



# Transforming our Nation's Transportation Sector

## *The Role of Natural Gas*

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*Washington Energy Summit \* September 28, 2011*



# **Natural gas: A foundation fuel for our energy security**

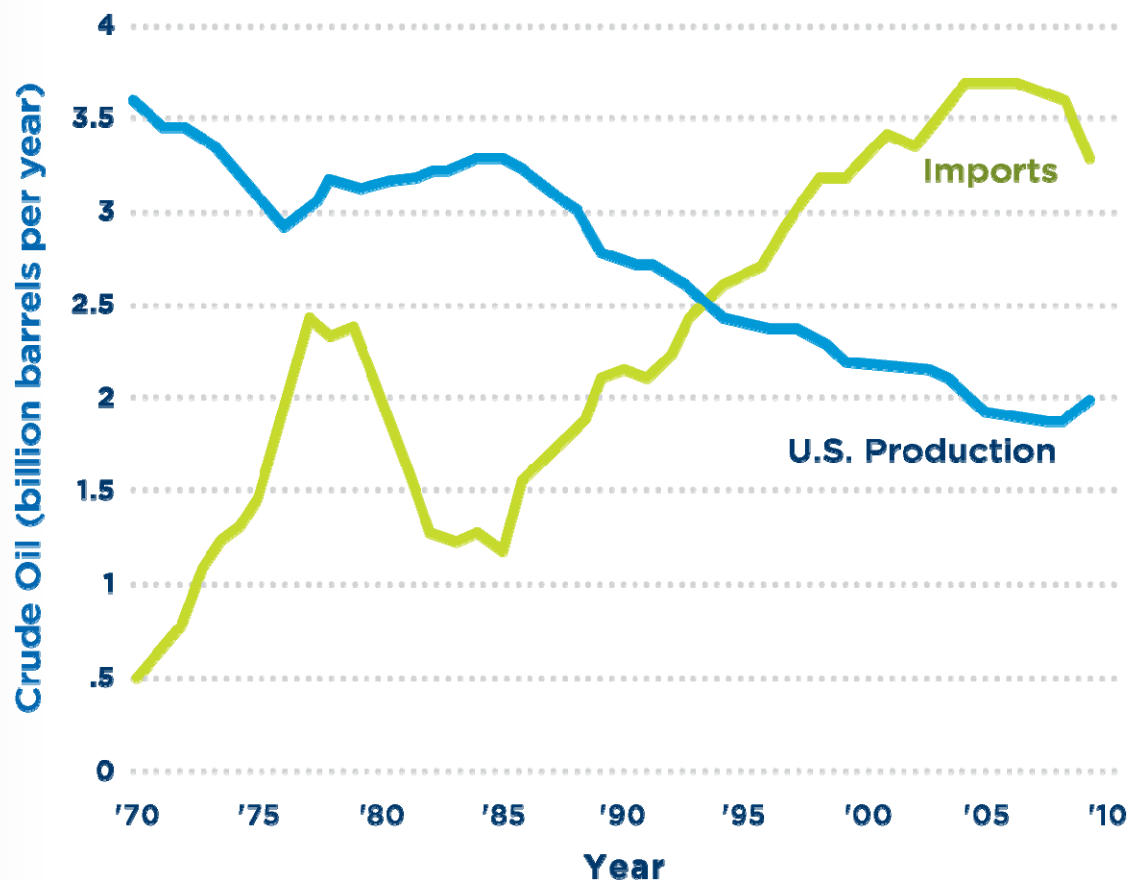
# Our dependence on foreign oil threatens our national security and our economic recovery.

## Reliance on foreign oil means

- Dependence on politically unstable regions
- Transfer of wealth from the U.S. to other countries
- Economic vulnerability due to oil shocks



# Our dependence on foreign oil has increased over the past decades



Last year, the United States imported **1.5 billion barrels** of oil from dangerous, unstable nations.

# Natural gas: America's new energy landscape

# Natural gas:

## A foundation fuel for our energy security

**A better source of energy security and economic stability exists within our borders and those of our Canadian neighbors**

- Our nation is the largest producer of natural gas in the world.
- The United States now has more natural gas than Saudi Arabia has oil.
- Over the last decade, U.S. shale gas production has increased 12-fold and now comprises about 25 percent of total U.S. production.

**Shale gas plays and basins** are a vast resource, widely distributed across the United States.

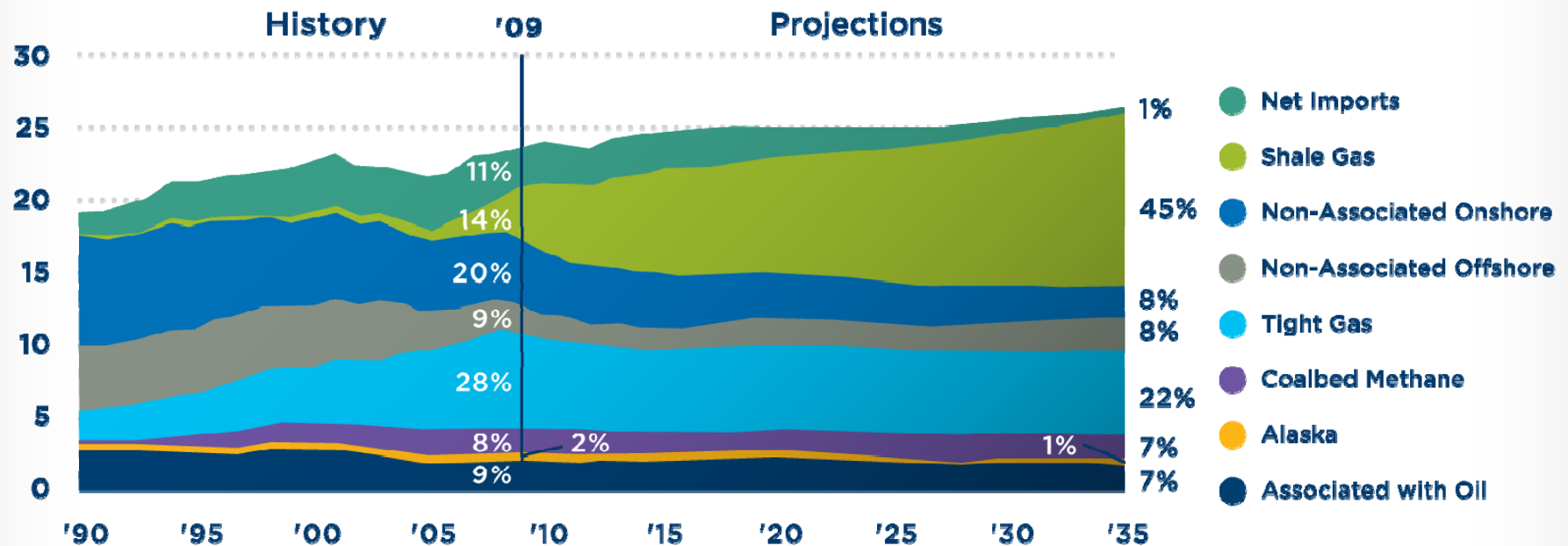


Thirty-two states are now producing, or have produced, natural gas.



# Game-changing discoveries mean abundant domestic natural gas for the coming decades.

U.S. Dry Gas Trillion Cubic Feet per Year



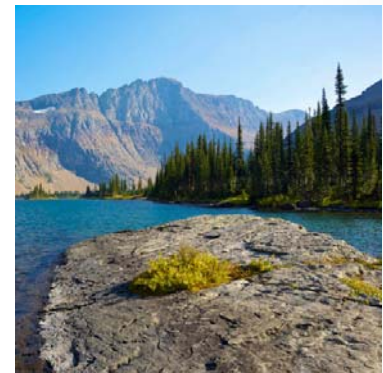
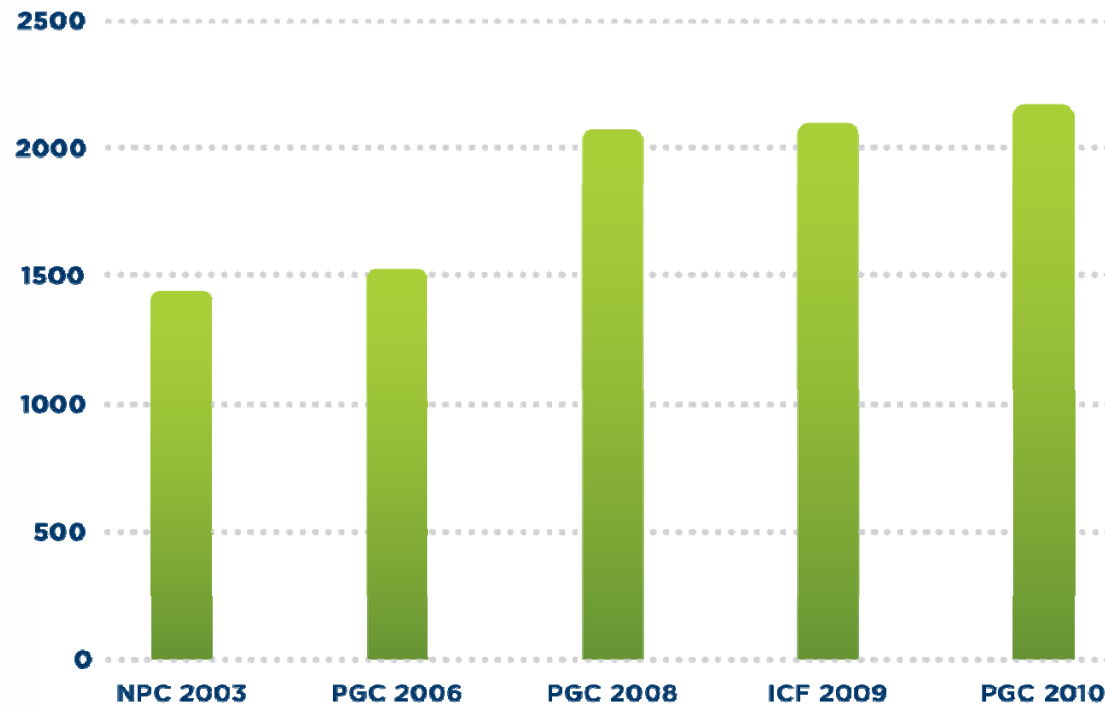
Source:  
EIA Annual Energy Outlook 2011



# Natural gas abundance:

Independent sources estimate one hundred years supply.

**U.S. Natural Gas** Resource Estimates (TcF)



Source:  
National Petroleum  
Council, Potential  
Gas Committee,  
ICF Consulting

The background of the slide is a dark blue field filled with wispy, ethereal smoke or gas that swirls and flows in various directions, creating a sense of movement and depth. The smoke is a lighter shade of blue, contrasting with the dark background.

**Natural gas** is proven, safe,  
dependable, and affordable

# Natural gas: Clean, domestic, secure, affordable energy for transportation

Greenhouse gas emissions 29% lower than comparable gasoline light-duty vehicles.

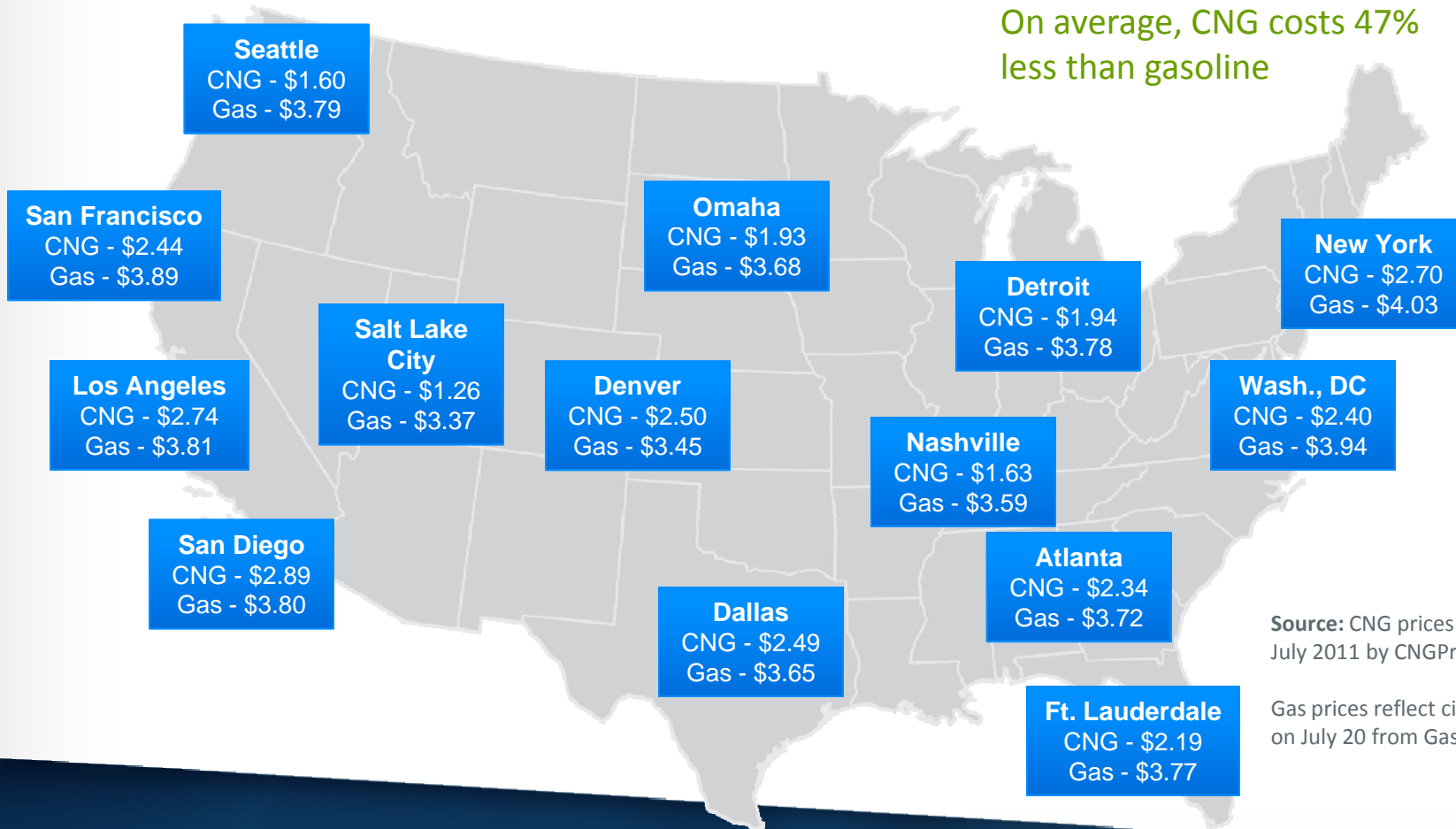
Domestic gas production accounts for 89% of natural gas consumed in the United States.

Natural gas prices are decoupled from petroleum, with abundant resources to support stable prices for years to come.



# Natural gas vs conventional gasoline

On average, CNG costs 47% less than gasoline

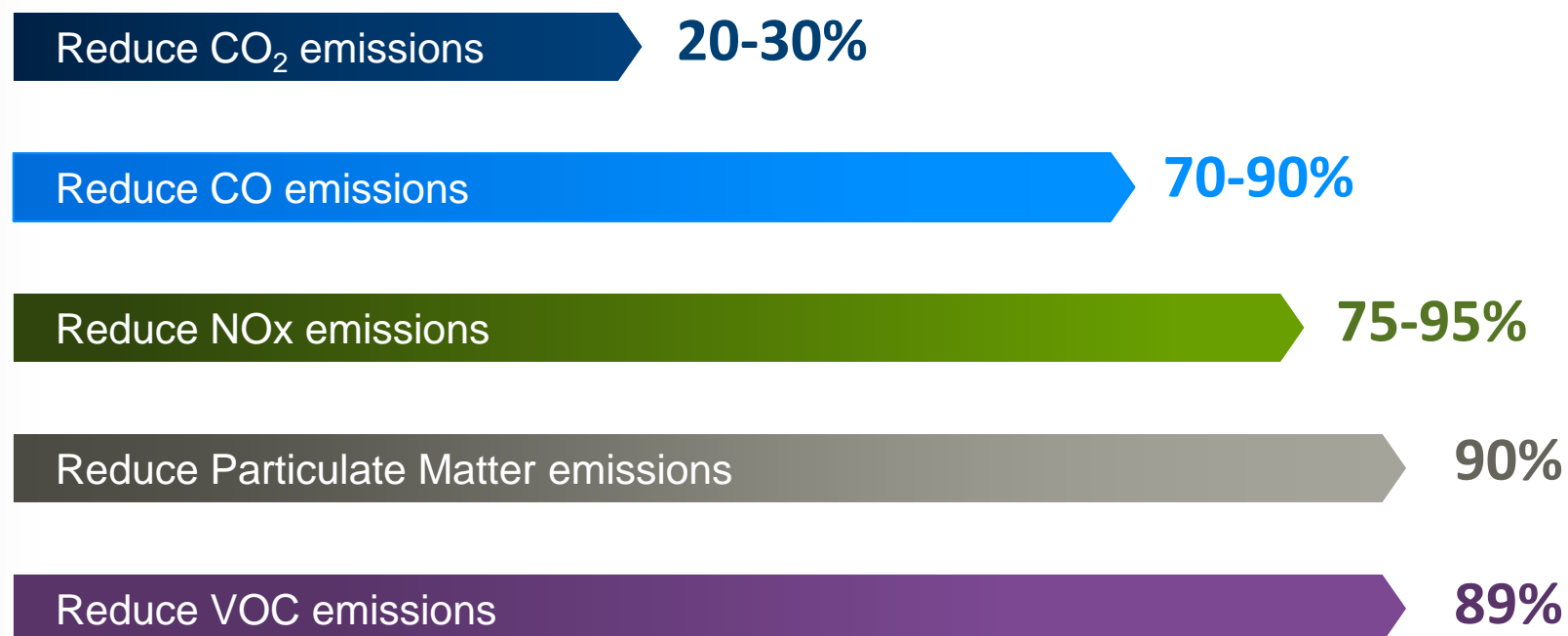


Source: CNG prices captured in July 2011 by CNGPrices.com

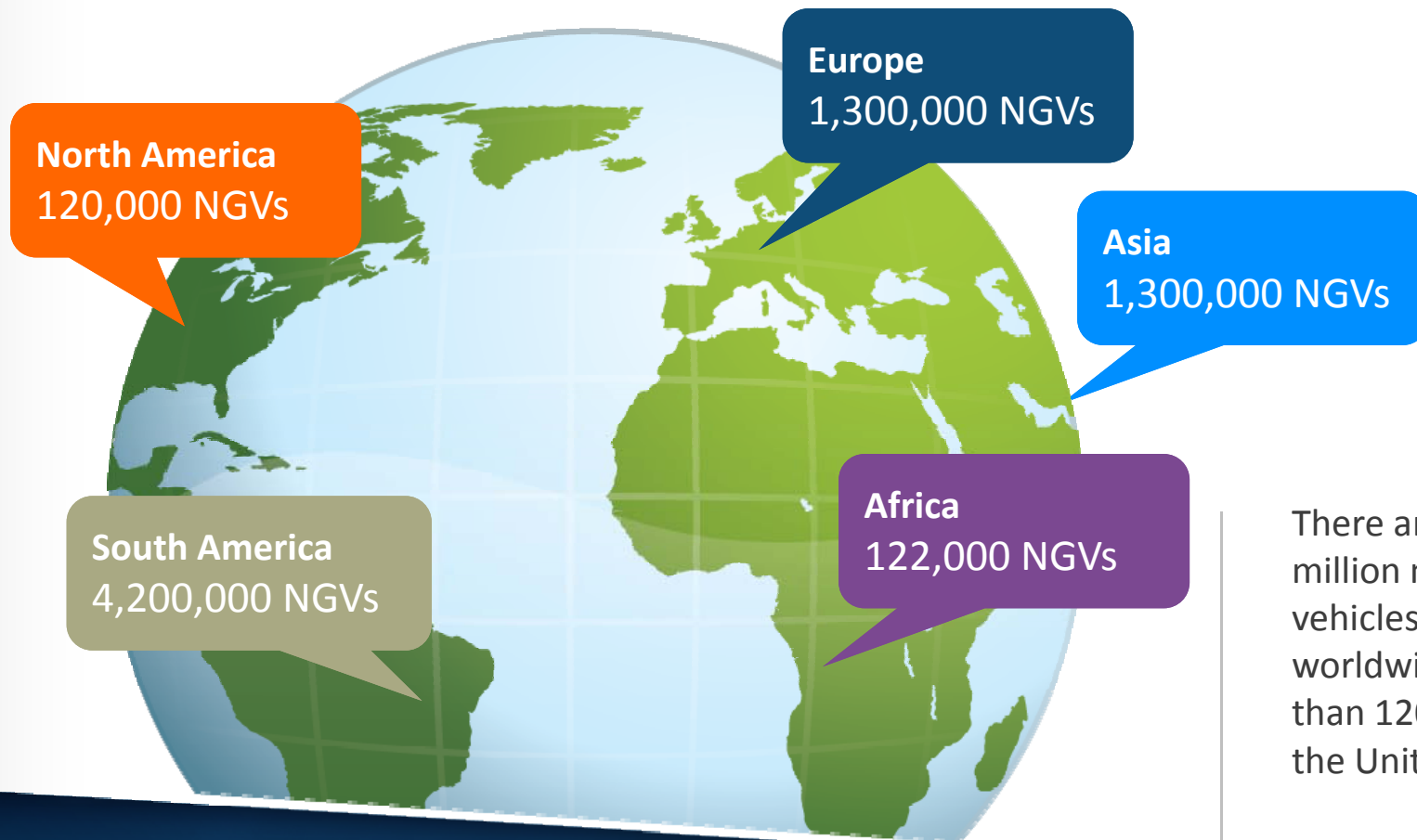
Gas prices reflect city average on July 20 from GasBuddy.com

# Cleaner for vehicles

Compared to gasoline or diesel, NGVs:



**Other nations are realizing the potential of natural gas vehicles and moving forward.**



There are over 12 million natural gas vehicles on the road worldwide – but less than 120,000 are in the United States.

# **Market opportunity:** **light duty vehicles**



## Many automakers already offer natural gas vehicles in other nations....but not in North America.

Auto Manufacturer	Markets with Light Duty NGVs to Offer
✓ GM (Chevrolet, Opel)	✓ Europe, Thailand, Singapore, India
✓ Fiat/Chrysler	✓ Europe, Brazil
✓ Ford	✓ Europe, India
✓ Hyundai	✓ Europe, India, Columbia, Thailand
✓ Mercedes	✓ Europe, India, Thailand
✓ Mitsubishi	✓ India, Thailand
✓ Saab	✓ Europe
✓ Nissan/Renault	✓ Europe
✓ Toyota	✓ India, Thailand
✓ Volkswagen	✓ Europe
✓ Volvo	✓ Europe

# **Market opportunity:** **heavy duty vehicles**

# Heavy duty market potential



Transit buses, refuse haulers, and package delivery vehicles have had the strongest market drivers for adopting natural gas.

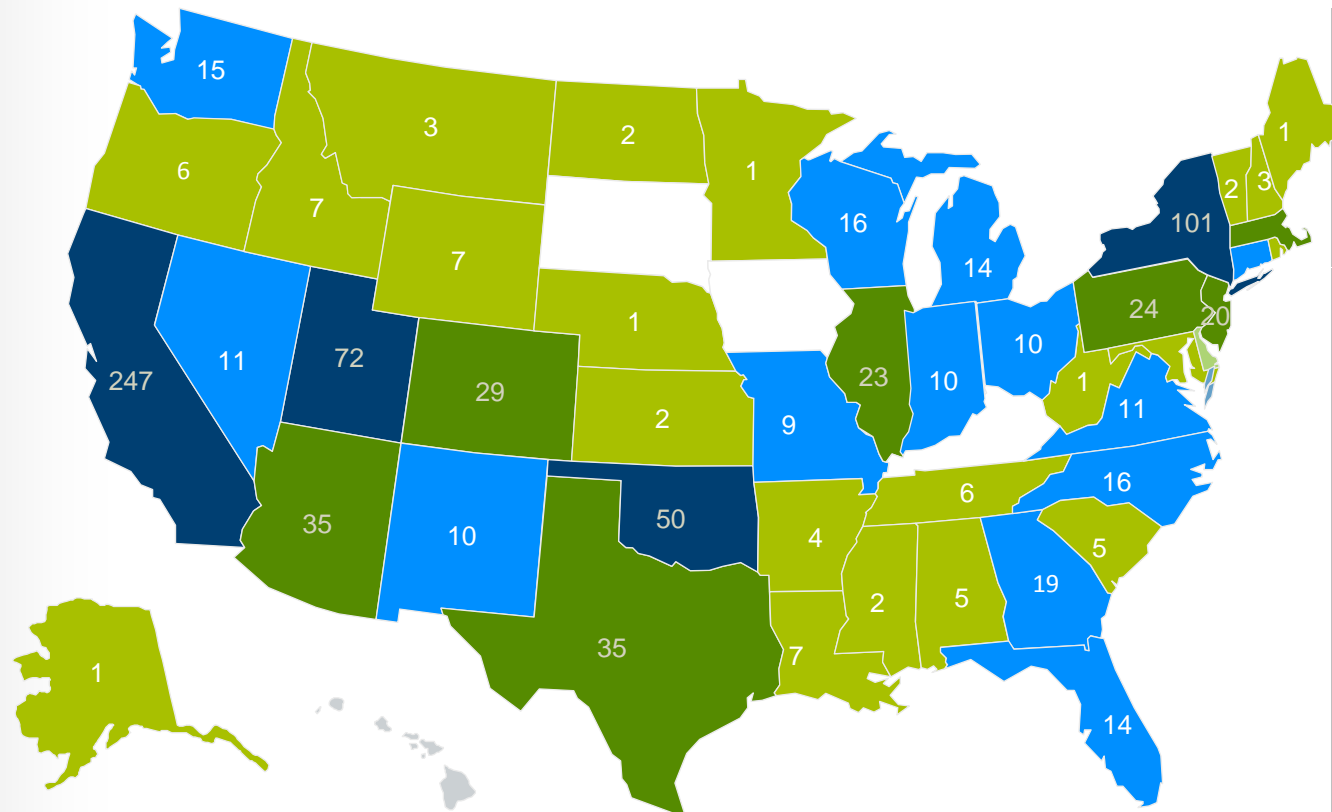
These applications are also well suited to the use of natural gas based on their market enabling features of short range and return-to-base duty cycles.

Replacing one diesel refuse truck with a NGV is equivalent to taking **325 cars** off the road.

Replacing 3.5 million medium- and heavy-duty trucks and buses with CNG-powered counterparts by 2035 would save at least 1.2 million barrels of oil per day.

Sources include NGVAmerica

# Infrastructure: Refueling stations



## Natural Gas Refueling Stations (in operation as of 12/31/2010)

RI - 5  
MA - 22  
CT - 15  
DE - 1  
DC - 2  
MD - 6

- 0-9 stations
- 10-19
- 20-49
- 50 or more

Source: <http://www.afdc.energy.gov/afdc/fuels/stations.html>


# Policy recommendations

Governments should adopt market-based alternative transportation policies that are fuel and technology neutral.

Tax incentives and other measures should be based on performance metrics such as petroleum displacement or emissions reductions.

Such policies will ensure consumers, businesses and municipalities benefit from greater access to cost competitive fuels and technology.



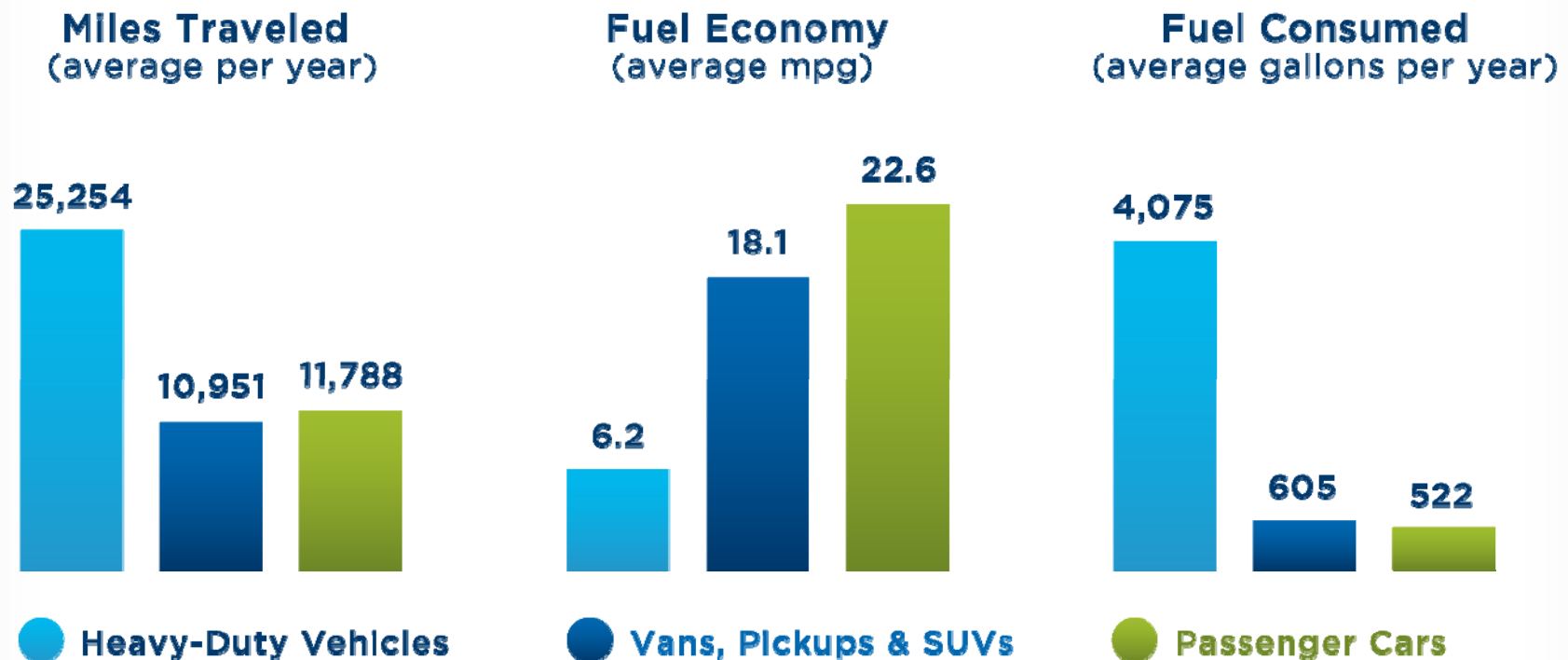


# Transforming the transportation sector to meet our energy and environmental goals:

America's natural gas industry is committed to being a part of the solution.



# Opportunity: Heavy-duty vehicles



Source: EIA Annual Energy Review 2009