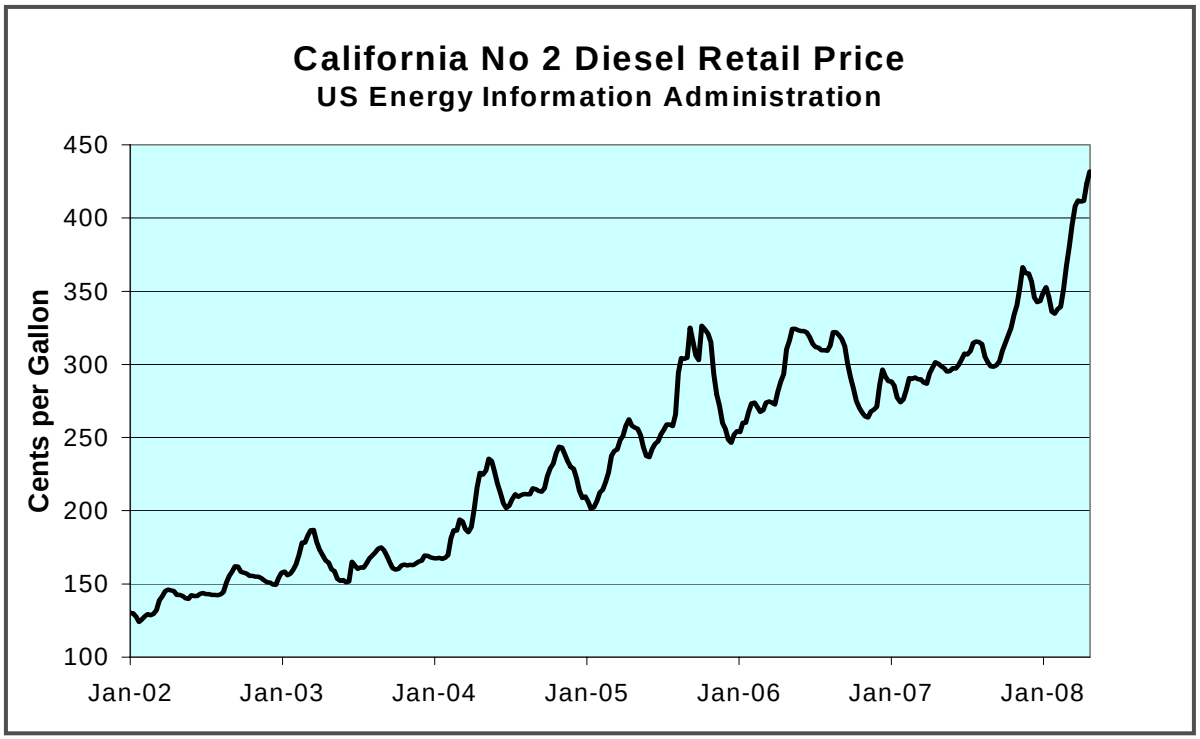
Cheaper

Today's Fuel Cost Savings

- **Southern California Diesel Comparison**
  - Diesel, >$4.40/gallon
  - Natural gas, includes infrastructure and O&M
    - CNG @ $2.50/gallon, LNG @ $3.30/gallon



Funding Opportunities

President's Energy Bill
Tax Credits through December 2010

- **VEHICLES** - federal tax credit of up to 80% of incremental cost of dedicated NGV based on GVWR (good through 12/2010)
  - GVWR < 8,500 lbs = $5,000 (80% = $4,000)
    - Honda GX, Ford Crown Victoria & Mercury Marquis
  - GVWR 8,500-14,000 lbs = $10,000 (80% = $8,000)
    - Sierra/Silverado pickup, Express/E350 van & GM SUVs
  - GVWR 14,000-26,000 lbs = $25,000 (80% = $20,000)
    - Ford E450 or GM 8.1L Shuttle Bus
  - GVWR > 26,000 lbs = $40,000 (80% = $32,000)
    - Transit Bus, **refuse trucks**
- **Infrastructure** - $1,000 to $30,000 credit for equipment
- **SCAQMD????**

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Natural Gas Engines Work And Work Well!

Natural Gas Engine Availability (CNG & LNG)

- **Cummins Westport (CWI)**
- **4th generation engine**
- **8.9 Liter**
- **250 - 320 hp**
- **660-1000 lb-ft torque**
- **Certified at 0.2 grams NOx**
  - 2010 emissions level
- **34% more torque at idle**
- **Diesel like performance**
  - Averaging the same gallon per hour burn as diesel

ISL G

Westport

Compressed Natural Gas (CNG)

- **Onsite station takes pipeline gas & compresses it to 3,600 psi for trucks**
- **Fast-fill station**
  - Similar to gasoline/diesel rate
  - Capable of fueling in rapid succession
- **Time-fill station**
  - Fuels trucks while parked, over a period of time (typically 6-8 hrs)
  - Less to install and has lower operation costs compared to fast-fill station
  - Limited fast-fill capabilities
- **Combo**
  - Provides both Fast- & Time-fill

Compressor and Dryer Skid

Palm Desert Time-Fill Station

CNG Example For 20 Trucks

Truck incremental cost	$40,000
Federal tax credit	($32,000)
Local grant	
Net cost	$160,000
Fuel saving per truck	
($1.00/gal @ 9,000 gal/yr)	$9,000
Net Fuel Savings/yr for 20 trucks	$180,000/yr

- ✓ **Be 2010 compliant with EPA standards in 2007**
- ✓ **Achieve a 23% GHG & 10 dba noise reductions with NG**
- ✓ **Likely have lower maintenance cost with absence of DPF**
- ✓ **Lower health costs**

Questions and Answers

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