

# *Natural Gas for Port Drayage, Regional Trucking & Off Road Applications*

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*Faster Freight Cleaner Air - East Coast Conference  
Jacob Javits Center, New York City*

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# Agenda

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- ◆ National Grid's Role in NGV Market
- ◆ Benefits of Natural Gas
- ◆ Other Successful Markets
- ◆ Technology Solutions
- ◆ Incentives & Funding
- ◆ Public Policy

# National Grid's Role in Natural Gas Vehicle Market

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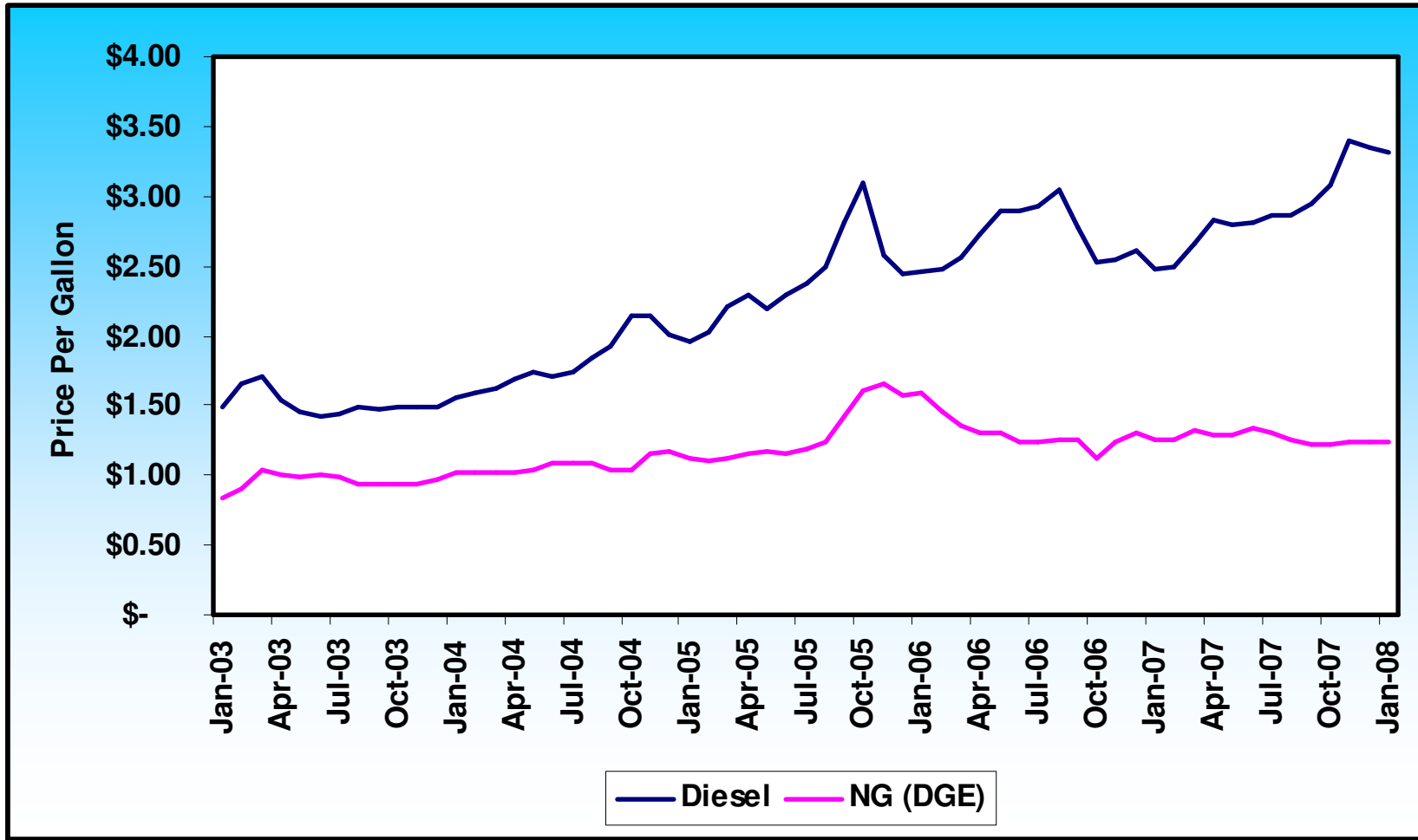
- ◆ Deliver Gas – Bundled or Transportation Only
- ◆ Educate Community and Fleet/Vehicle/Equipment operators on Benefits of NGV's
- ◆ Assist in Business Case to Transition to Natural Gas
- ◆ Facilitate in Obtaining Incentives & Funding
- ◆ Facilitate Policy and Public/Private Partnerships
- ◆ Work with Trade Allies to Implement Solutions
- ◆ Provide Technical Assistance/Resources – before, during and after a sale

# Benefits

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- ◆ Economic
  - ◆ Price stability and cost less
  - ◆ Incentives & funding
- ◆ Environment - Cleaner Air
  - ◆ Reduction in Carbon and GHG – go “Green”
  - ◆ Reduction in DPM, NOx, SOx and other pollutants
  - ◆ Improved Work Environment for Employees
- ◆ Energy Security Improved - North American fuel reduces America’s dependence on Foreign Oil
- ◆ Reduction in Noise – engines are quieter
- ◆ Renewable Forms – Bio Methane
  - ◆ Waste Water Treatment, Landfill Gas, Anaerobic Digestion

# Benefits – Price Stability and Cost Advantage



US Diesel #2 Retail All Sellers vs. Natural Gas Sold to Commercial Customers

(Source: US Department of Energy)

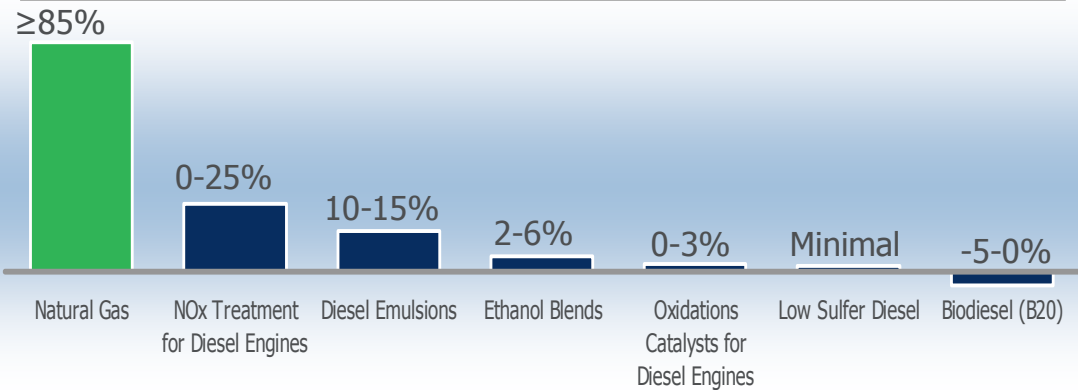
## Benefits – Price Stability and Cost Advantage

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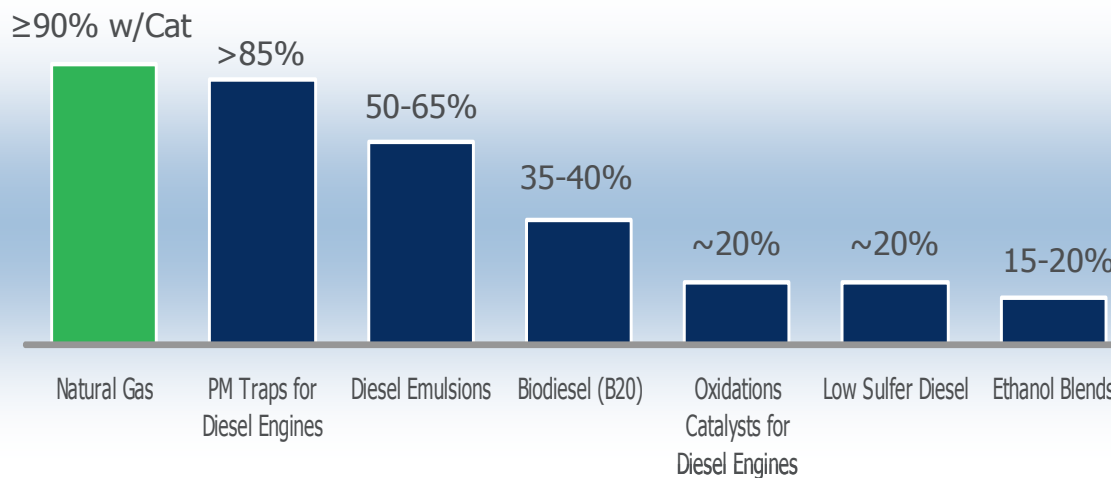
- ◆ National Grid Stations NYC – Brooklyn, Queens, SI
  - ◆ On average \$1.25/gge lower than gasoline
  - ◆ On average \$2.00/dge lower than diesel
  - ◆ July Pricing - \$3.25/gge & \$3.62/dge
- ◆ National Grid NYC – Gas & Delivery to Customer Owned Stations
  - ◆ July Pricing - \$2.00/gge & \$2.23/dge
  - ◆ Taxable customer receives \$.32/gge tax credit
  - ◆ Non Taxable customer receives \$.50/gge tax rebate check from IRS

# Benefits – CNG Emissions Review

## N0x Reduction: Less Smog



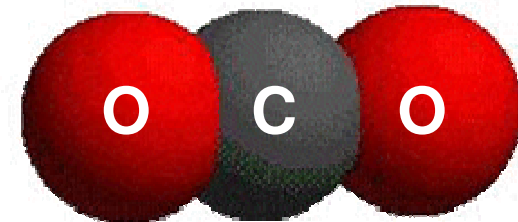
## PM Reduction: Less Soot



## Greenhouse Gases

### CEC's Well to Wheels Study

- ◆ 23% GHG reduction compared to diesel fuel
- ◆ 30% GHG reduction compared to gasoline fuel



Source: South Coast Air Quality Management District 2007 Air Quality Management Plan Summit Panel

# Other Successful Markets

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- ◆ Transit
- ◆ Refuse/Sanitation – municipal, residential & commercial
- ◆ Taxi
- ◆ School Bus
- ◆ Municipal Fleets
- ◆ Delivery Fleets
- ◆ Utility Fleets

## **2007 CNG Vehicle Fuel Displacement & GHG Reduction**

- ◆ NYC National Grid Territory – 11,024,371 equivalent gallons resulting in ***15,559 Tons of CO<sub>2</sub> reduced***
- ◆ LI Territory – 8,113,440 equivalent gallons resulting in ***11,450 Tons of CO<sub>2</sub> reduced***

# Transportation Technology Solutions

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- ◆ Drayage movement
  - ◆ Short Haul and Port/Yard Hostler – Compressed Natural Gas (CNG) or Liquefied Natural Gas (LNG)
    - ◆ Cummins Westport Innovations ISL G Engine 2010 CARB and EPA certified
  - ◆ Long Haul – Liquefied Natural Gas (LNG)
    - ◆ LNG stored at -258 °F
    - ◆ Provides 600:1 energy density
    - ◆ Westport Innovations ISX G High Pressure Direct Injected (HPDI) 15-liter engine

# Transportation Technology Solutions

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## Autocar Tractor LNG ACX

- ◆ Cab over design
  - ◆ Turning radius
  - ◆ Visibility
  - ◆ Ergonomic
  - ◆ Tractor or Straight Truck
  - ◆ ISL G (CNG or LNG)



# Transportation Technology Solutions

## Sterling Tractor - L Series LNG

- ◆ Today - Tractor LNG
- ◆ Early 2009 – Tractor CNG and Straight Truck CNG or LNG
- ◆ ISL G (CNG or LNG)



# Transportation Technology Solutions

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## Capacity of Texas – TJ9000 LNG

- ◆ Off Road/On Road
- ◆ Most efficient way of container movement
- ◆ 242,000 lbs. GCW
- ◆ ISL G (CNG or LNG)



# Transportation Technology Solutions

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## Ottawa LNG

- ◆ Off Road/On Road
- ◆ 4x2 and 4x4
- ◆ CWI Series B - now
- ◆ ISL G - future



# Transportation Technology Solutions

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## Kenworth T800 LNG

- ◆ Tractor LNG Only
- ◆ ISX G 15-liter, 400-450 HP
- ◆ 33% lower NOx
- ◆ 23% lower GHG
- ◆ Long Haul



# Transportation Technology Solutions

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## Other Tractor/Truck Manufacturers

- ◆ Peterbilt
- ◆ International

# Incentives and Funding

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## Incentives

- ◆ New York State
  - ◆ \$.44 per GGE Gallon NYS Tax Exemption
  - ◆ 50% NYS Income Tax Credit on Fueling Station
- ◆ Federal
  - ◆ Credit for CNG/LNG Vehicle acquisition – up to \$32,000 per vehicle
  - ◆ Credit/Rebate for fuel use - \$.50 per GGE for tax exempt, \$.32 per GGE for taxable users/sellers
  - ◆ Credit for Installation of CNG/LNG Fuel Station - \$30,000

# Incentives and Funding

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## Funding

- ◆ Clean Cities CMAQ
- ◆ EPA Grants – Diesel Emission Reduction Program
- ◆ NYSERDA – Private Fleet Program PON 1213

# Public Policy

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East Coast needs policy and funding for the Ports similar to the Clean Air Action Plan in the San Pedro Bay Ports in California

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