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# Natural Gas for Vehicles

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# Cautionary Statements



Disclosures in this presentation contain certain forward-looking statements. Statements that do not relate strictly to historical or current facts are forward-looking. Without limiting the generality of the foregoing, forward-looking statements contained in this presentation specifically include the expectations of plans, strategies, objectives and growth and anticipated financial and operational performance of the company and its subsidiaries, including guidance regarding the construction of public access refueling stations. The company has based these forward-looking statements on current expectations and assumptions about future events. While the company considers these expectations and assumptions to be reasonable, they are inherently subject to significant business, economic, competitive, regulatory and other risks and uncertainties, most of which are difficult to predict and many of which are beyond the company's control. The risks and uncertainties that may affect the operations, performance and results of the company's business and forward-looking statements include, but are not limited to, those set forth under Item 1A, "Risk Factors" of the company's Form 10-K for the year ended December 31, 2010, filed with the SEC, as updated by any subsequent Form 10-Qs. Any forward-looking statement speaks only as of the date on which such statement is made and the company does not intend to correct or update any forward-looking statement, whether as a result of new information, future events or otherwise.

# NGV Around the World



13.0 million NGVs worldwide at the end of 2010  
(4 million at the end of 2004)



12,193,600 cars, 4014,800 buses, 210,800 trucks, and 229,100 other vehicles now running on NG/ biomethane, using 43.4 billion Nm<sup>3</sup> of methane annually (37.3 Mtoe). A total of 18,600 filling stations worldwide.

Source: The GVR, adjusted

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## Economics



### Cheaper

- Natural Gas is cheaper per gallon than diesel or gasoline

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## Environment



### Cleaner

- Lower priority pollutants

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## National Security



### Energy Independence

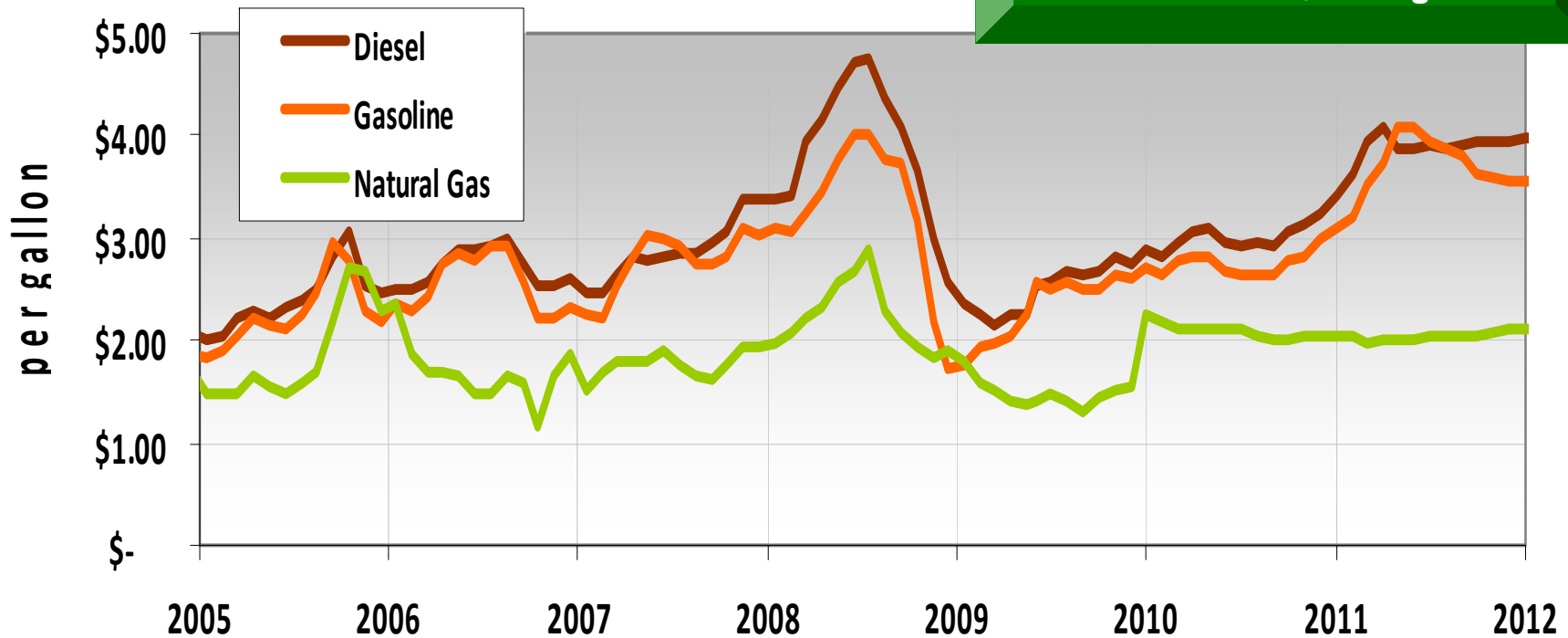
- The U.S. spends \$1 billion per day purchasing foreign oil
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## Fuel Prices per Gallon

(Prices per gallon on an equivalent Btu Basis)

At today's local spot prices:

Diesel: \$4.49 / gallon  
Gasoline: \$3.97 / gallon  
Natural Gas: \$2.00 / gallon

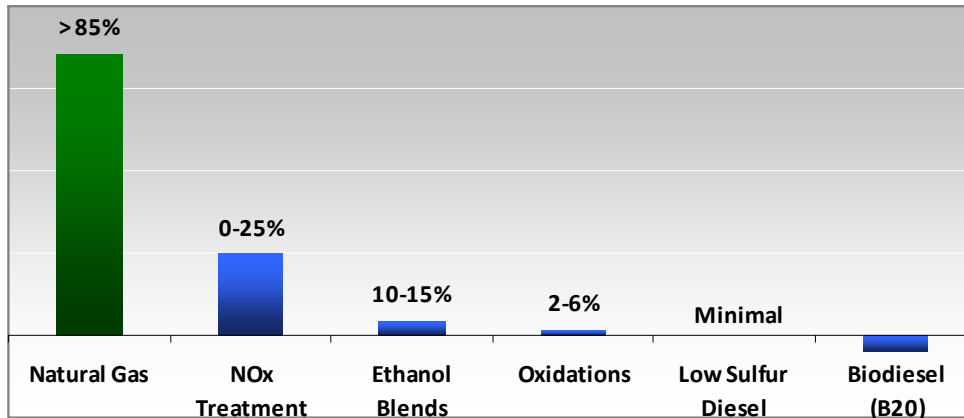


Source: EIA and CNGPRICES.COM

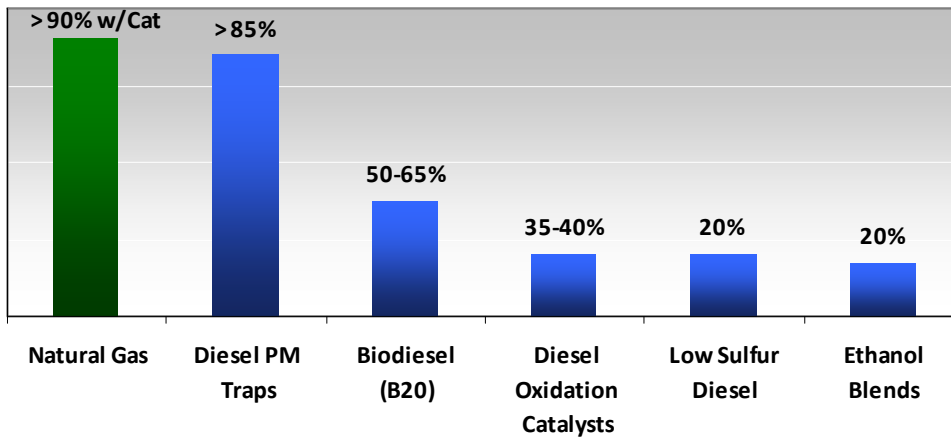
# Natural Gas Cleaner than Existing Diesel and Gasoline



## NOx Reductions: Less Smog

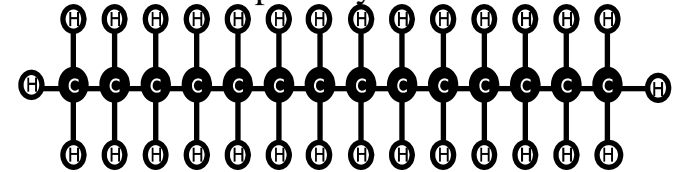


## PM Reductions: Less Soot



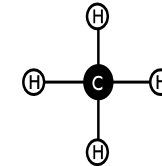
**Diesel C<sub>14</sub> H<sub>30</sub>**

Complex Hydro Carbon



**Methane CH<sub>4</sub>**

Simplest Hydro Carbon



**Lowest carbon transportation fuel**

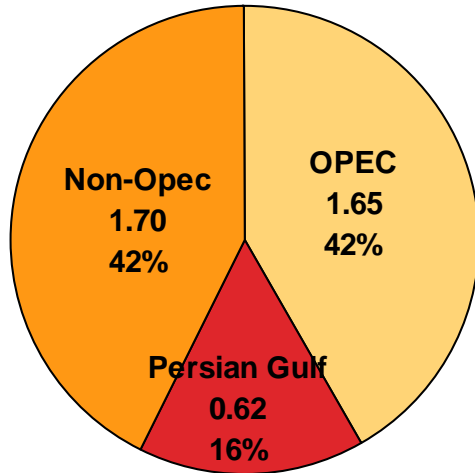
\* Source: South Coast Air Quality Management District 2007 Air Quality Management Plan Summit Panel

# National Energy Security

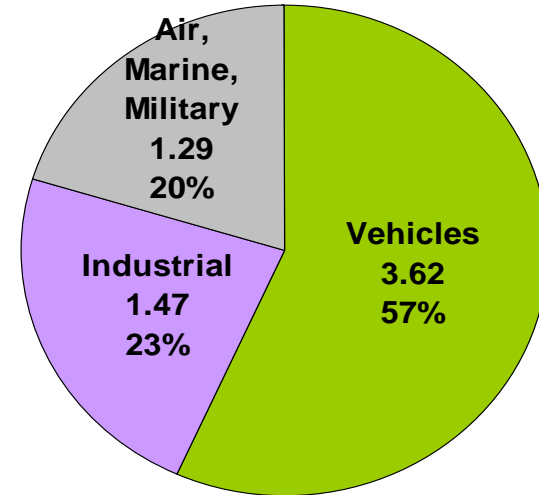
## Natural Gas is American



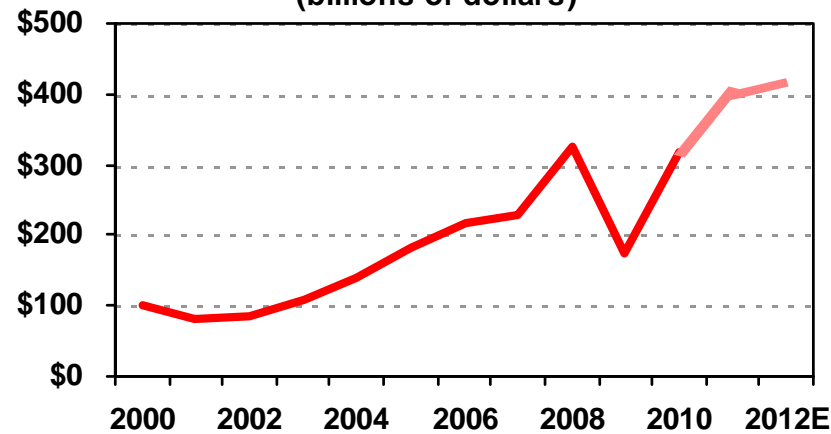
### 2010 US Oil Imports (billion barrels)



### U.S. Petroleum Use by Sector (billion barrels)

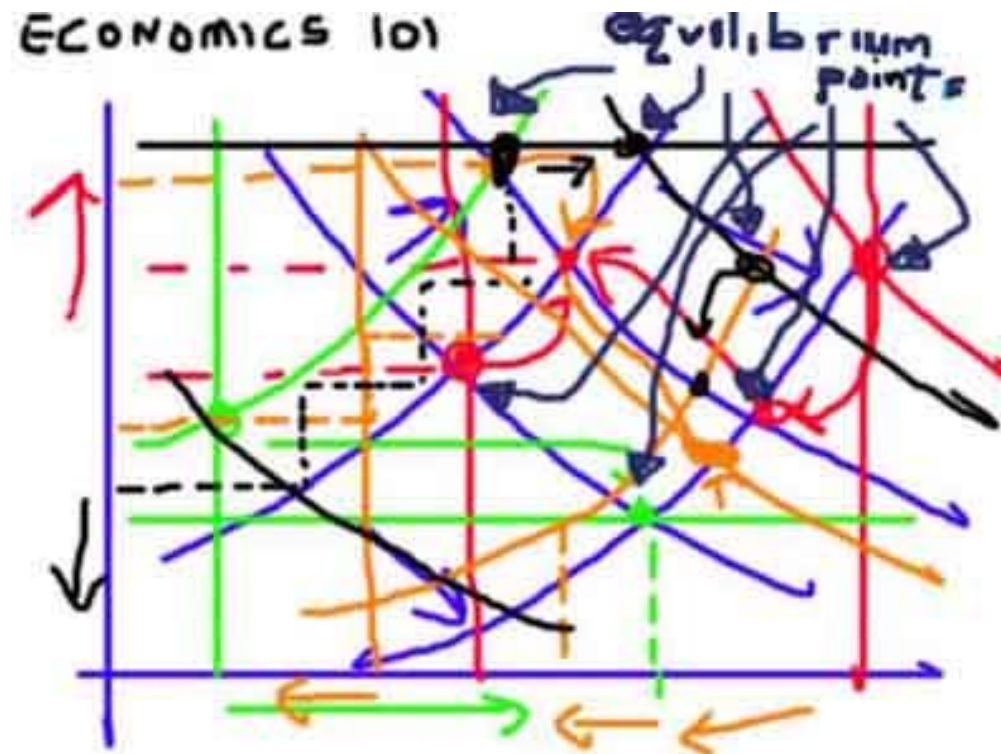


### US Oil Imports (billions of dollars)



Source: EIA

# Station and Vehicle Economics





## CNG Station Economics

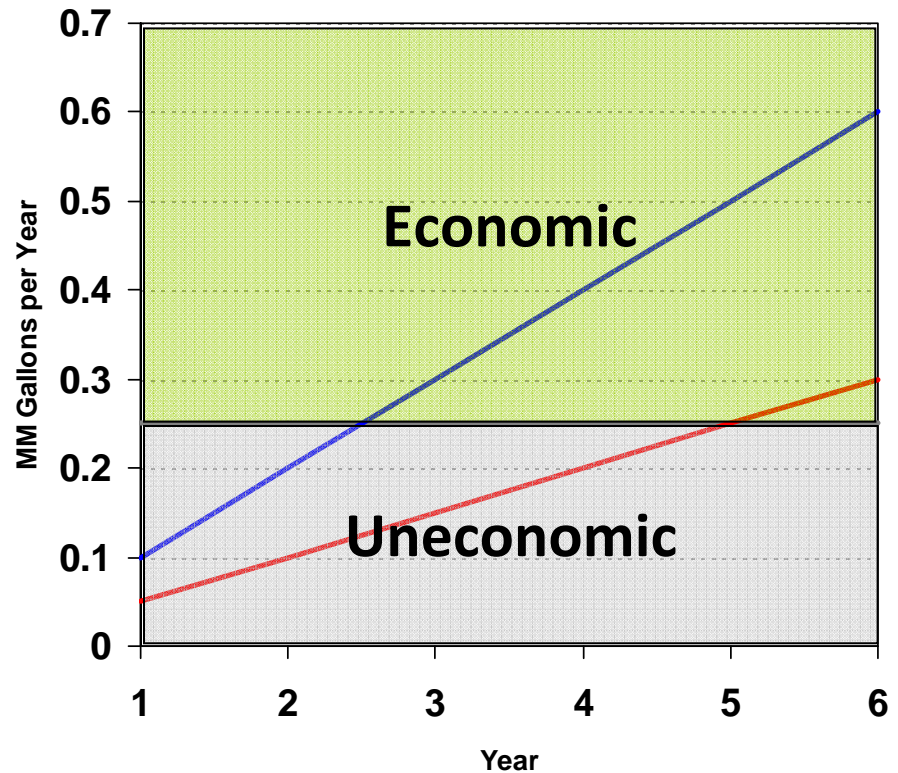
(250,000 gallons required to earn economic return)

### Assumptions

- Fast fuel station
- Fleet of 100 vehicles
- Vehicles use 10,000 gallons per year
- Return on vehicles excluded

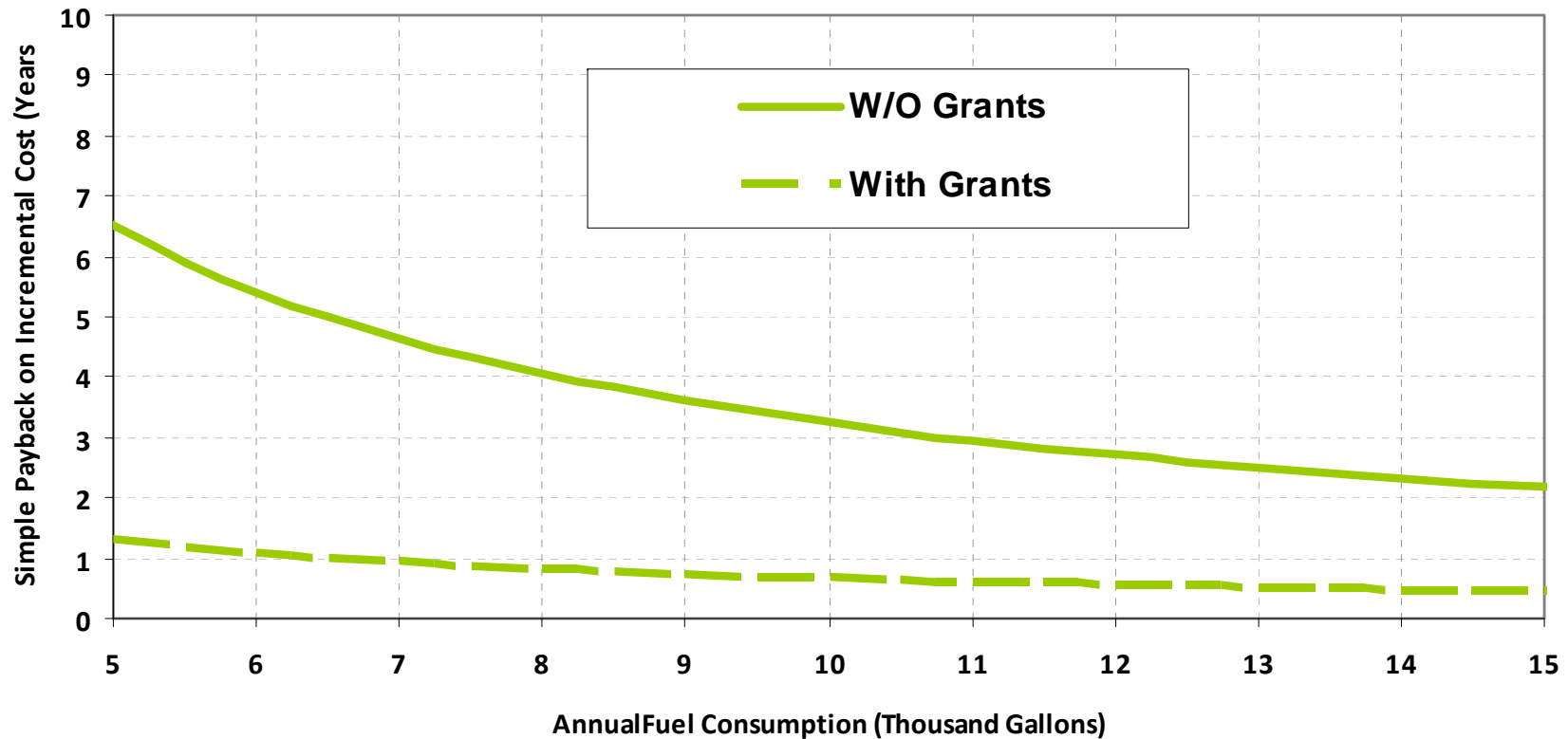
### Station Economics

- 5 yr replacement cycle (blue)
- 10 yr replacement cycle (red)



**Challenge: Fleets do not replace their vehicles all at one time**

## Heavy Duty Truck - NGV Conversion Payback



**Challenge: Fleets do not want to take price risk**

# Supporting Natural Gas Vehicles Development

## What have other States done?



<b>State</b>	<b>Stimulus Form</b>
<b>Utah</b>	<b>Utility Rate Base Model</b>
<b>New York</b>	<b>Tax Payer Funded</b>
<b>California</b>	<b>Mandates &amp; Grants</b>

## Infrastructure development stimulated through LDC rate structure

### Results

#### CNG Infrastructure

- 26 public access stations
- 60 private access stations

5,000+ NGVs

7<sup>th</sup> NGV using ranking in U.S.



# New York— Tax Payer Funded Model



## Infrastructure development through tax payer supported model

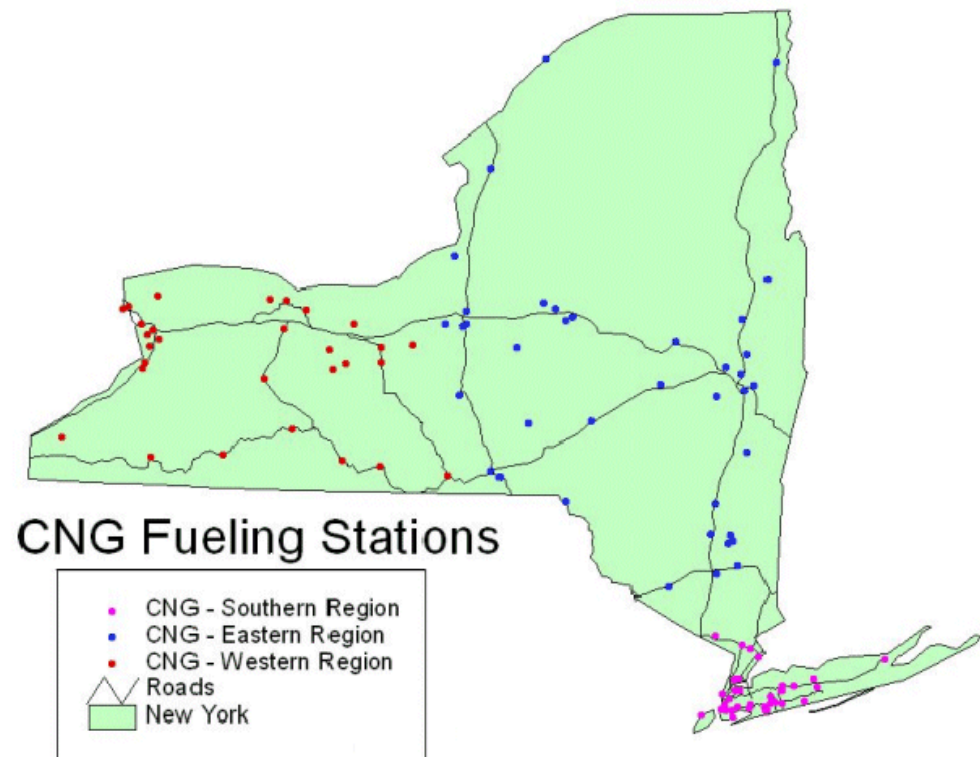
- 50% tax credit for CNG fueling stations
- Grant Funding

## Results

**99 CNG Stations**

**10,000+ NGVs in the State**

**4<sup>th</sup> NGV usage ranking in U**



# California – Mandated Elimination of Diesel Supported by Grants



- Infrastructure development through Air Quality Requirements
- SCAQMD mandated the elimination of diesel vehicles and for:
  - Public transportation
  - Refuse collection
  - Airport services
- Supported this mandate with grants
- Results
  - 210 NG Stations
  - 38,000+ NGVs
  - #1 NGV usage ranking in U.S.
  - So. Cal Gas dispenses 0.1 BCF / yr



# Local Projects in Construction



## PA NGV Projects

Partially funded through State of PA DEP AFIG Program



### **\$700K grant to build CNG fueling station / convert fleet**

- Public CNG fueling station in Pittsburgh Strip District
- 33 CNG fleet vehicles



### **\$1.4MM in grants to build a public CNG station / convert fleet**

- Public-access CNG station in Crafton, PA
- 28 CNG trucks and passenger vehicles



### **\$700k grant to build a public CNG station / convert trucks**

- Public CNG fueling station at its hauling facility in Washington, PA
- 30 refuse trucks operating on natural gas



### **\$750k for Endless Mountains Transit Authority**

- Public CNG fueling station (built by Dandy Mini Marts) in Towanda or Sayre
- Convert 5 public transit buses to CNG



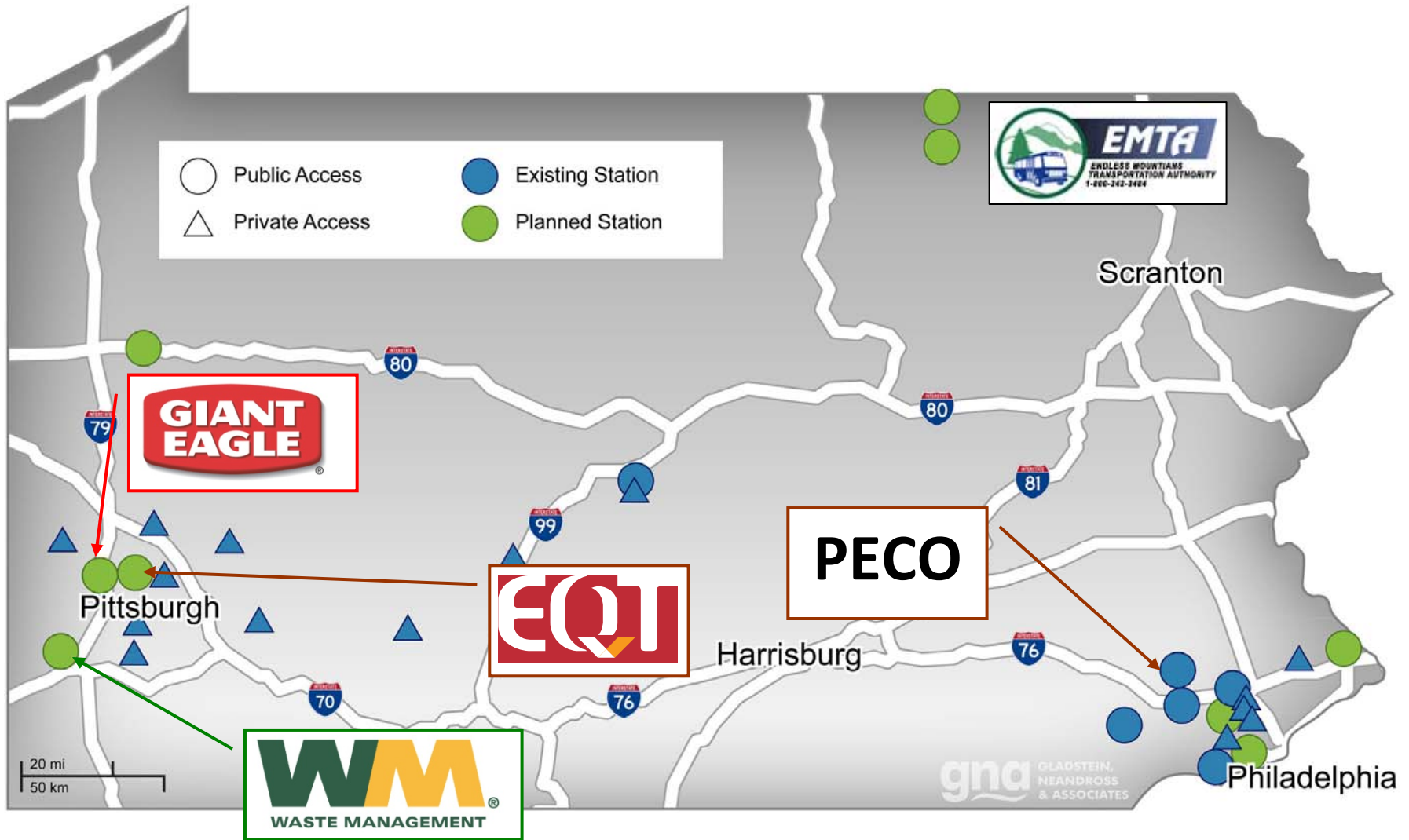
# **Pennsylvania Manufacturing**

## **Companies with Direct NGV Benefits**



- ▶ **Air Products and Chemicals, Inc. (Allentown)**
- ▶ **CP Industries (McKeesport)**
- ▶ **Cryostar (Bethlehem)**
- ▶ **Mack Trucks (Allentown)**
- ▶ **Knox Western (Erie)**
- ▶ **PC McKenzie/Ingersoll Rand (Pittsburgh)**
- ▶ **PSB Industries (Erie)**
- ▶ **US Steel (Pittsburgh)**

# CNG Fueling Stations in Pennsylvania



Source: Marcellus Shale Coalition NGV Roadmap for Pennsylvania Jobs, Energy Independence and Clean Air – 2011

- ▶ **No bi-fuel vehicle options (like a plug hybrid)**
  - Road Block for adoption of natural gas vehicles
  
- ▶ **Bi-fuel vehicles are a bridge**
  - To dedicated vehicles
  - More fueling infrastructure being built
  - Currently limited fueling infrastructure
  
- ▶ **Same emissions as EPA aftermarket dedicated vehicles**
  - Lower emissions than CARB or EPA gasoline vehicles

# Questions

