



*Clean Energy*®

**STATE OF THE INDUSTRY UPDATE**  
*Natural Gas and Renewable Natural Gas  
in Fleet Applications*

February 2015



# AGENDA

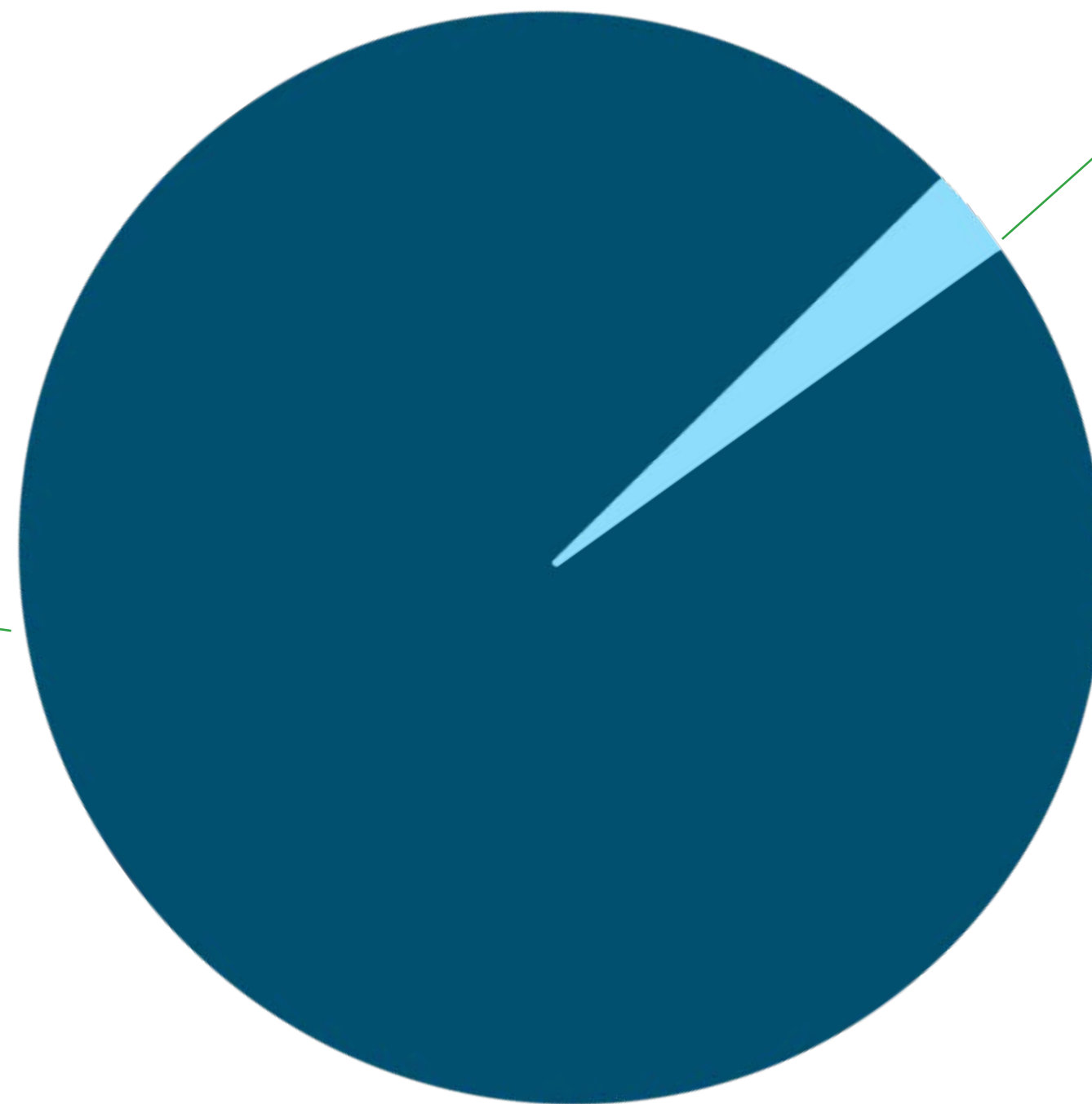
- ✓ **NGV Market**
- ✓ **Why Natural Gas**
- ✓ **Renewable Natural Gas**
- ✓ **Oil & Natural Gas Outlook**





# Natural Gas Vehicle Market

**19M**  
Natural Gas  
Vehicles in the  
**WORLD**



**142,000**  
Natural Gas Vehicles  
on the road in the U.S.



# Product Offerings From OEMs

## Natural Gas Product Manufacturers

### Heavy-Duty



### Light Duty



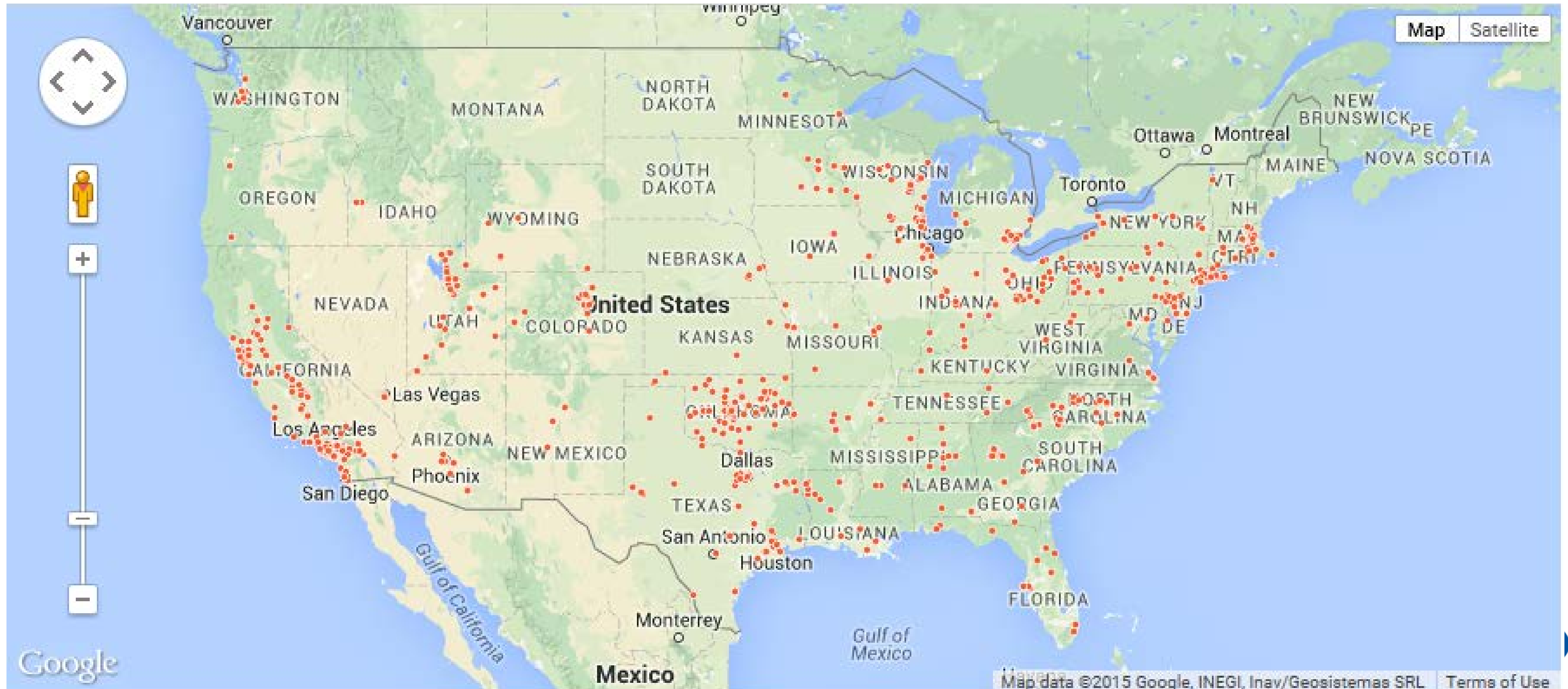


# Natural Gas Fuel Providers in North America





# Natural Gas Fueling Stations Coast-to-Coast



# Natural Gas Fueling in the U.S.

## TODAY



NG Vehicles are serving close to 40 major airports



Over 30% of transit buses operate on NG



Over 60% new refuse trucks are NG



Heavy-duty truck market is beginning to transition



Rail industry piloting LNG locomotives



Major marine companies ordering first LNG-powered vessels

# Natural Gas Fleets in WA

✓ King County

✓ Port of Seattle

✓ Republic Services

✓ CleanScapes

✓ City of Tacoma

✓ City of Spokane

✓ Pierce Transit

✓ Waste Management

✓ Doug Fox Parking

✓ Potelco

✓ Basin Disposal

✓ City of Spokane

✓ Interstate

✓ Puget Sound Energy

✓ Click Distribution

✓ Ocean Beauty Seafood

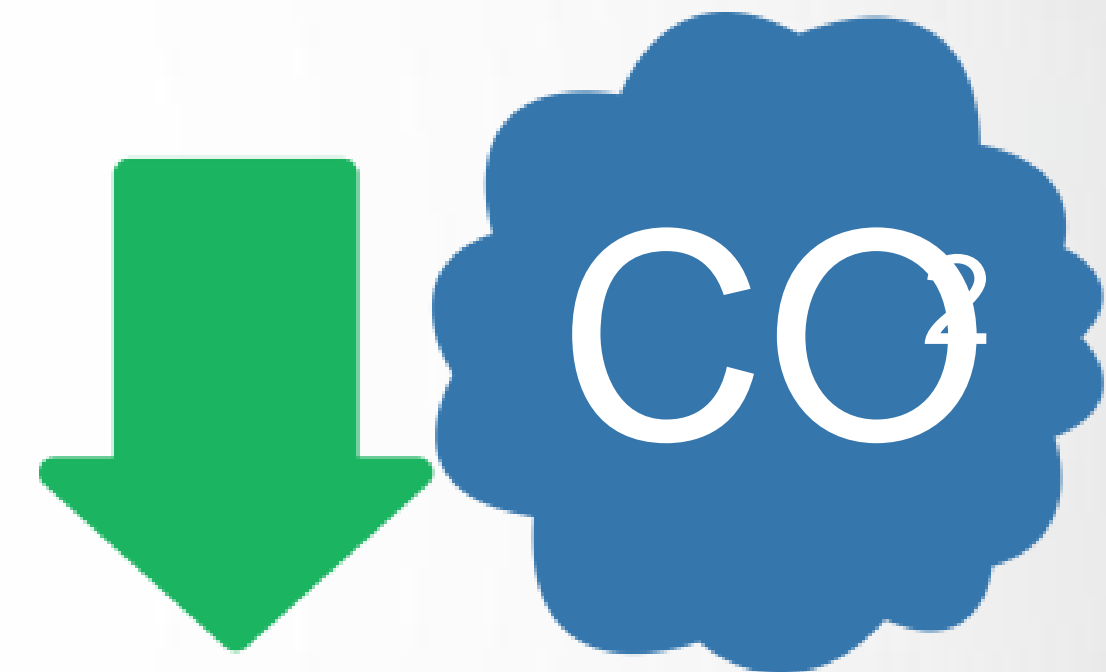




# Why Nat Gas?



LOWER FUEL  
COSTS



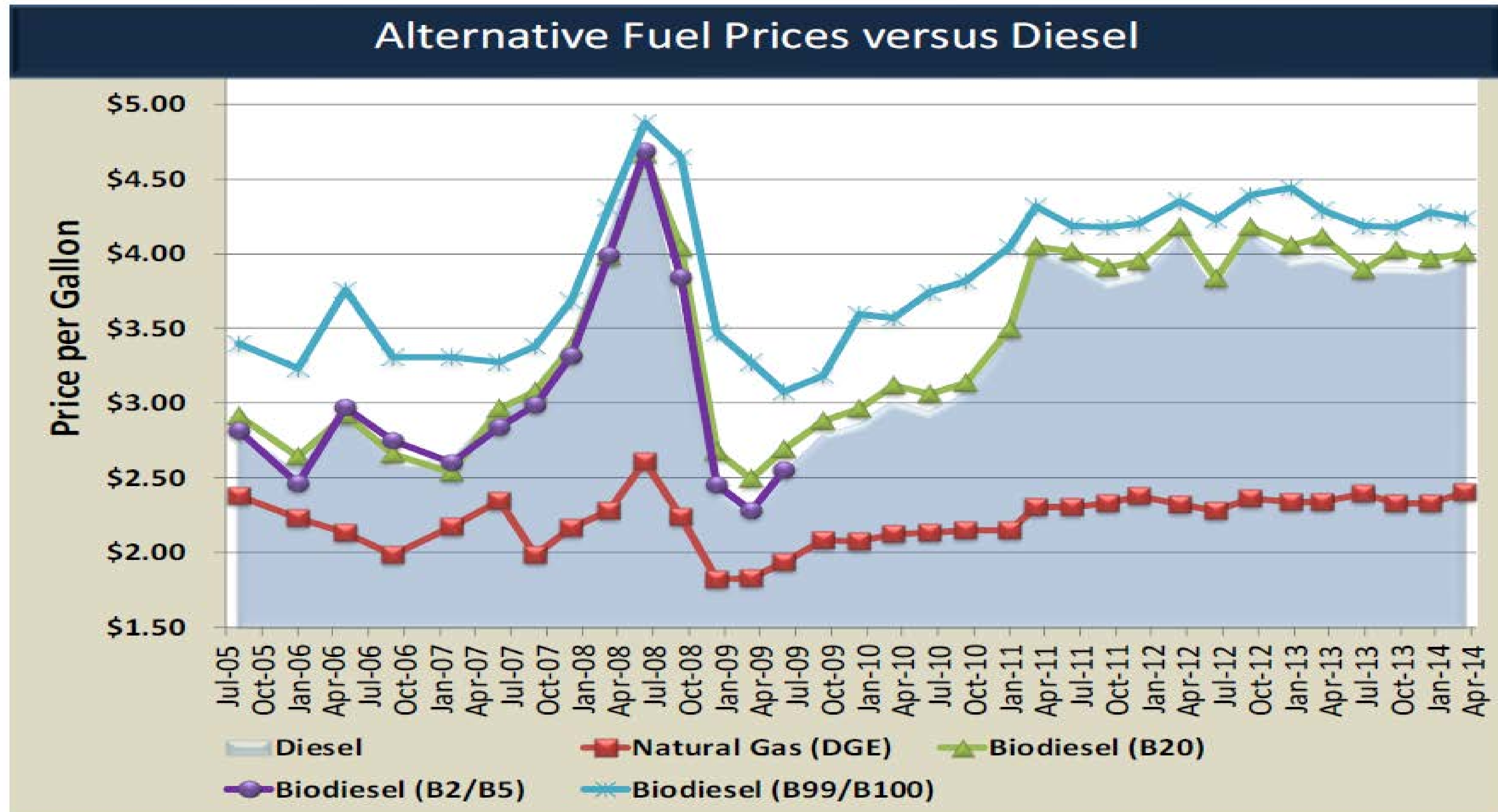
LOWER CARBON  
FOOTPRINT



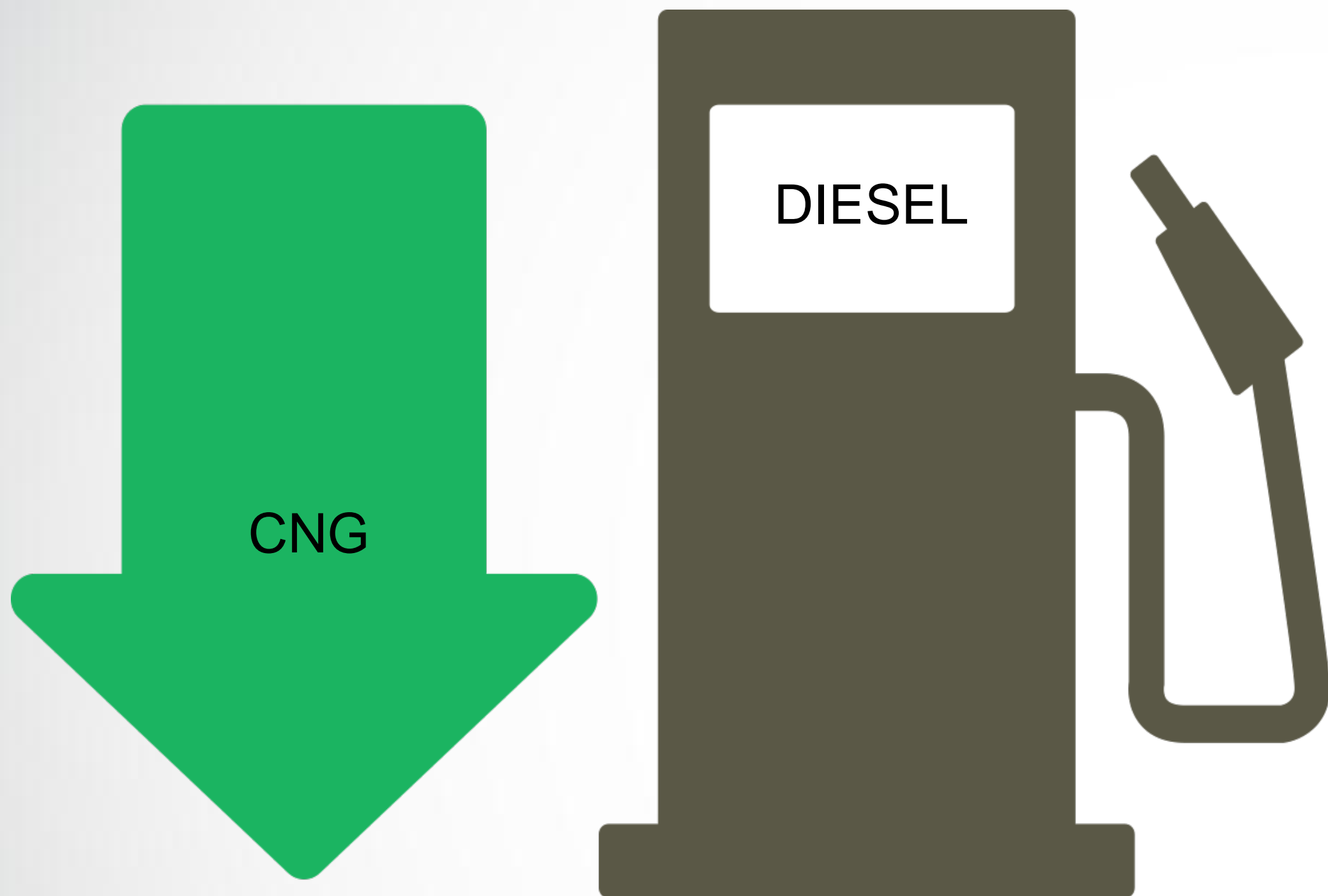
ENERGY  
INDEPENDENCE

Solution

# Natural Gas Pricing – five year flat line







## Washington Prices

EIA average west coast

February 9, 2015

|                |               |
|----------------|---------------|
| ULSD (DGE)     | \$2.76        |
| CNG (DGE)      | \$2.28        |
| <b>Savings</b> | <b>\$0.48</b> |

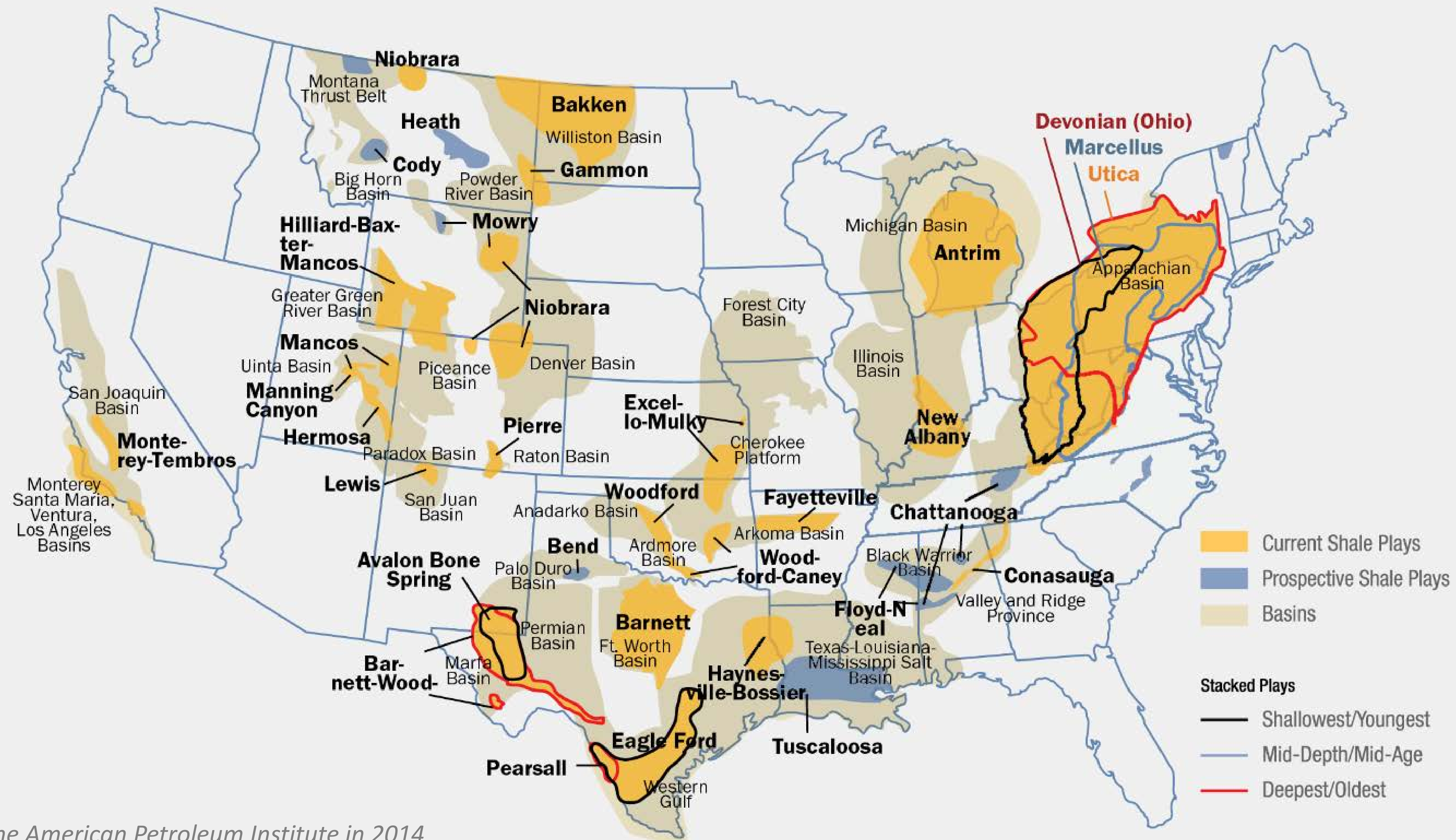
## Annual Fuel Savings

(Per truck)

**\$4,368\***

\*Based on 9,100 gallons per year

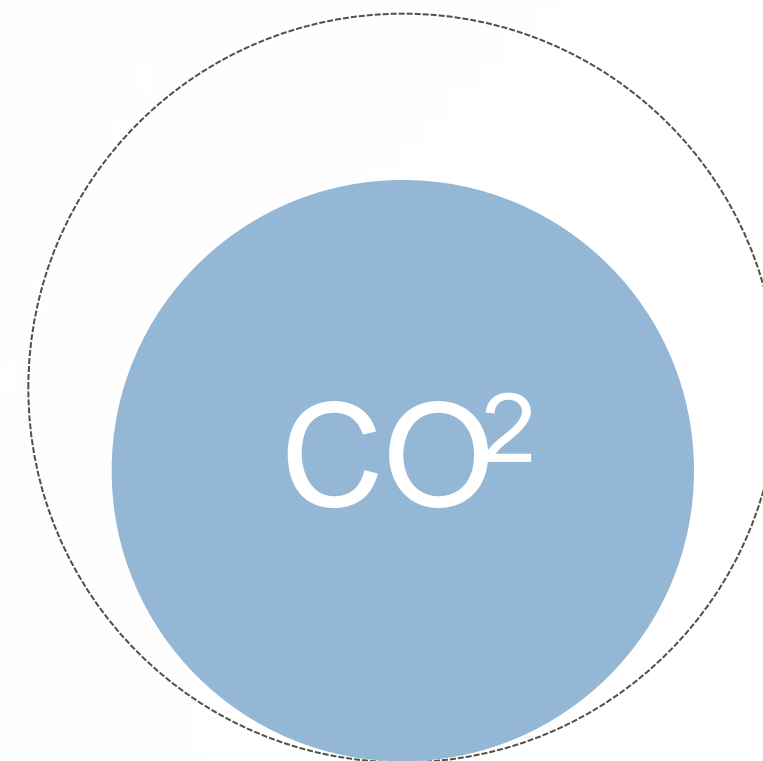
# US Natural Gas Shale Plays




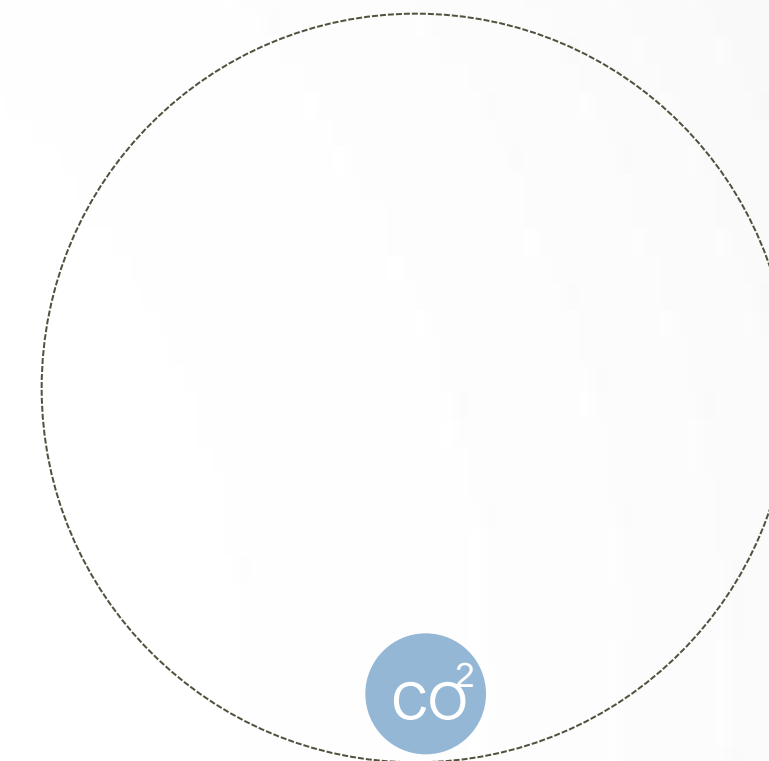
As reported by the American Petroleum Institute in 2014



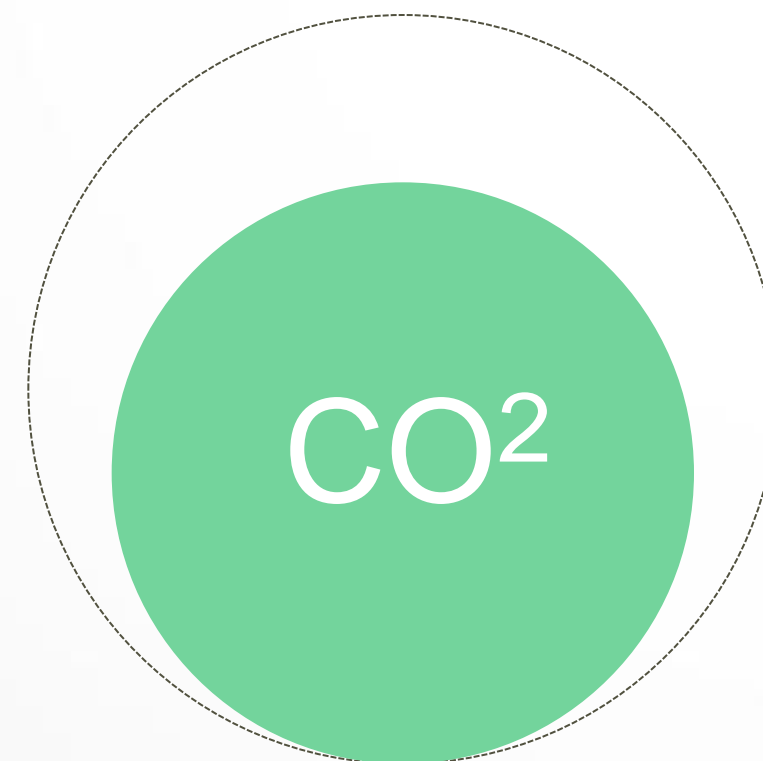
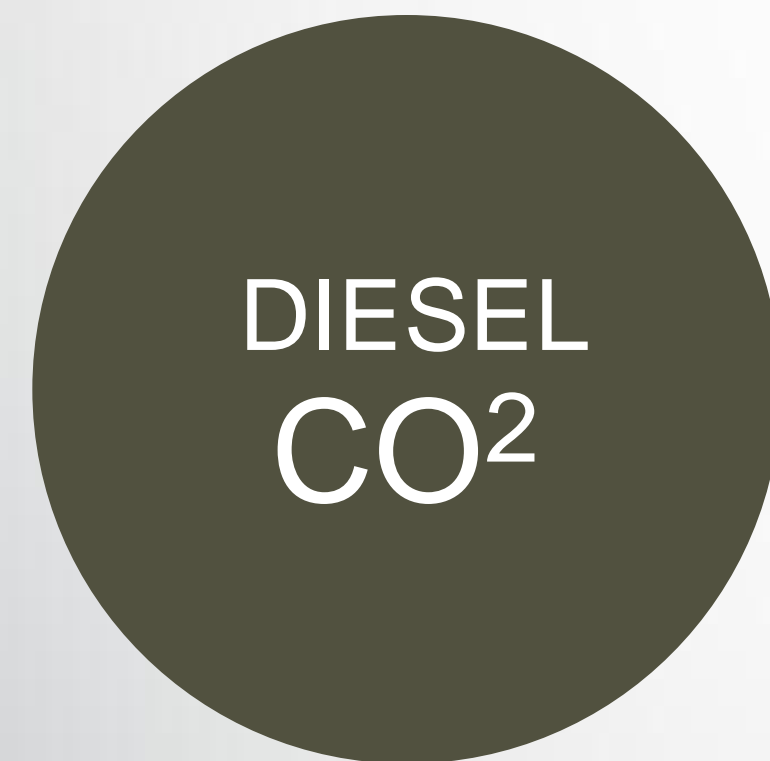
# NGVs Have a Lower Carbon Footprint




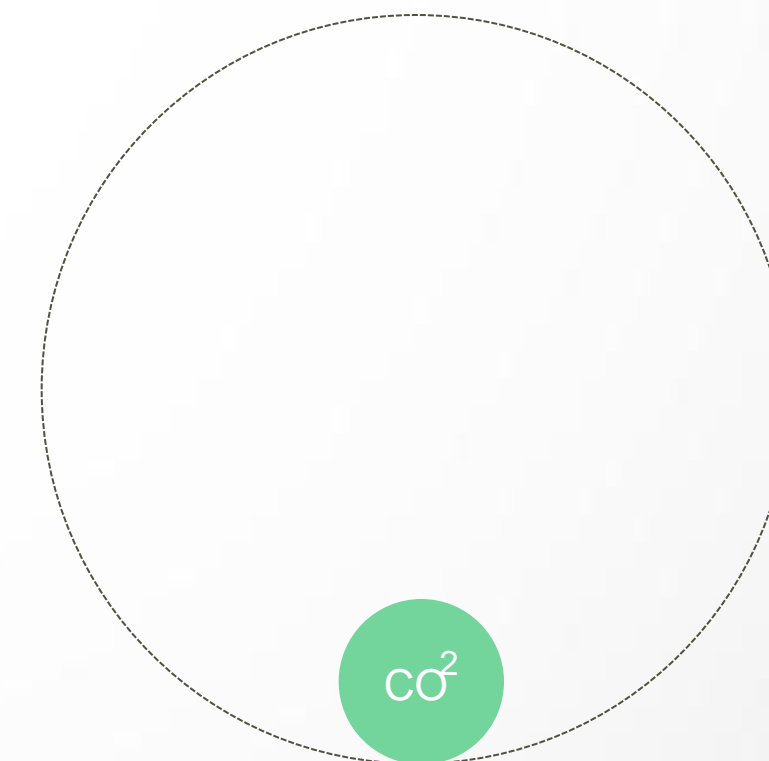
CNG  
28%  
LOWER



LANDFILL GAS  
88%  
LOWER



LNG  
23%  
LOWER



LANDFILL GAS  
84%  
LOWER

GREENHOUSE GAS EMISSIONS

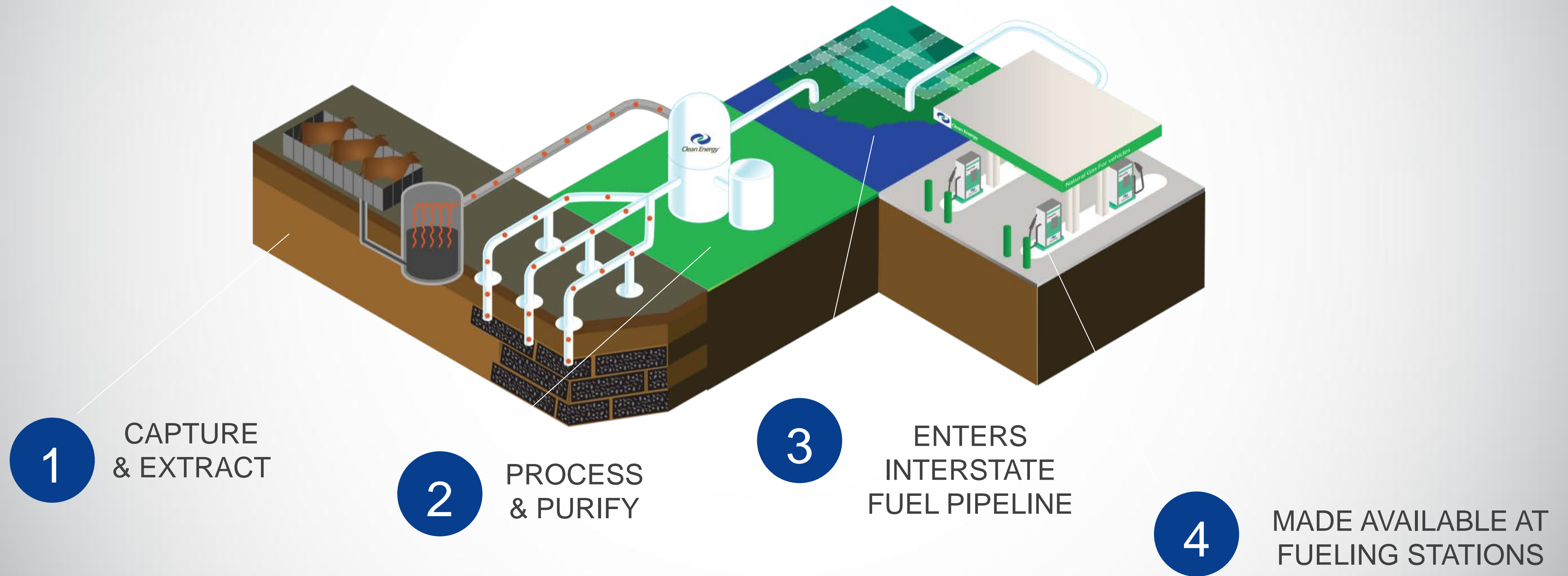
# Renewable Natural Gas (RNG or *Redeem*)?

- ✓ RNG is biogas upgraded to a quality similar to fossil natural gas
- ✓ Produced at waste water treatment facilities, dairy farms, landfills, etc.
- ✓ RNG can be **CARBON NEGATIVE** (-15 carbon index # in CA)





# How *Redeem* is Made



❖ *Three LFG projects and 12 biogas supply sources nationwide*



# WHY REDEEM



## CLEANER

The cleanest fuel available – up to 90% cleaner than diesel and gasoline



## COST EFFICIENT

Substantially less expensive than diesel and gasoline



## RENEWABLE

Made from organic waste from sources like landfills and farms



## DOMESTIC

Moving the country towards energy independence





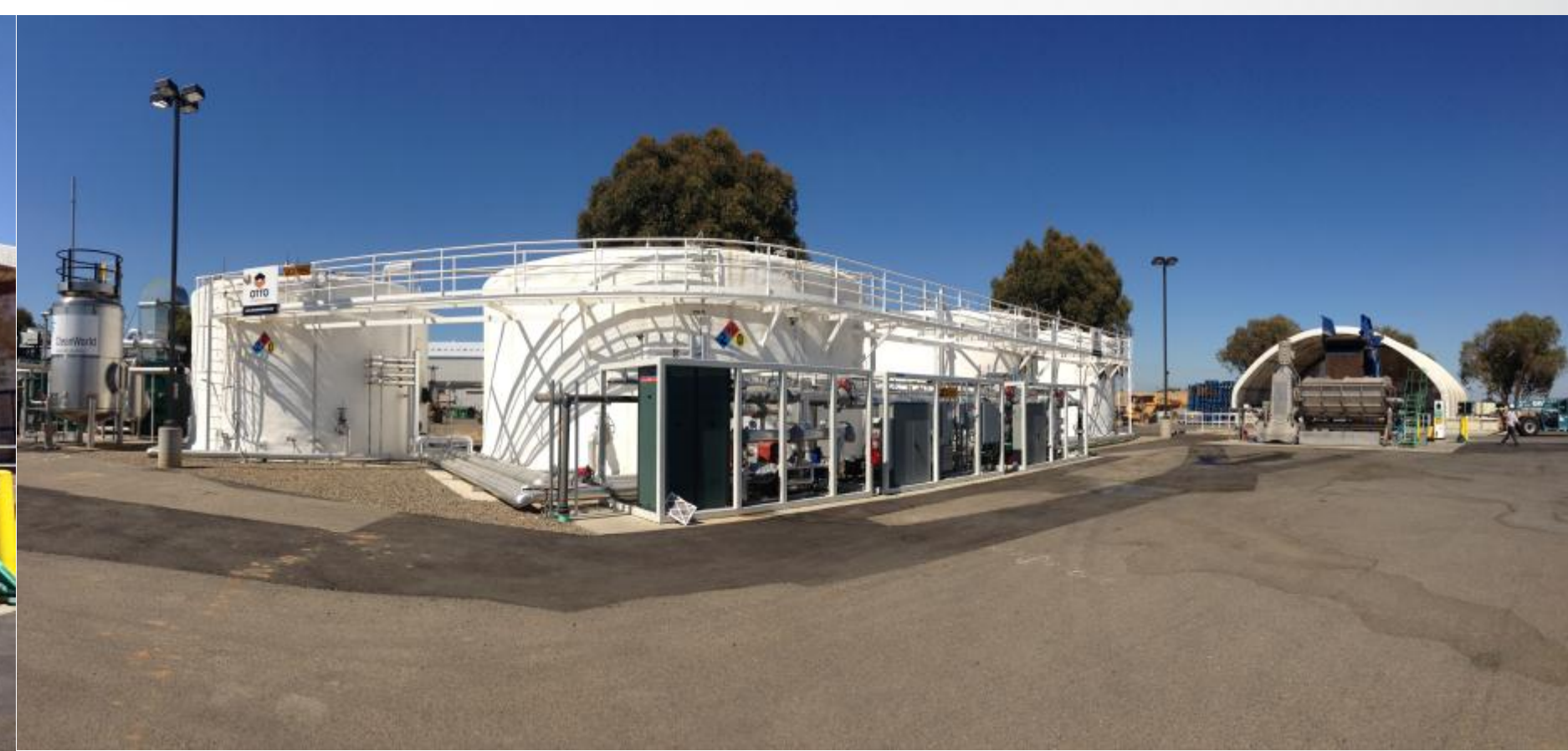
# RNG Projects in WA

- ✓ King County Waste Water Treatment Facility
- ✓ Cedar Hills Landfill
- ✓ Future dairy farm project





# Next Phase of RNG for Fleets: Food Waste Anaerobic Digestion





# What About Oil?

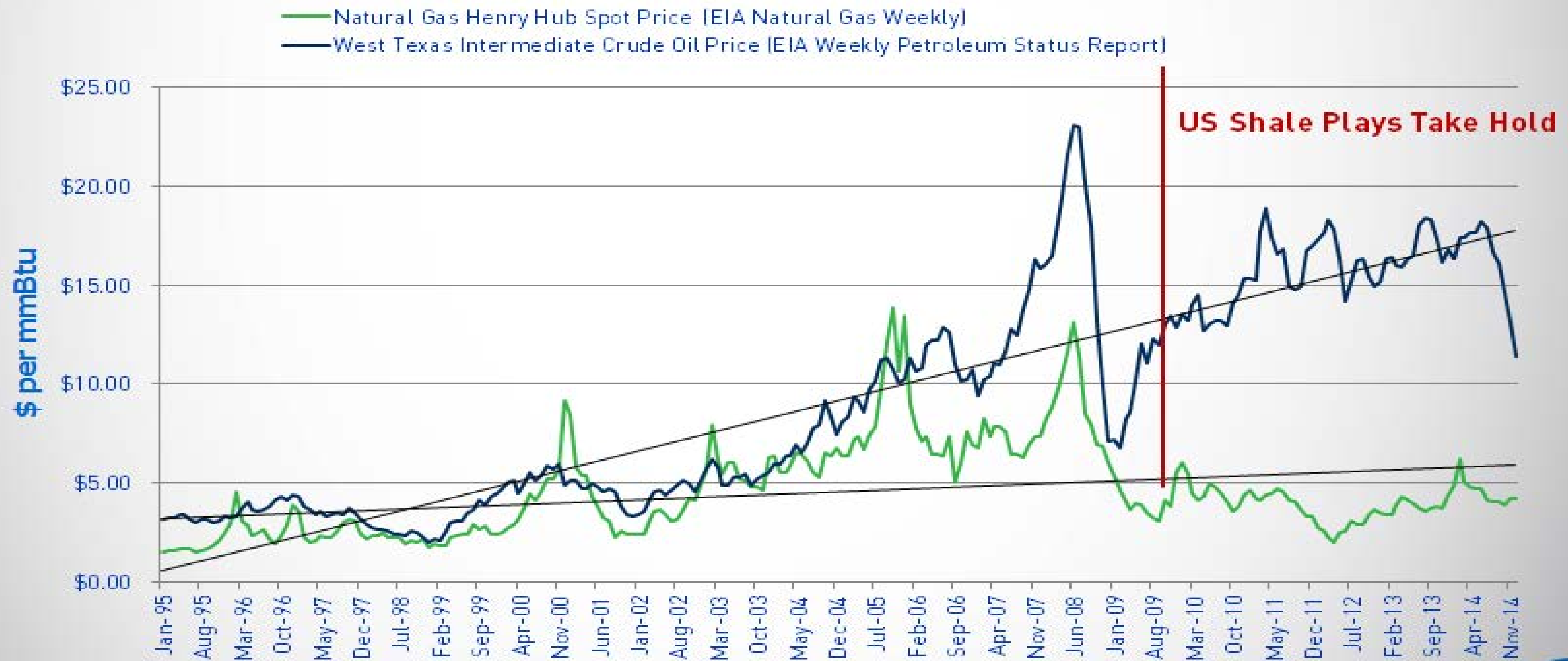


**February 12, 2015**

- WTI futures \$51.21



# US shale plays have reversed the historical price relationship of oil and natural-gas in the US

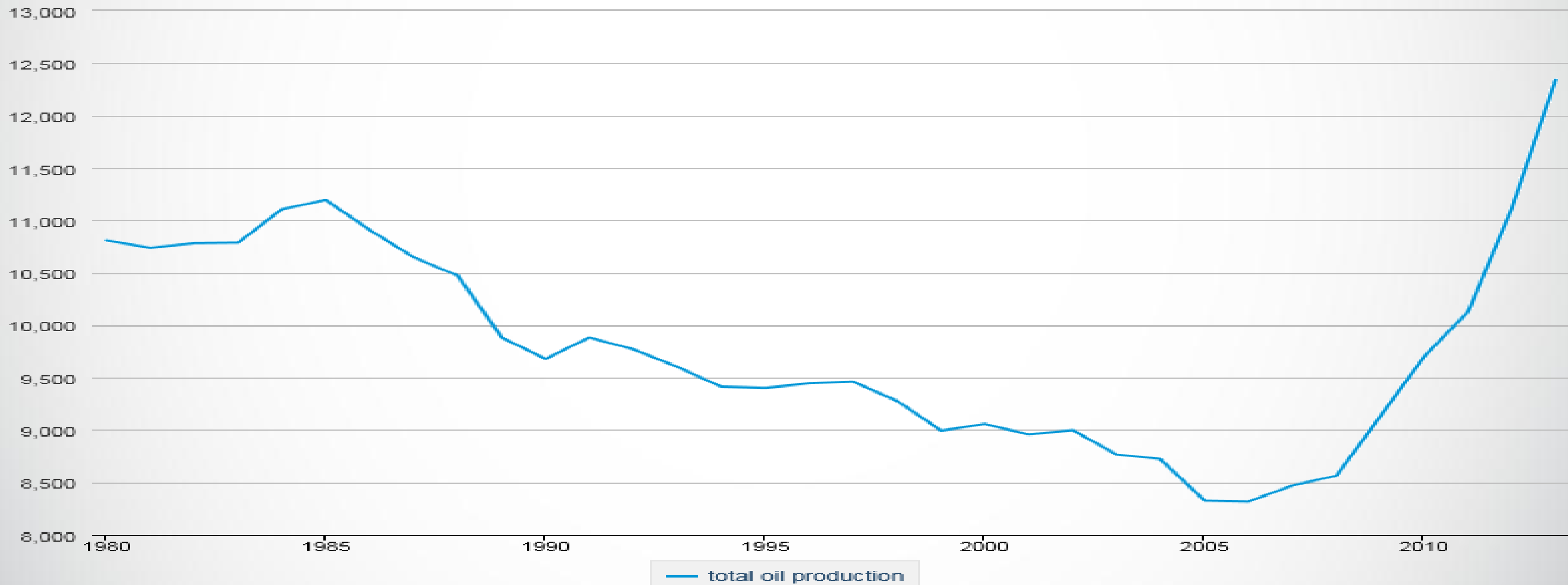




# US Oil production sky rockets due to advances in horizontal drilling

United States total oil production (1980-2013)

thousand barrels per day





# US PRODUCTION SLOWING DOWN

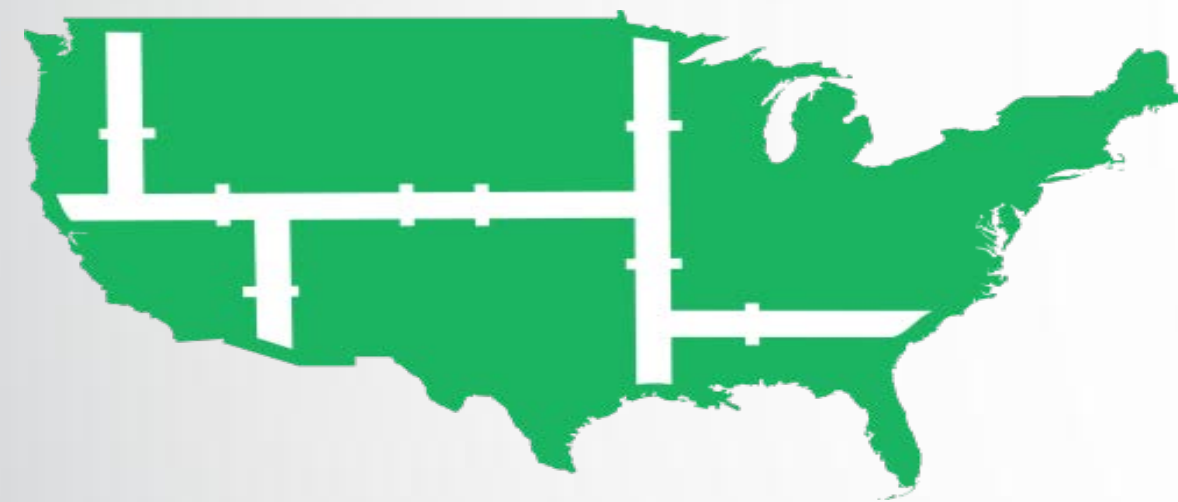
*“Baker Hughes service company reported that the nation’s rig count had dropped by 94, or 7 percent, in the last week, the largest single-week drop since the late 1980s. That leaves 1,223 rigs in operation, the lowest number in three years, and energy executives say another 300 rigs could be decommissioned in the next few months as service contracts expire.”*

- NY Times January 30, 2015

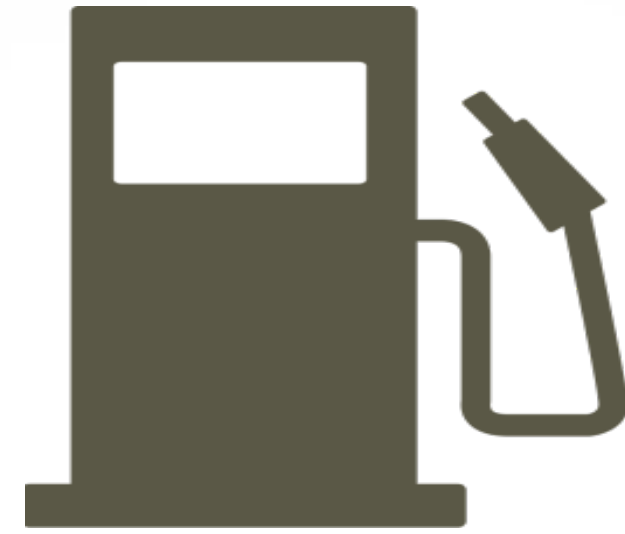




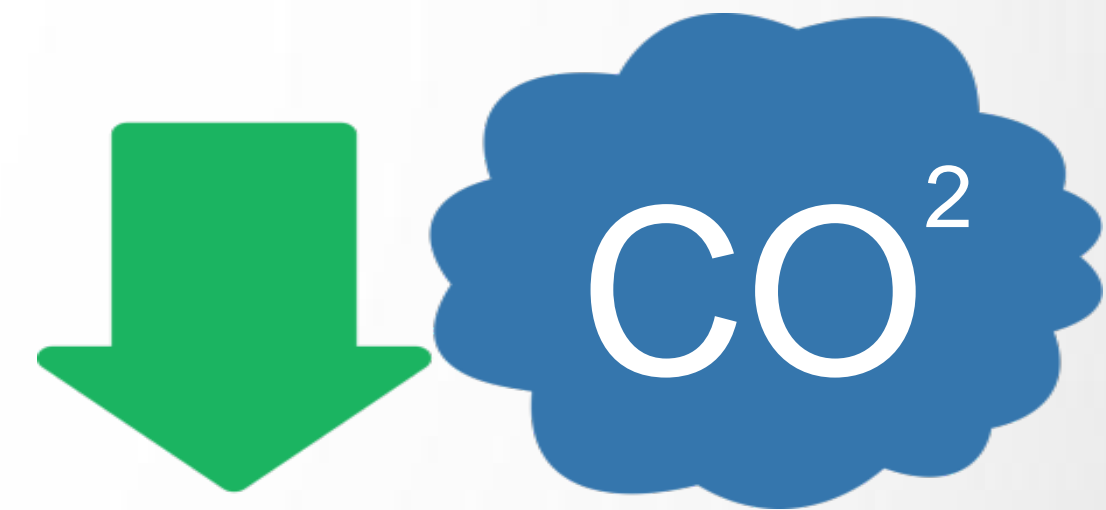
# US Natural Gas – Still the Winning Bet



NATURALLY  
ABUNDANT  
& DOMESTIC

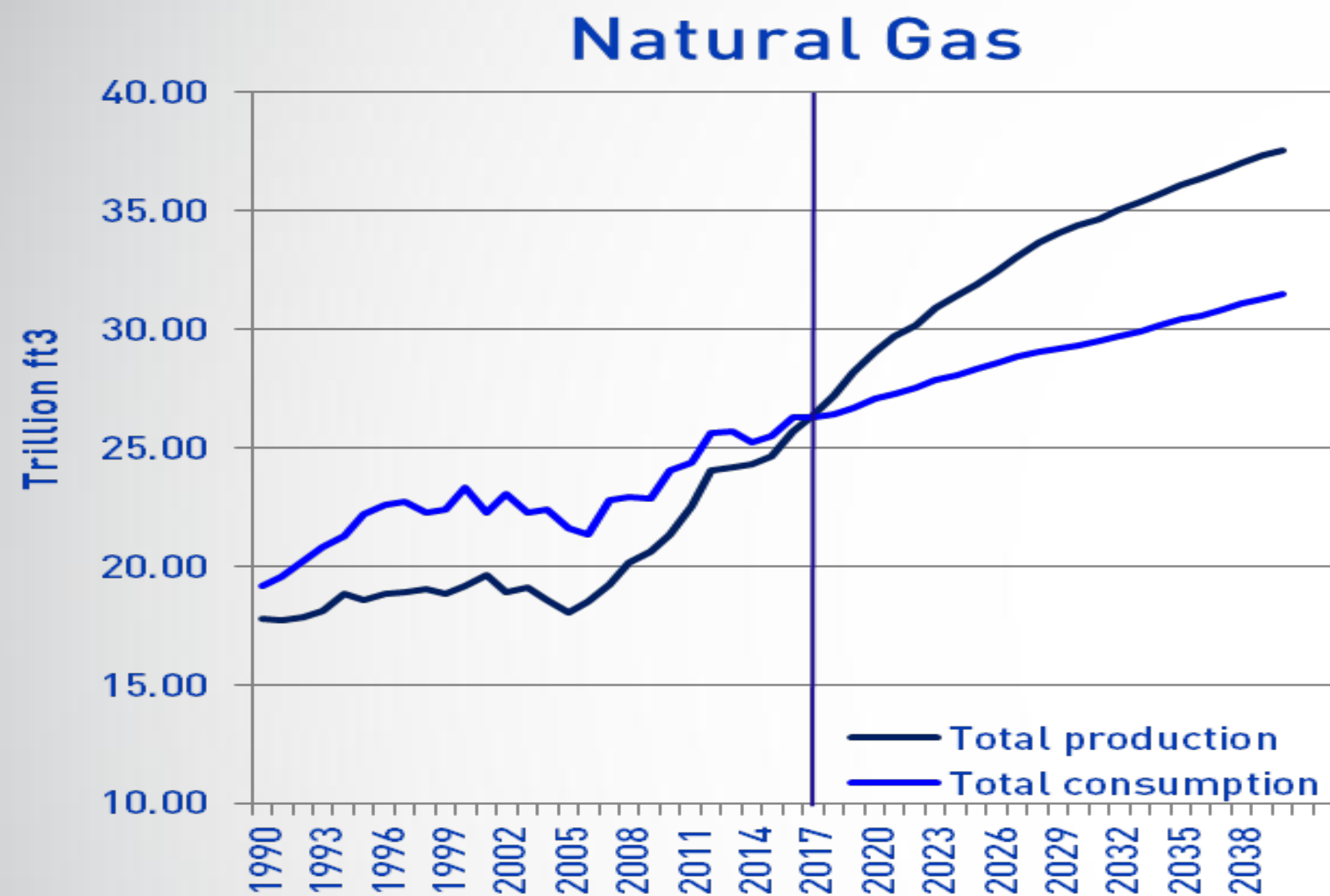


STABLE FUEL  
COSTS

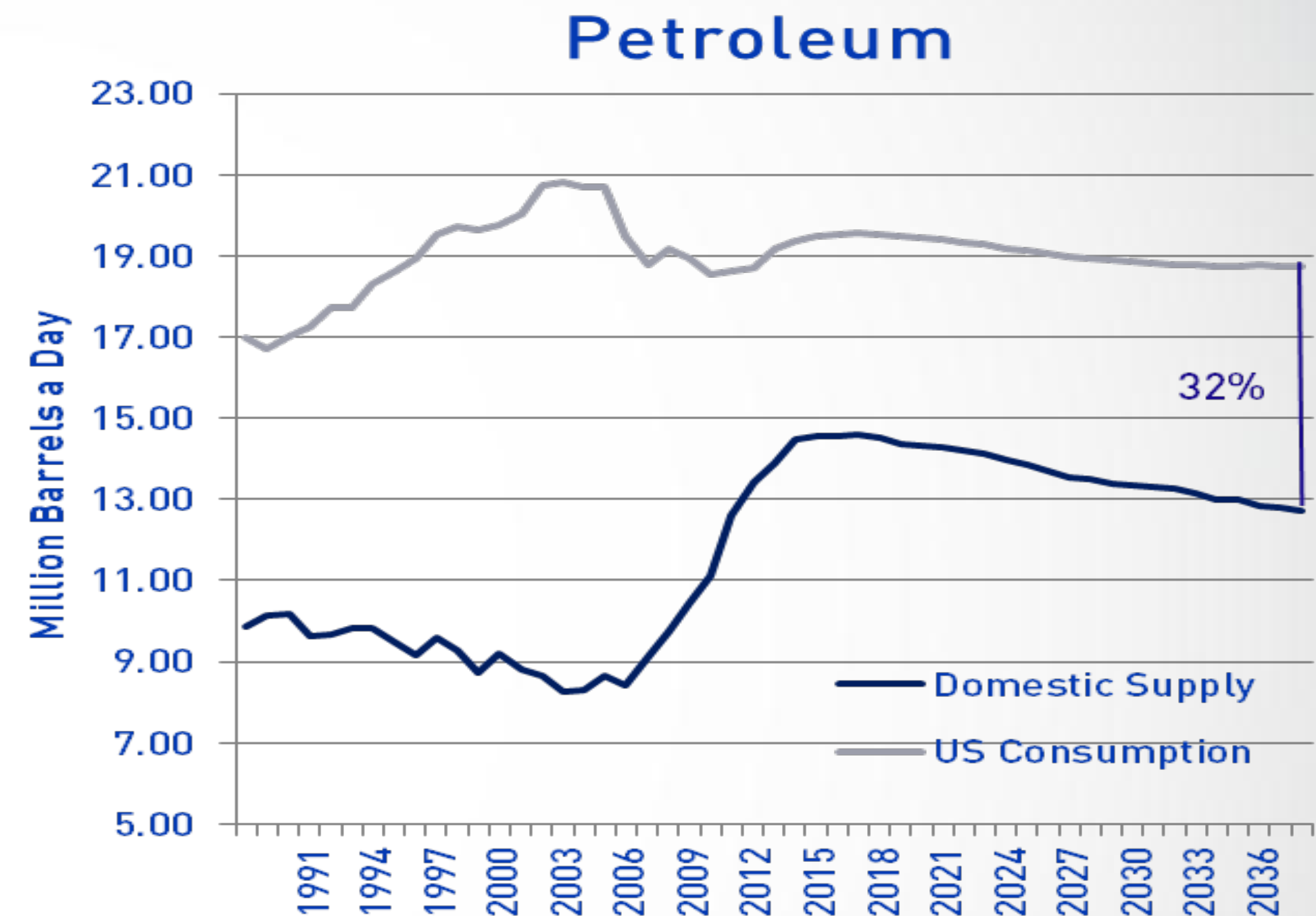


LOWER CARBON  
FOOTPRINT

# US Supply and Demand Projections



US natural gas production projected to continue to grow while oil is predicted to plateau.

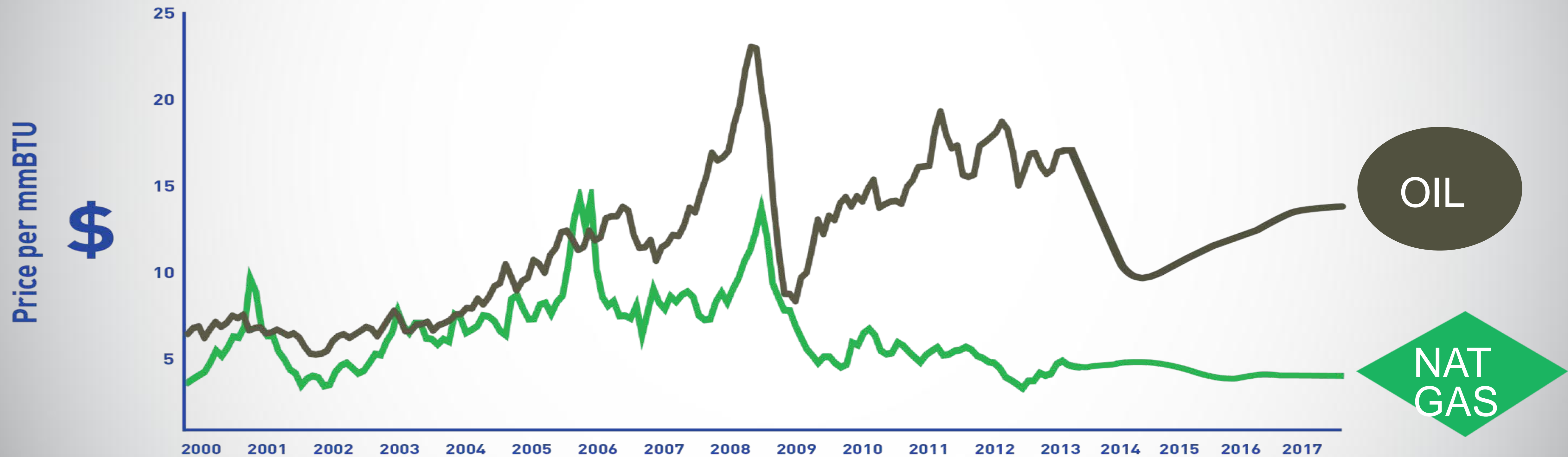


The US is predicted to out produce domestic consumption of natural gas by 2017 while continuing to import oil to meet demand for the foreseeable future.





# Cost Of Oil Vs. Natural Gas



Data provided by the U.S. Energy Information Administration

# SUMMARY

- Natural gas fueling is happening
- Nearly all major OEM's have NG products
- Economics are the primary driver
- Engines are available and they work
- Abundant American fuel source
- Emission reductions and sustainability
- RNG is available in WA
- Oil prices will climb in late 2015 or early 2016







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