



AMERICAN PETROLEUM INSTITUTE

# Energy Availability and the Future of the Fertilizer Industry

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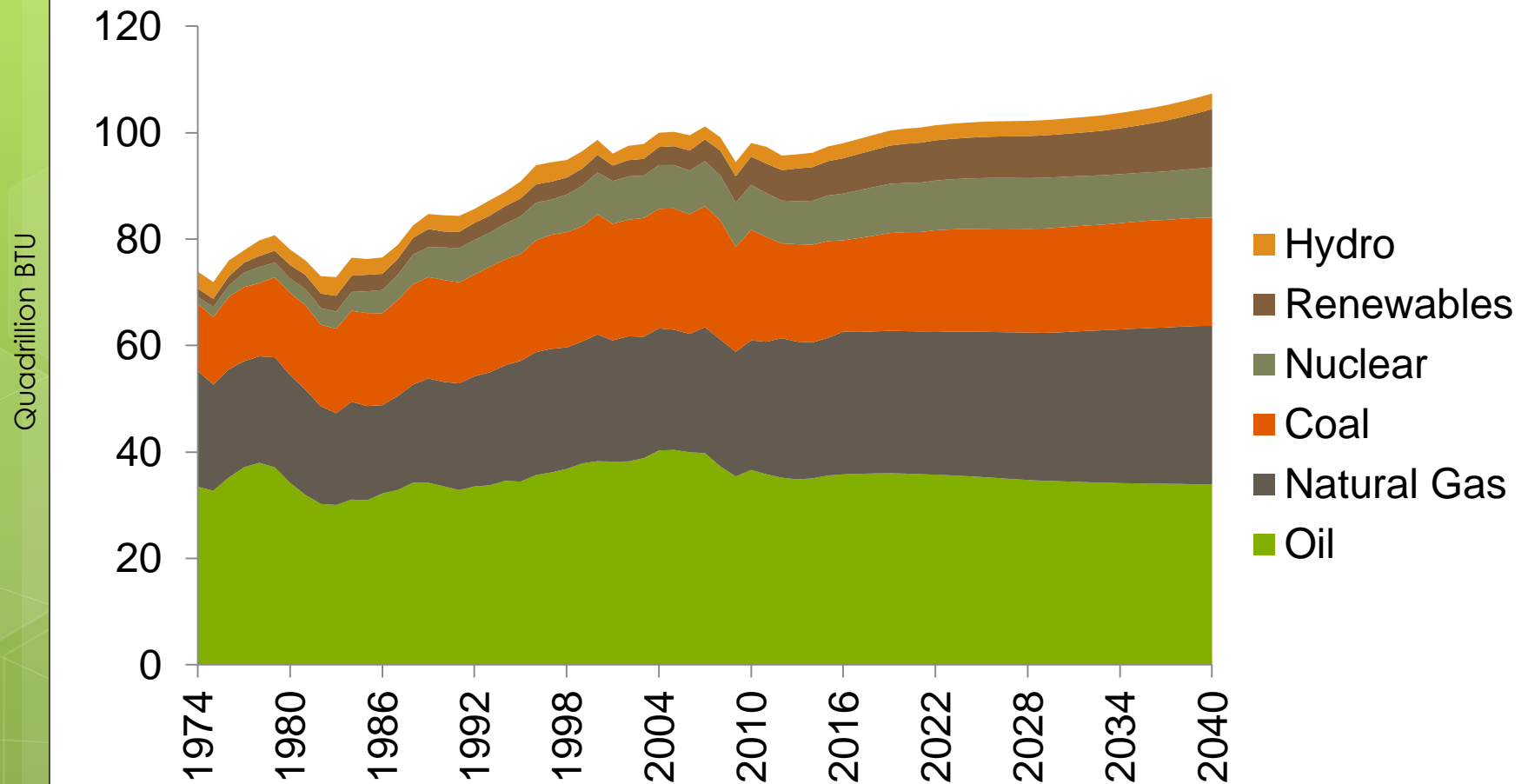
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**Energy: the engine of our economic growth**

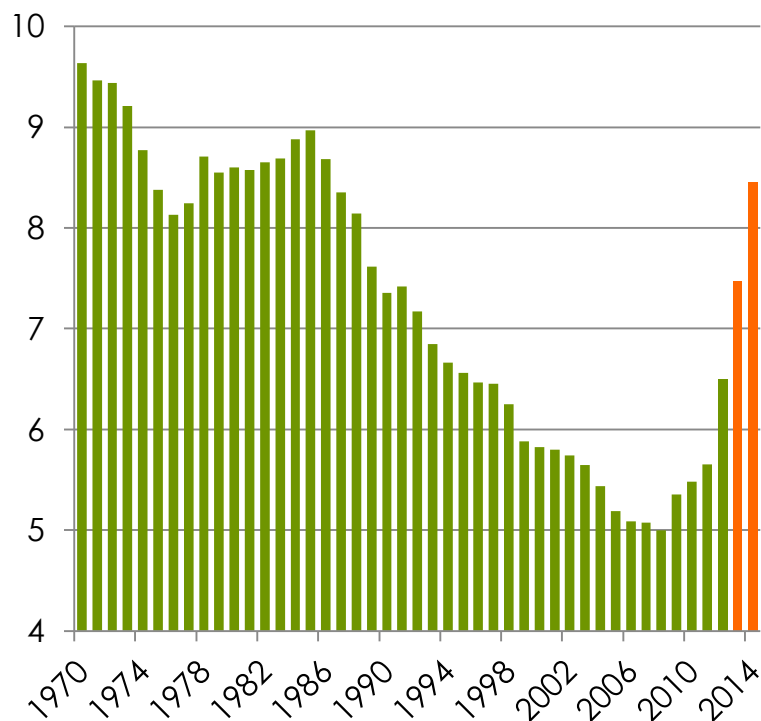
**The U.S. will require 10 percent more energy in 2040 and more than half of it will be met by oil and natural gas**



# U.S. oil and natural gas production is increasing as a result of technological innovations

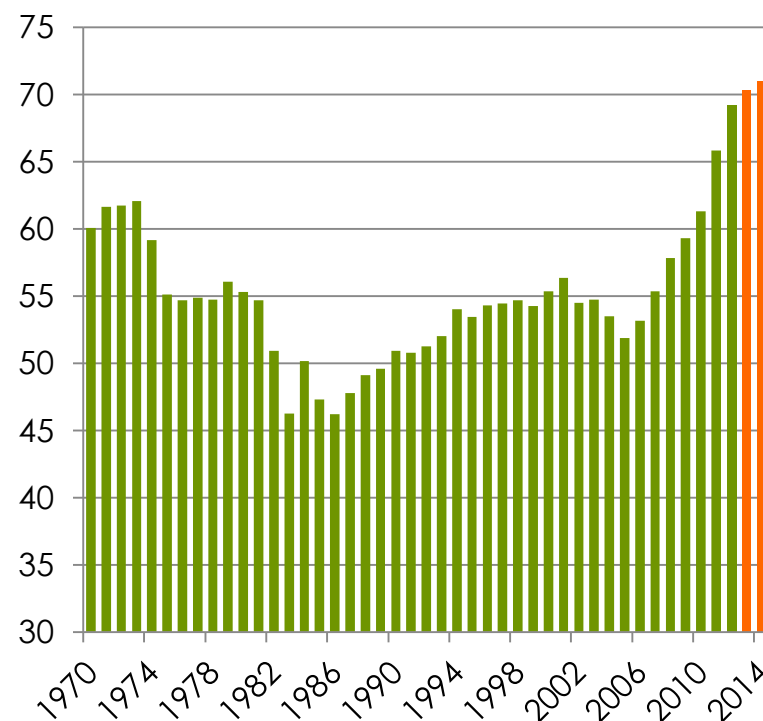
## U.S. Crude Oil Production

(millions of barrels per day)



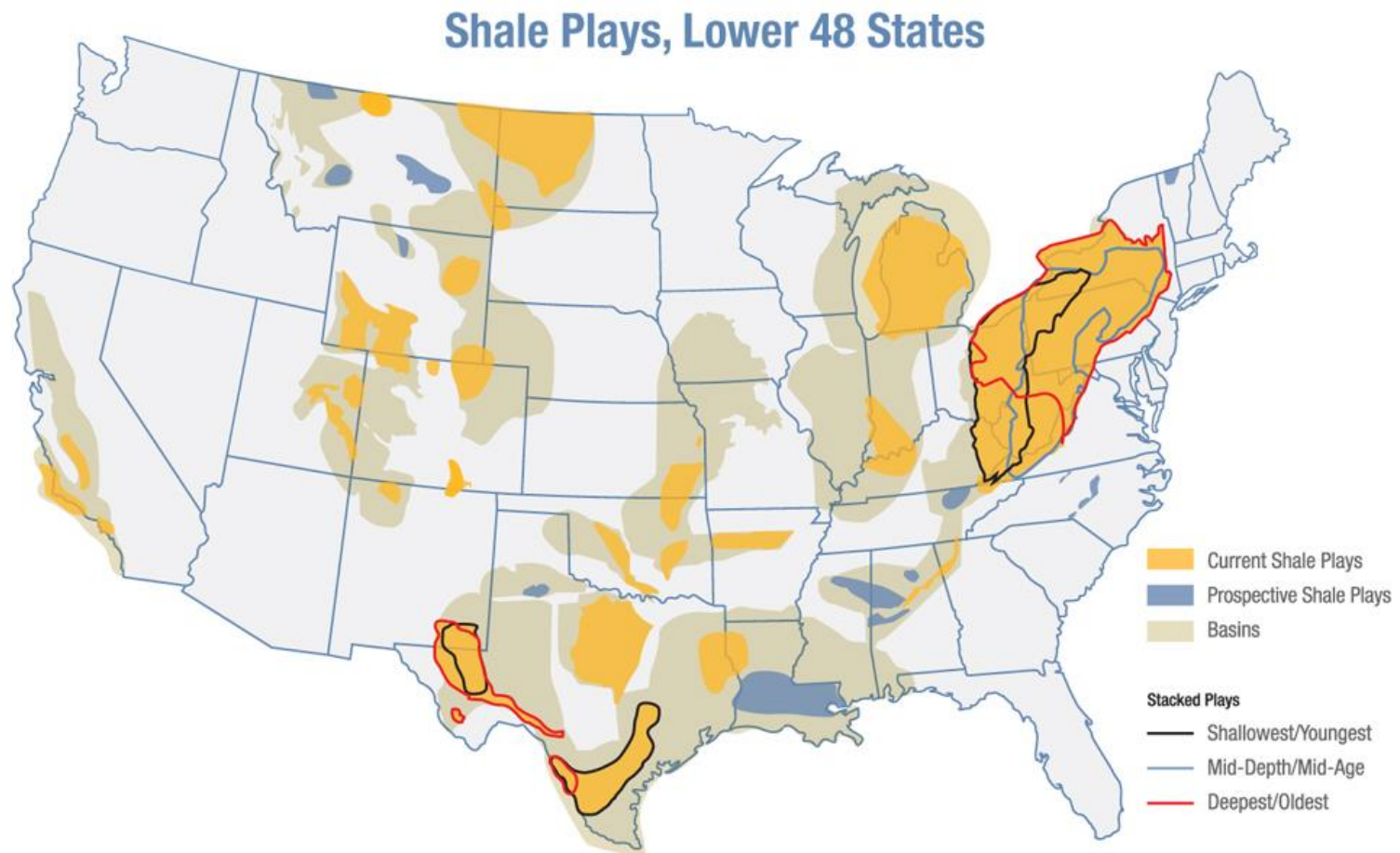
## U.S. Natural Gas Marketed Production

(billions of cubic feet per day)



Note: Bars in orange show EIA's Short-term Energy Outlook forecast.  
Source: Energy Information Administration.

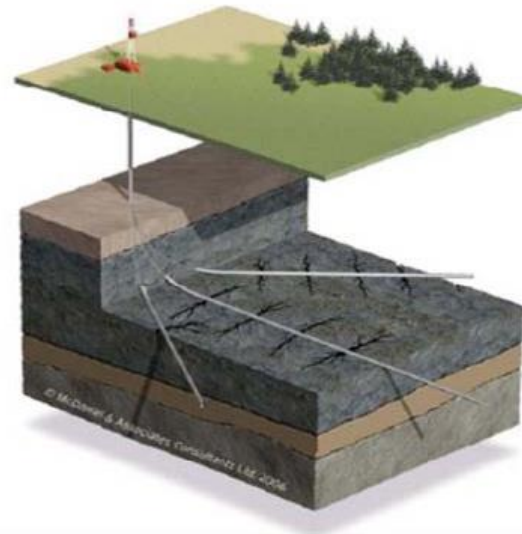
# Shale resources are widely dispersed across the U.S.



## New technology allows for additional access to resources



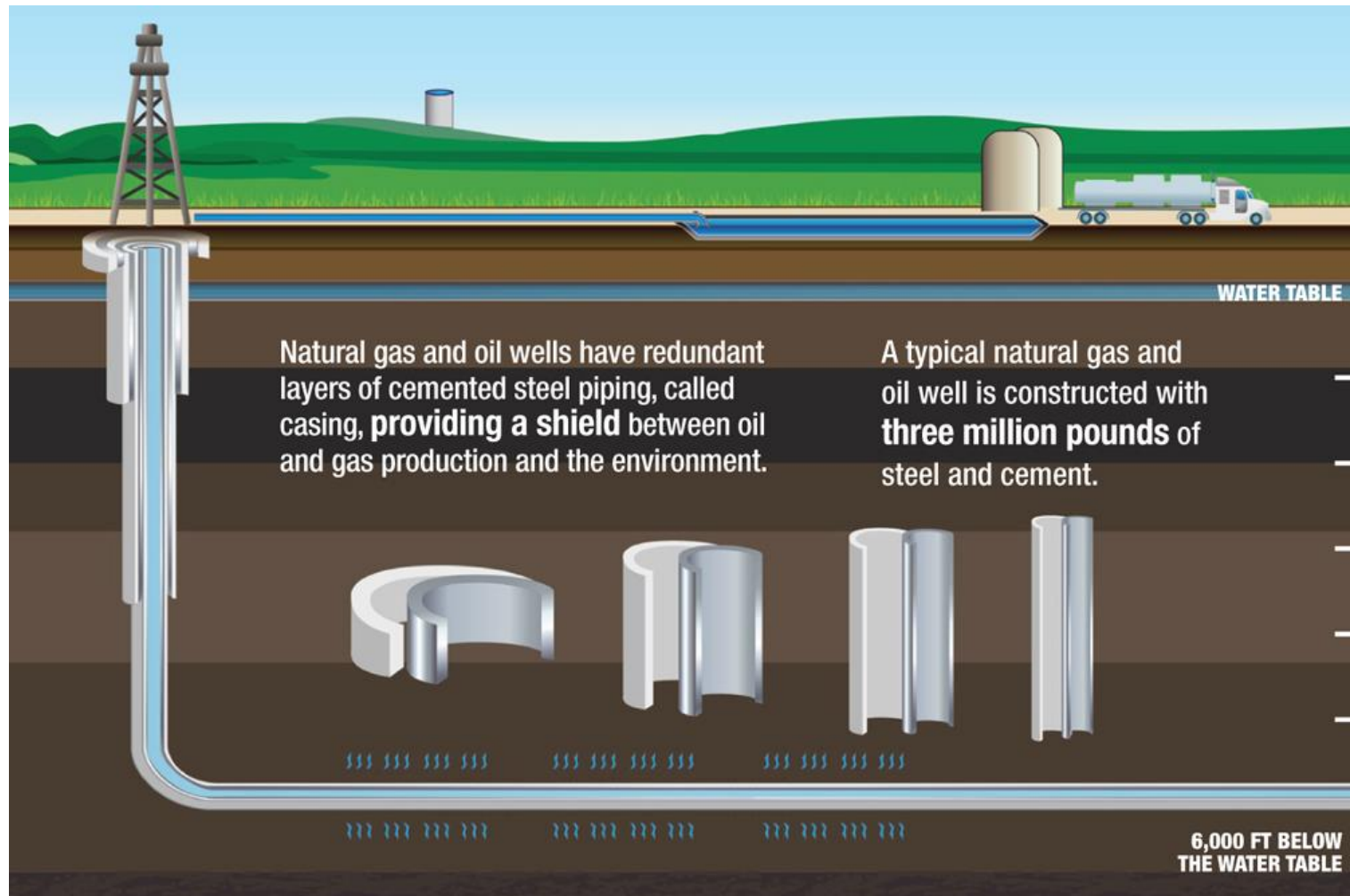
Traditional Wells



Horizontal Drilling



## The technology is designed to protect the environment



# What Administration officials have to say about hydraulic fracturing

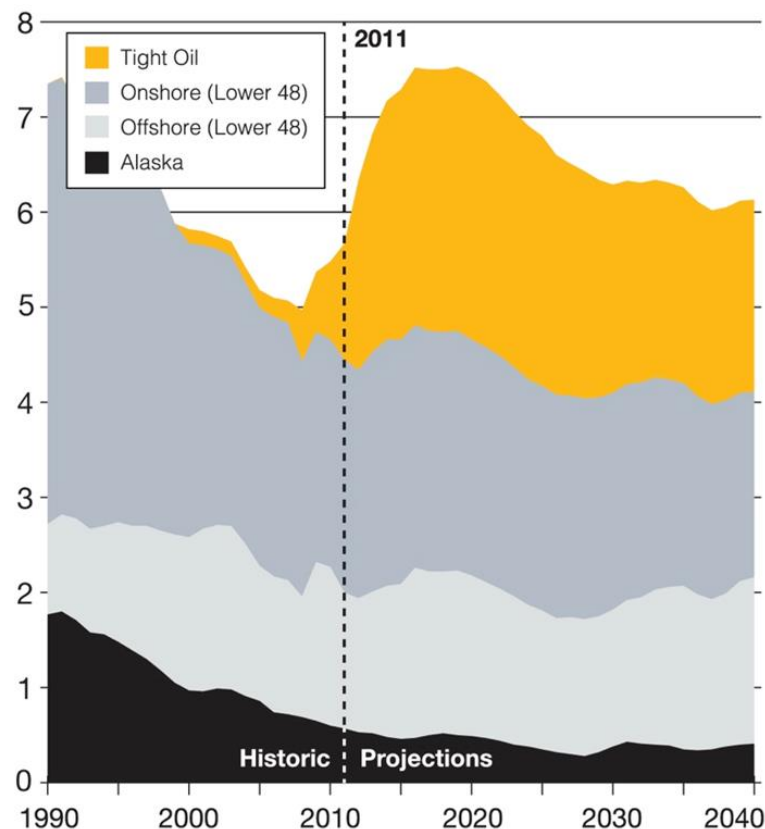
- **Former Interior Secretary Ken Salazar (Sept 2013)**  
*“Hydraulic fracturing is creating an energy revolution in the United States. I would say to everybody that hydraulic fracturing is safe.”*
- **Former Energy Secretary Steven Chu (Sept 2013)**  
*“Drilling for shale gas can be done safely.”*
- **Then-EPA Administrator Lisa Jackson in 2012:**  
*“In no case have we made a definitive determination that the fracking process has caused chemical contamination of groundwater.”*



# Shale production is offsetting declining production from other U.S. oil and natural gas resources

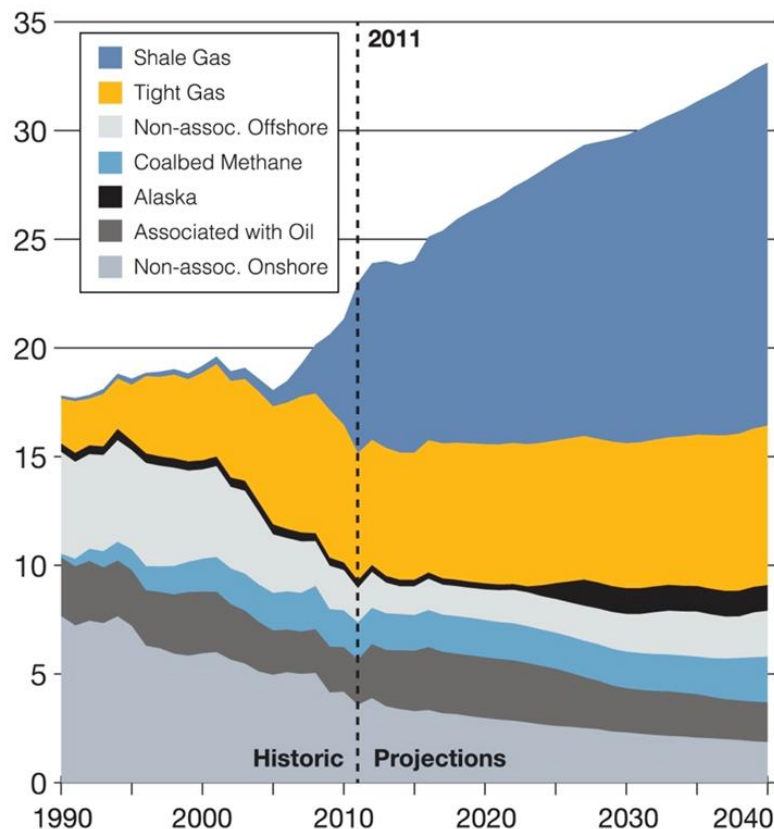
## U.S. Crude Oil Production by Source

(millions of barrels per day)



## U.S. Dry Gas Production by Source

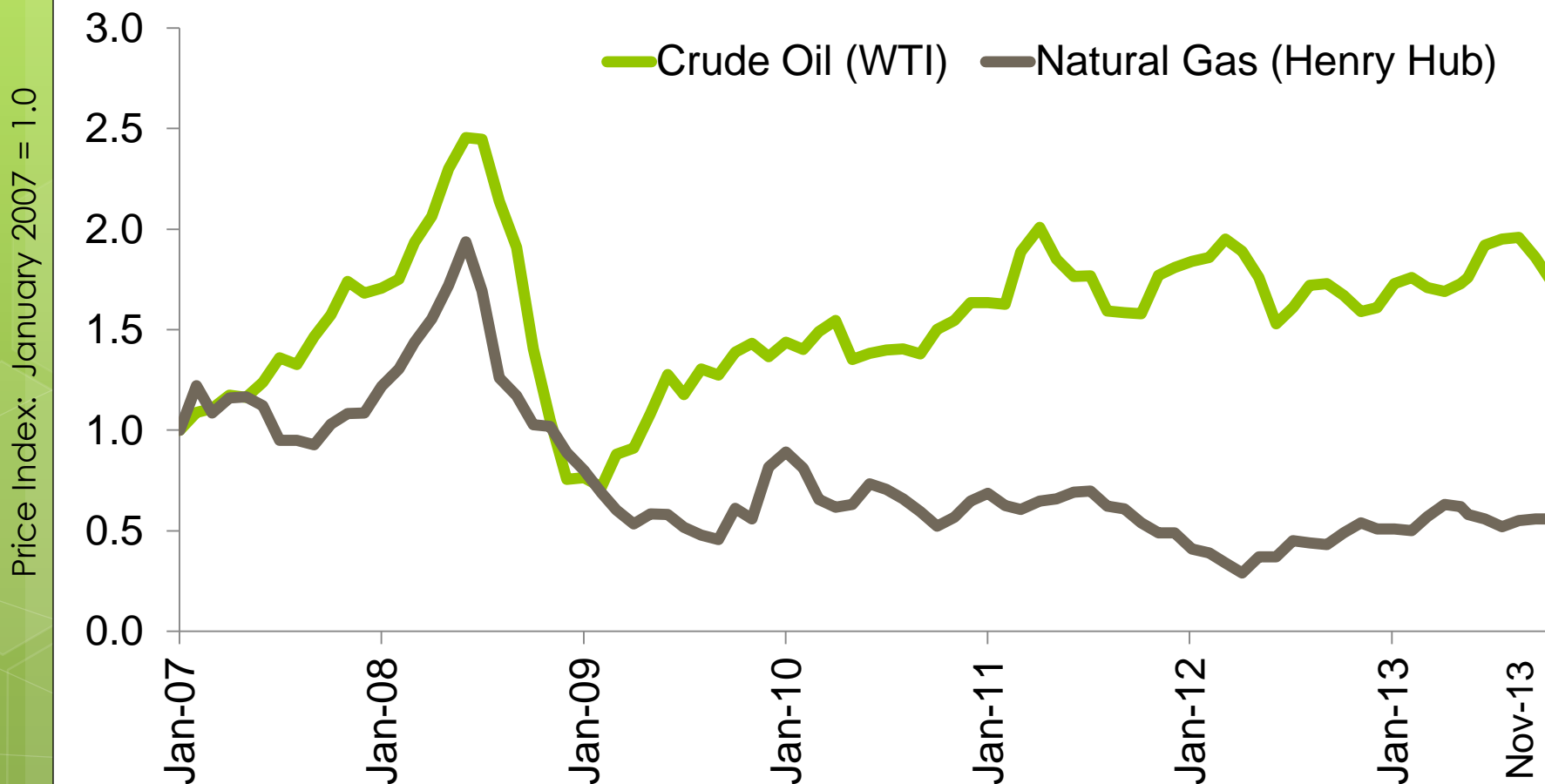
(trillion cubic feet per year)



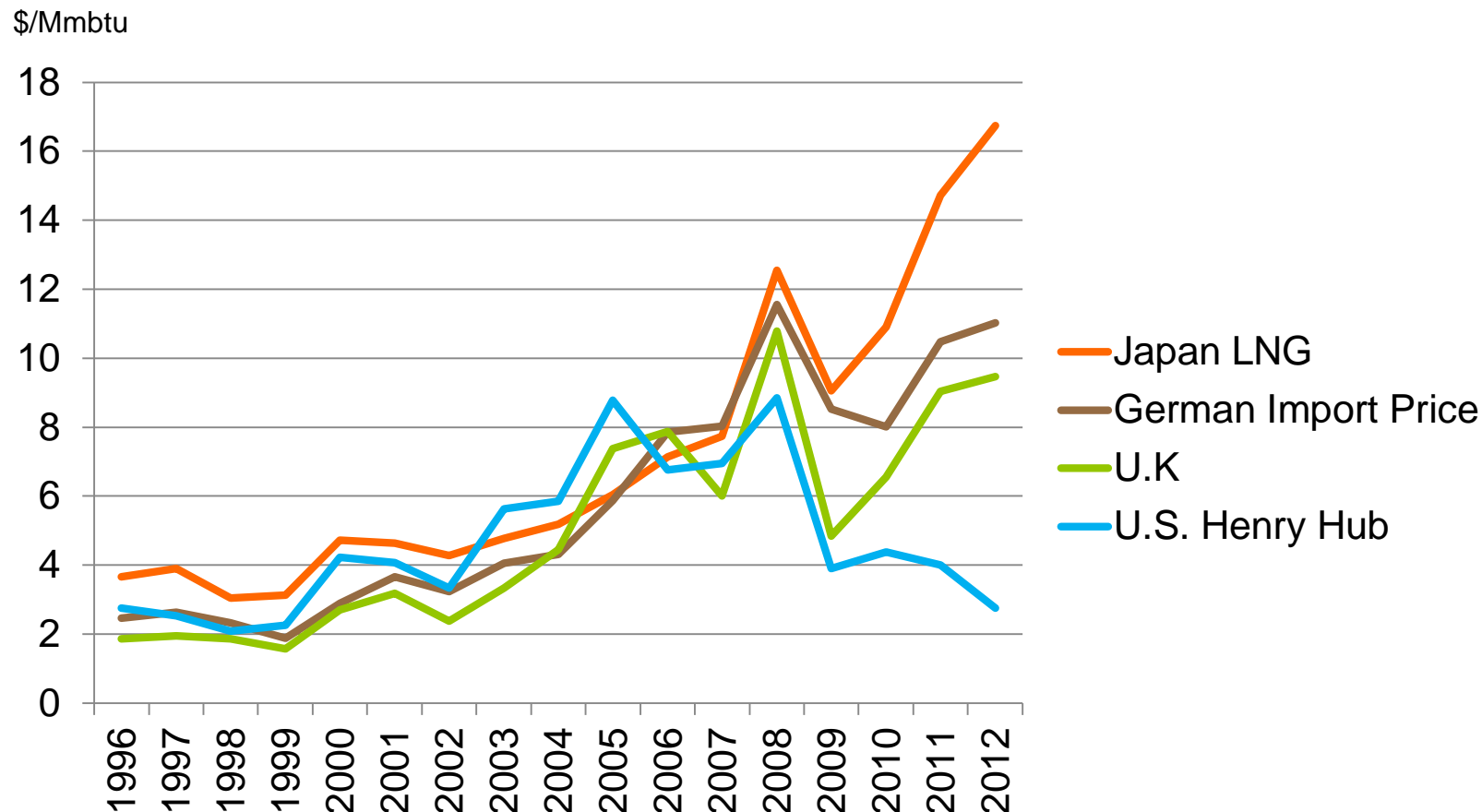
Source: EIA, Annual Energy Outlook 2013 Early Release

## The price of natural gas has fallen relative to crude oil

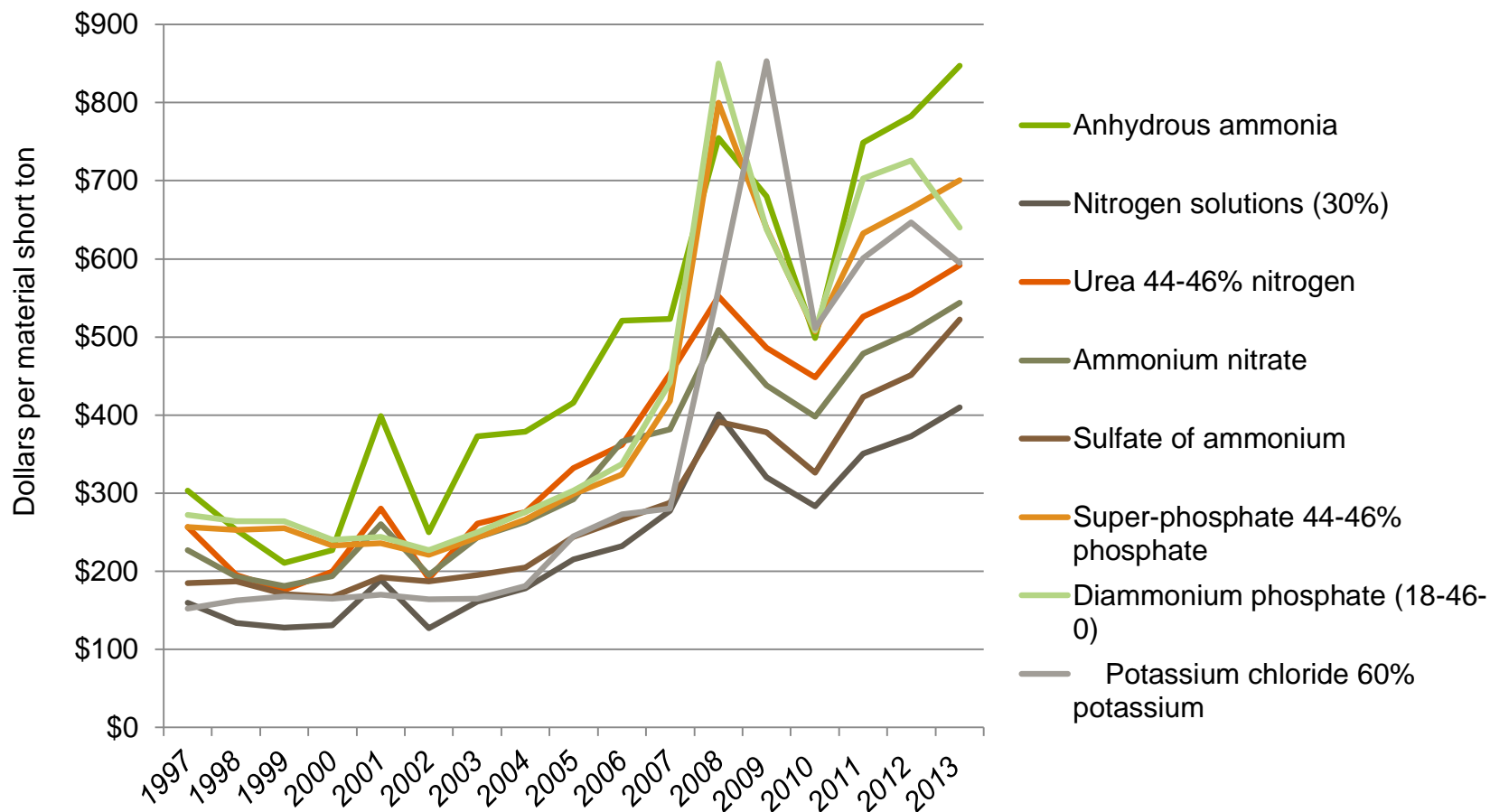
Changes in the price of crude oil and natural gas



## Rising US natural gas output pushed natural gas prices to record discounts against international gas prices



## Average US farm prices of selected fertilizers



## **Industrial production expands in response to competitive advantage of low natural gas prices**

- **Industrial production benefits from strong growth in shale gas production**
- **Lower natural gas prices lower costs of both raw material and energy**
- **Chemical and fertilizer facilities are seeing increased utilization with lower natural gas prices**
- **Energy-intensive industry can be more competitive in the global market**

## Shale energy can lead to American prosperity



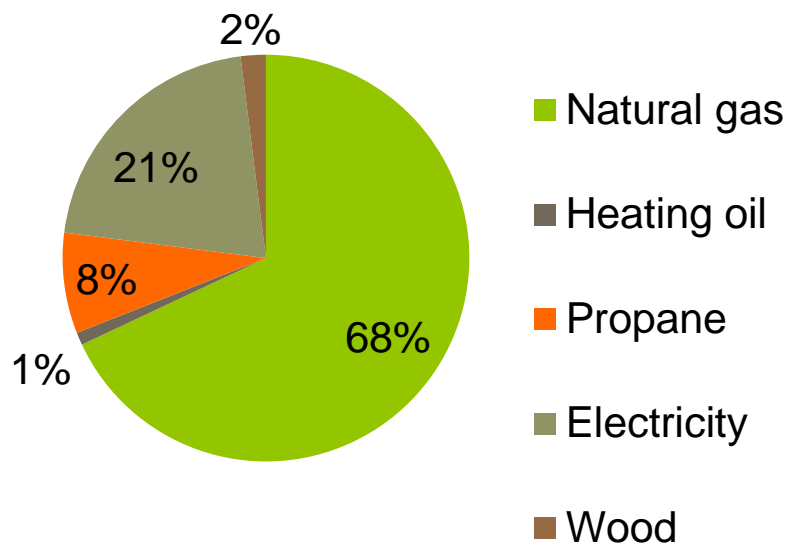
# \$1,200

*American consumers' annual savings due to lower gas prices resulting from shale energy development*  
(IHS Global Insight)

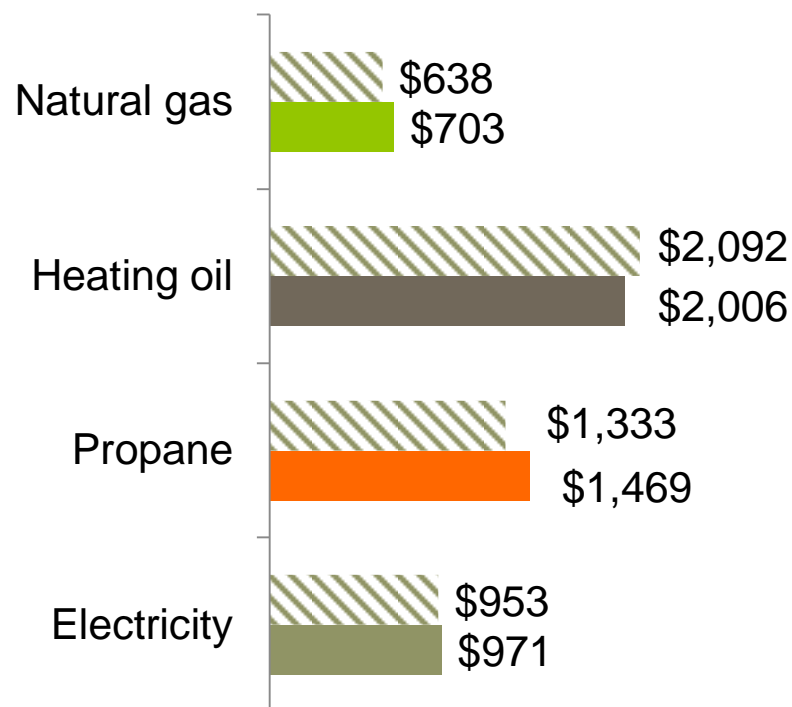


## EIA estimates of Midwest expenditures for heating fuels

Share of Midwest homes by primary space heating fuel



▨ Last winter ■ This winter



# Shale development equals more jobs



**Construction Industry**



**Drilling Industry**



**Chemical Industry**



**Trucking Industry**



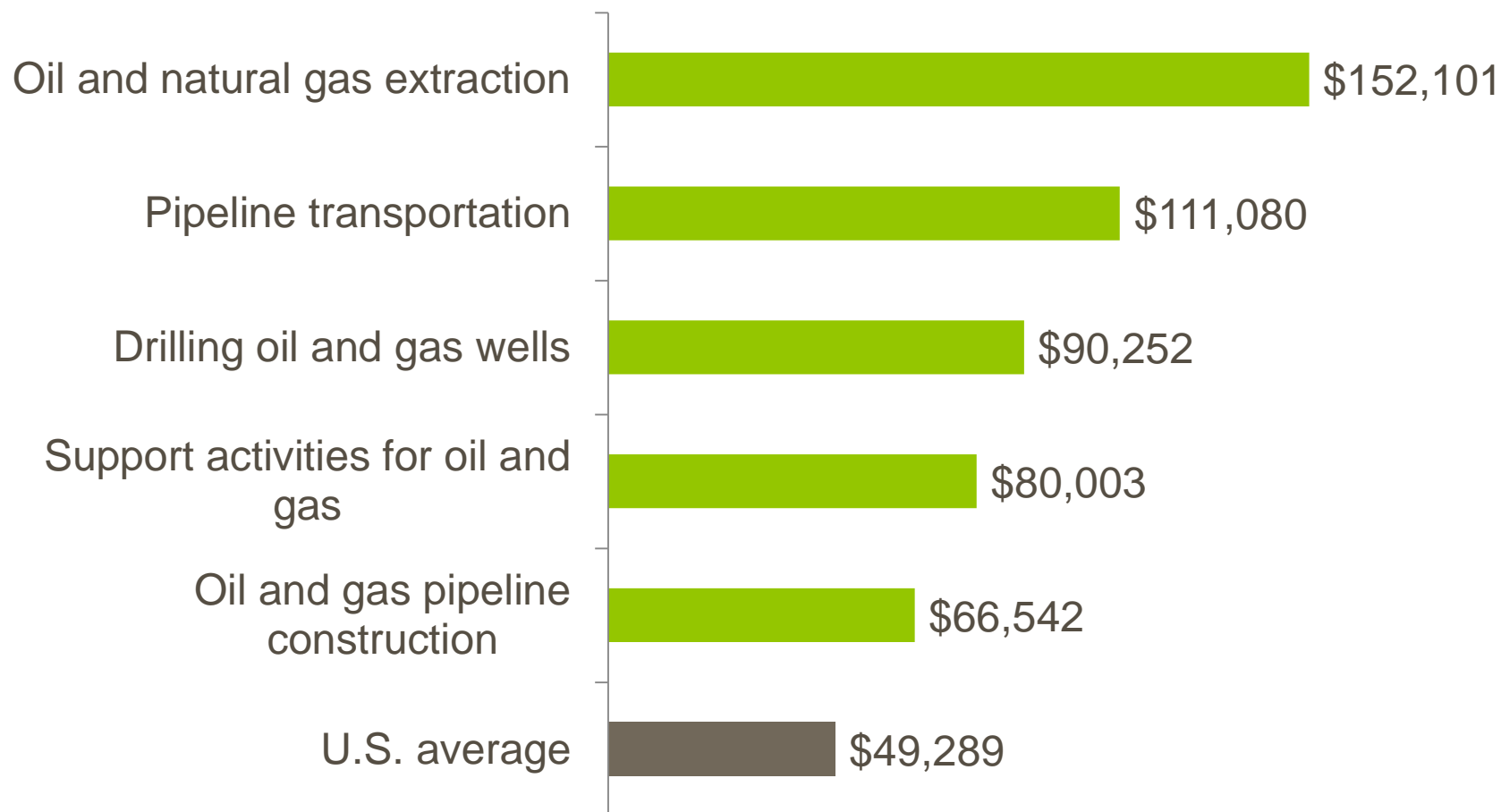
**Hospitality Industry**



**Steel Industry**

# Oil and natural gas jobs pay well

(average annual wages)





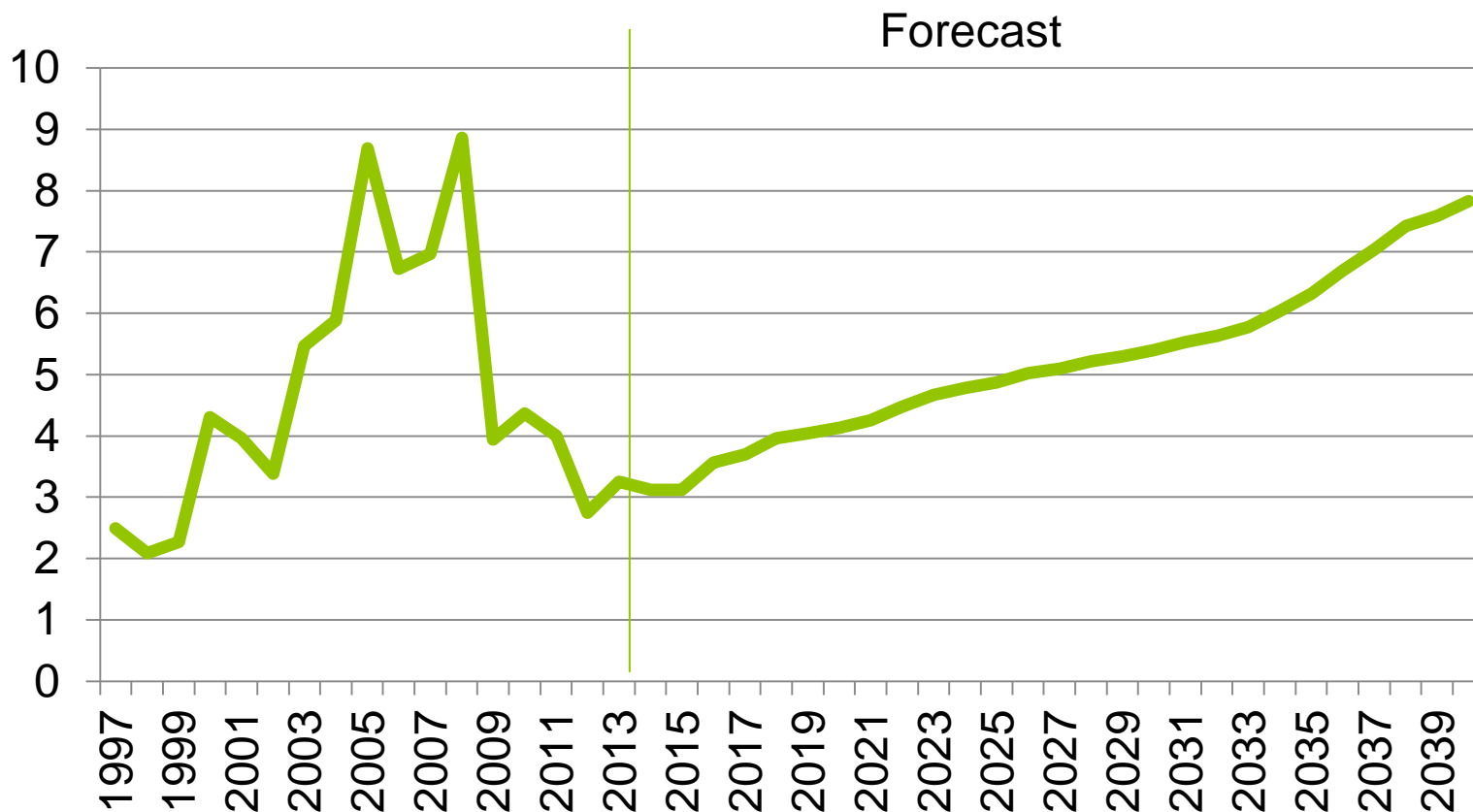
## Shale development equals more government revenue

Contributed \$74 billion in 2012 and expected to grow to \$126 billion by 2020.

On cumulative basis, estimated to generate \$1.6 trillion in tax revenue between 2012-2025.

## EIA forecasts relatively low natural gas prices for decades

Henry Hub \$/MMBTU





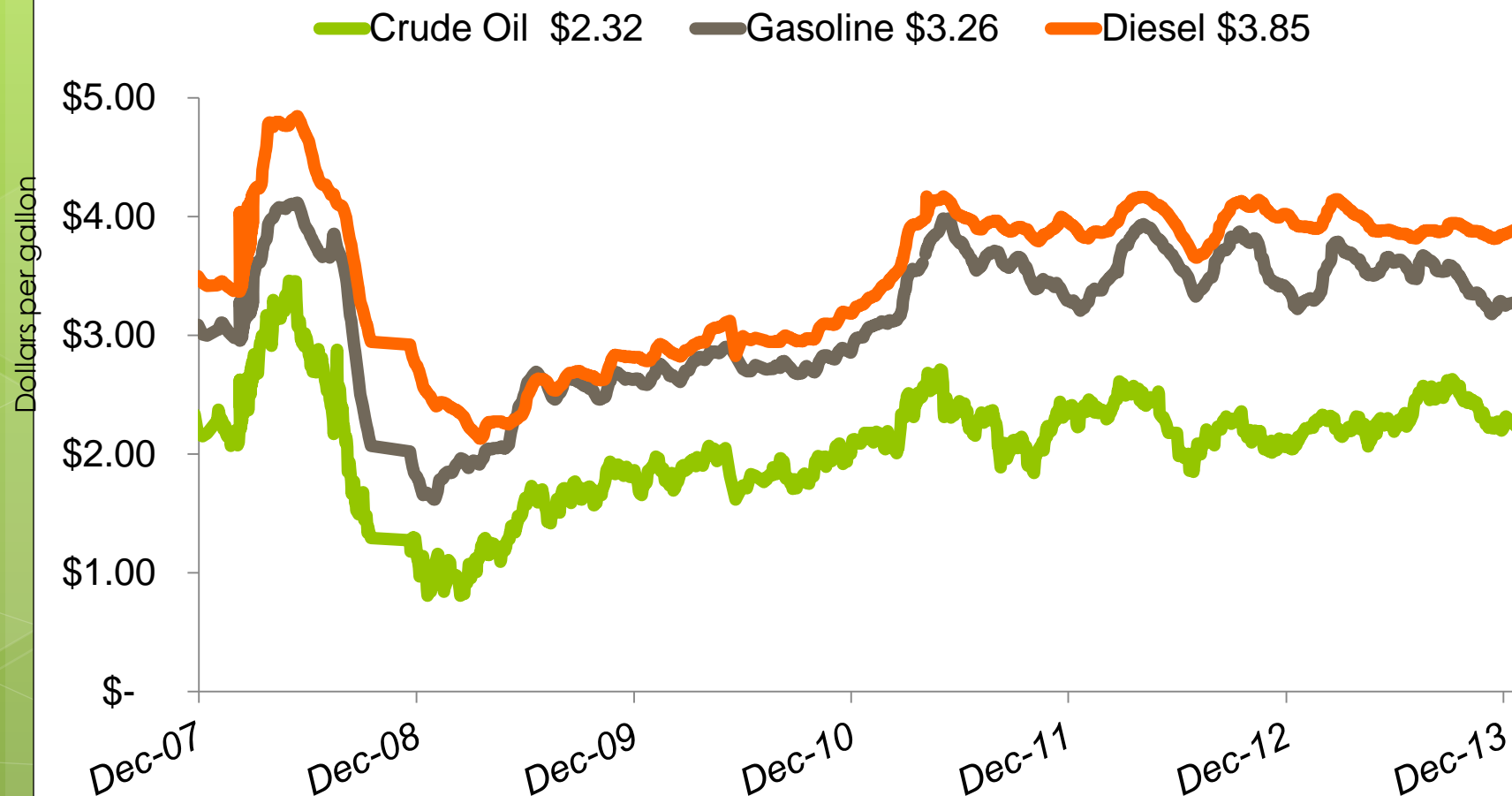


# Factors Affecting Price



## Changes in gasoline and diesel prices mirror changes in crude oil prices

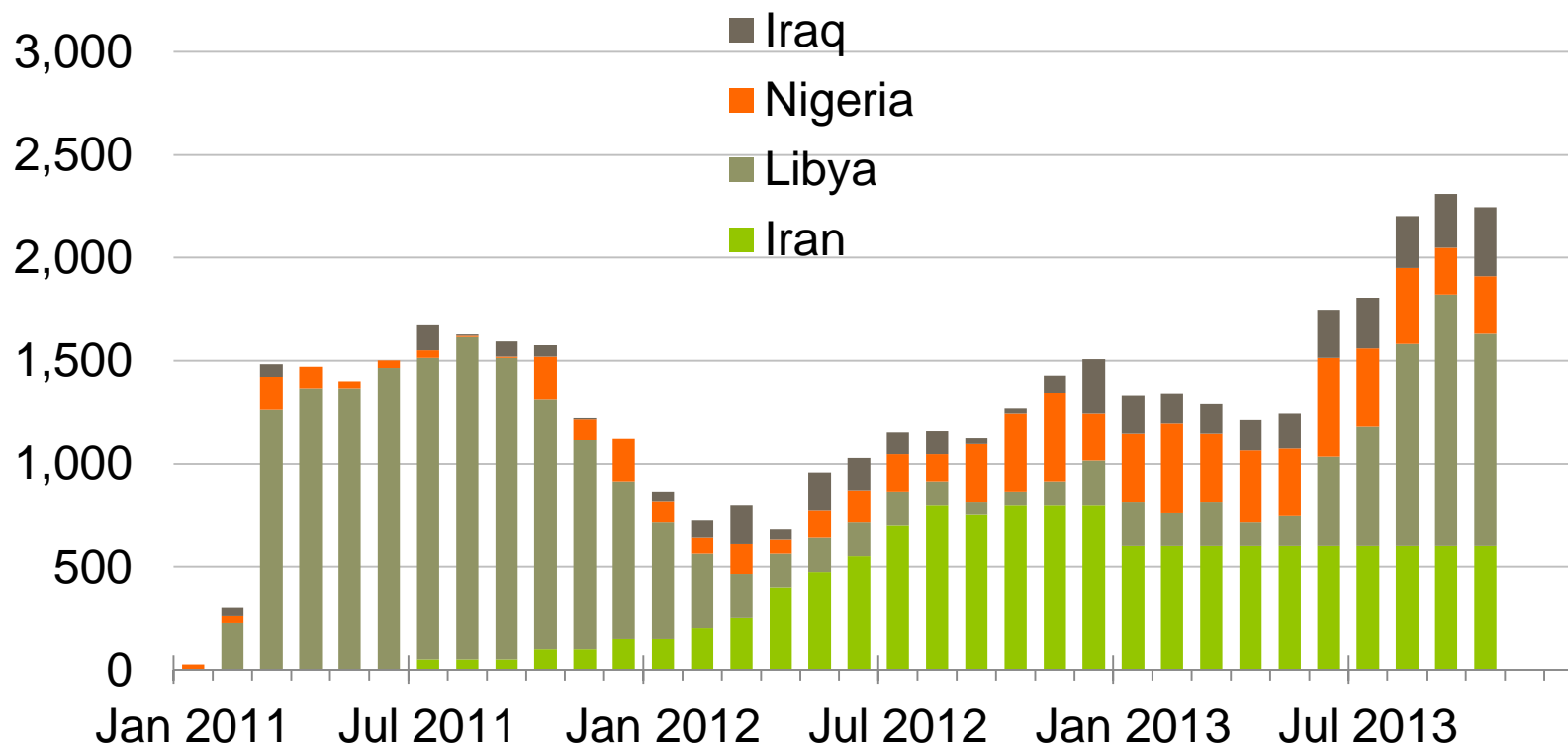
Average prices as of December 5, 2013



Many factors affect the price of oil, but in the end it comes down to supply and demand



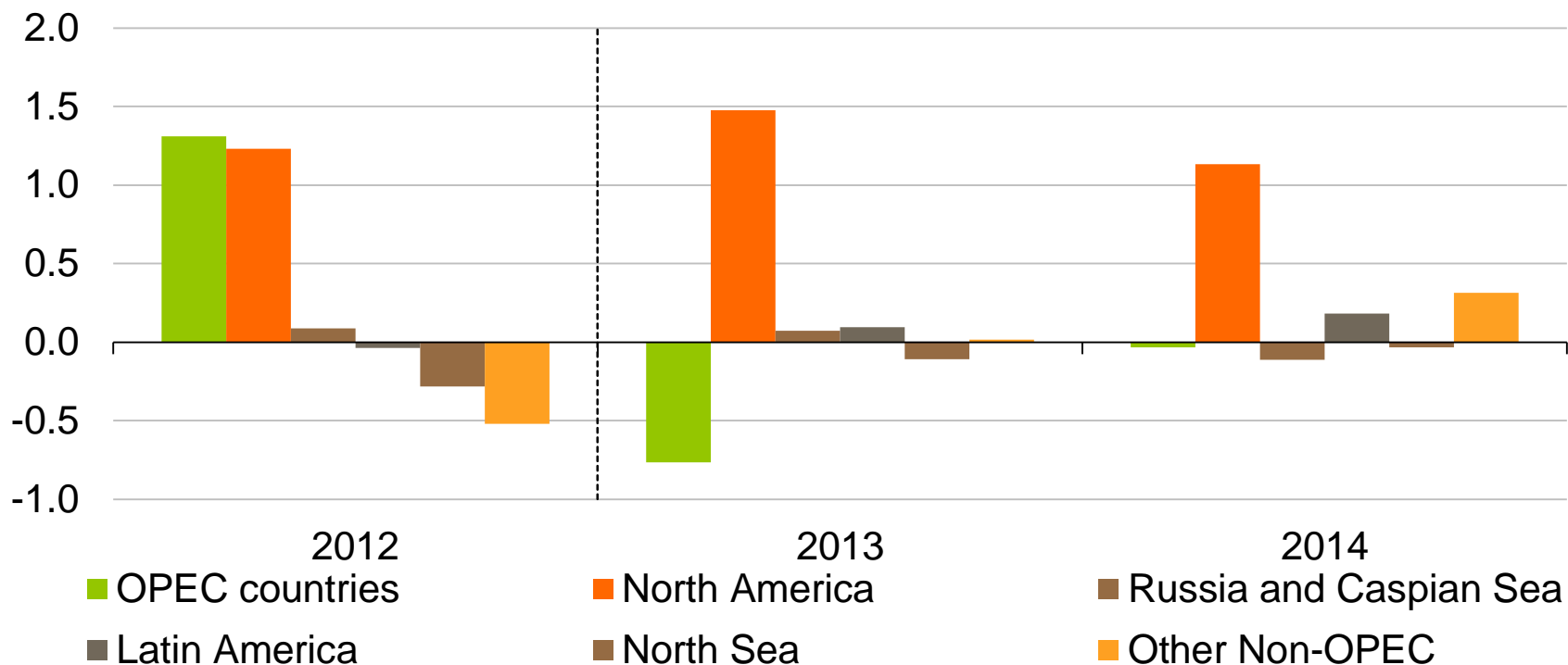
## Estimated unplanned OPEC crude oil production outages (thousands barrels per day)



## World crude oil and liquid fuels production growth

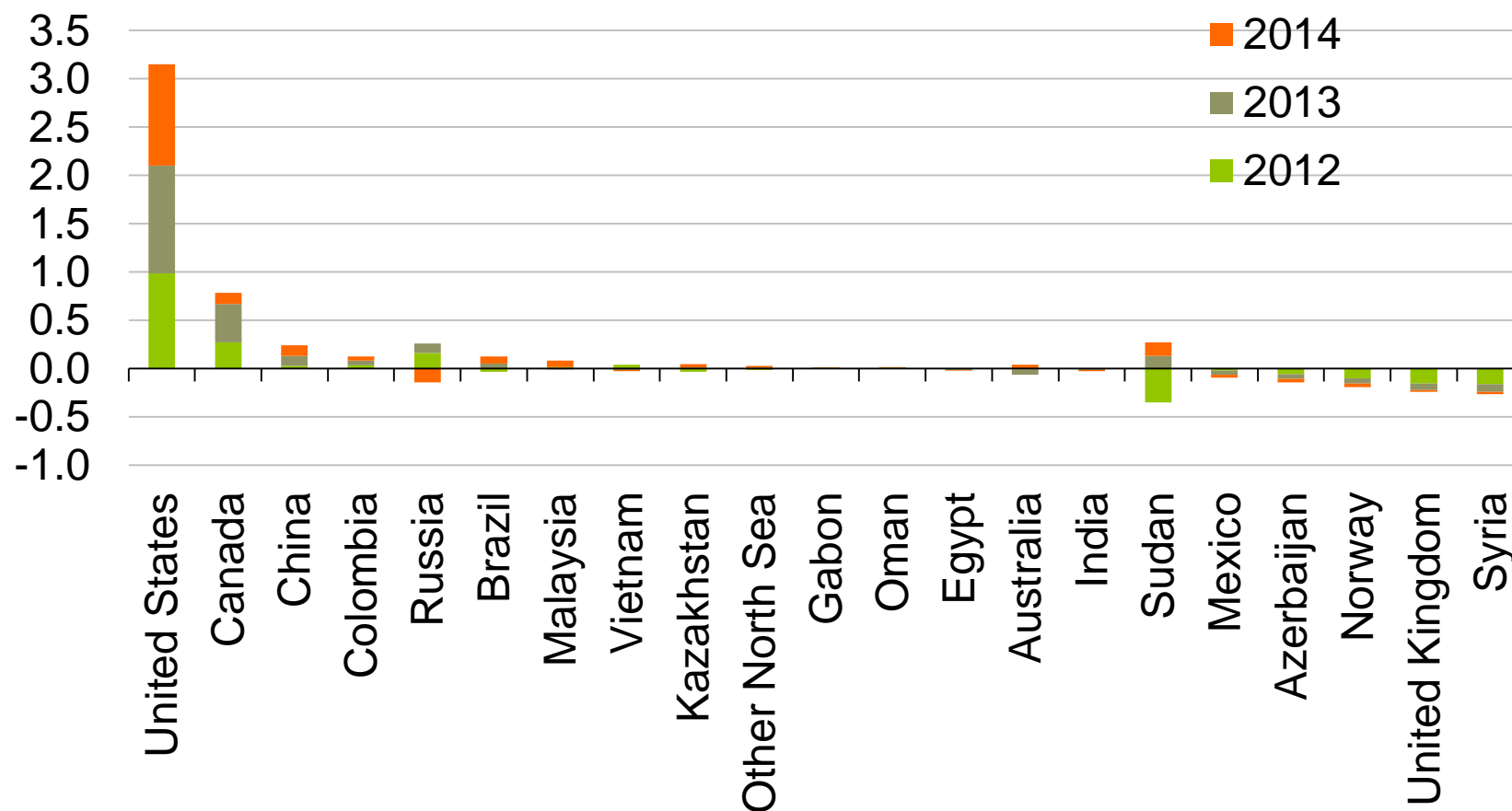
million barrels per day

Forecast

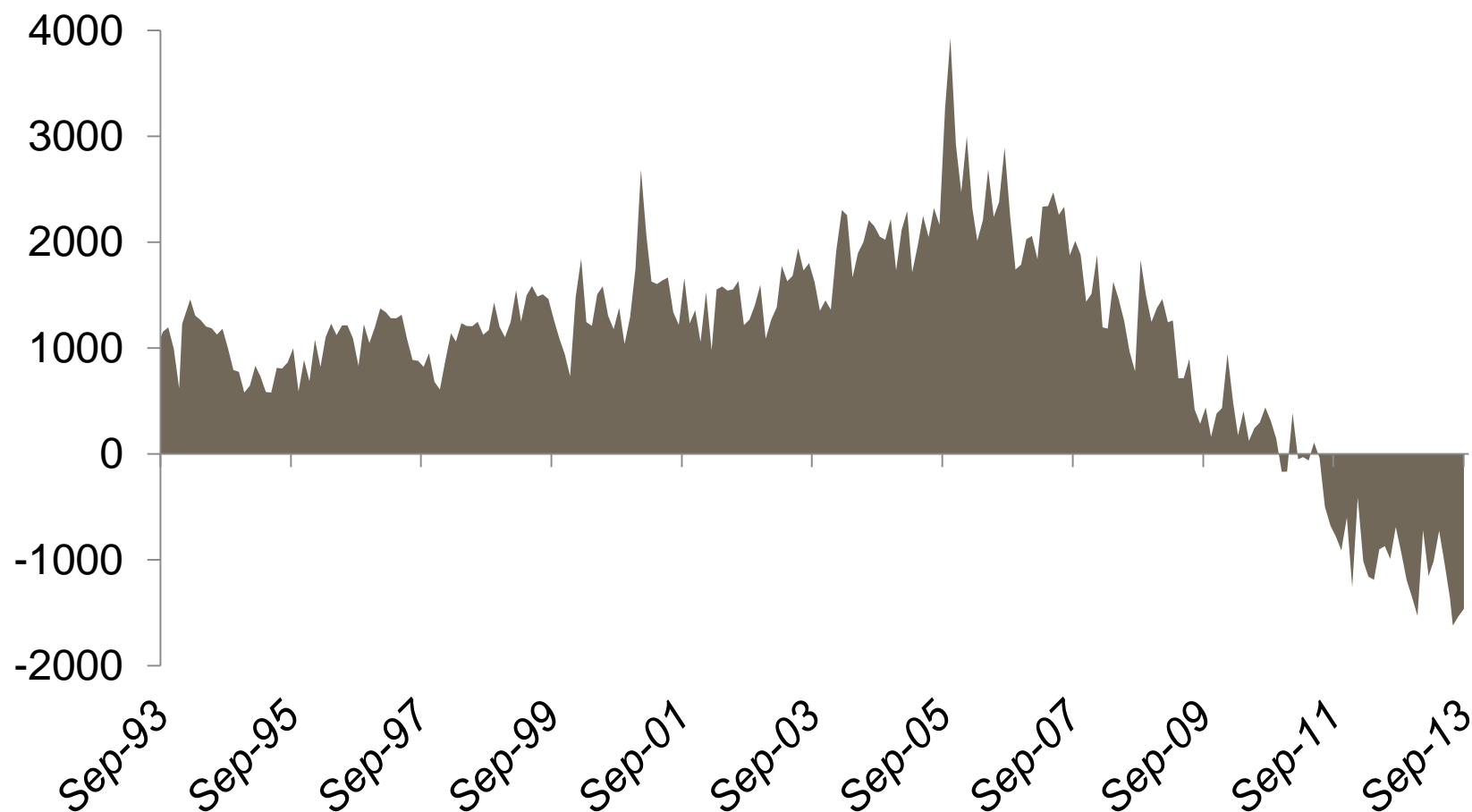


## Non-OPEC crude oil and liquid fuels production growth

(million barrels per day)

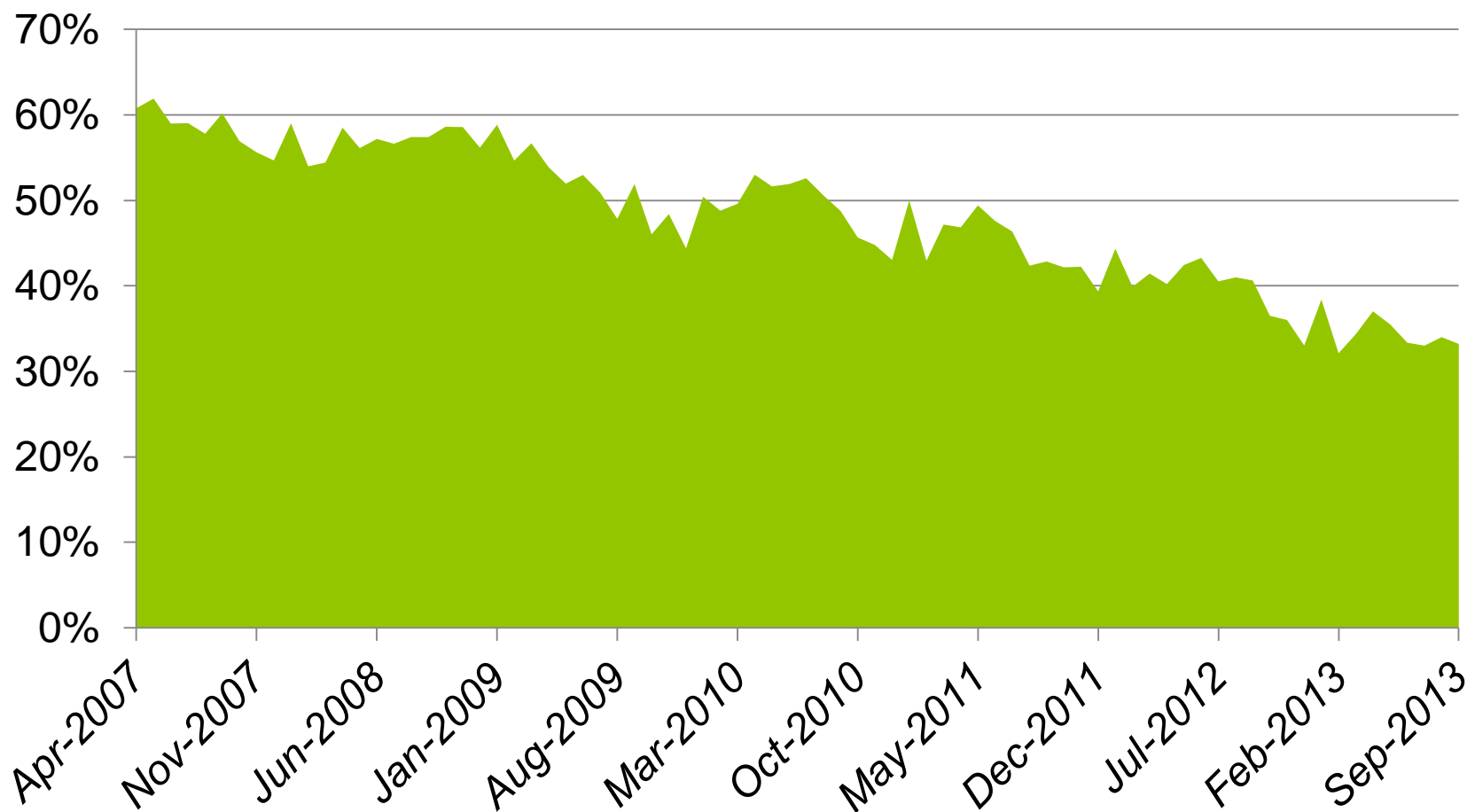


**For the first time since 1949, the U.S. became a net exporter of petroleum products in 2011**





## Crude oil and petroleum product imports have declined as a share of consumption

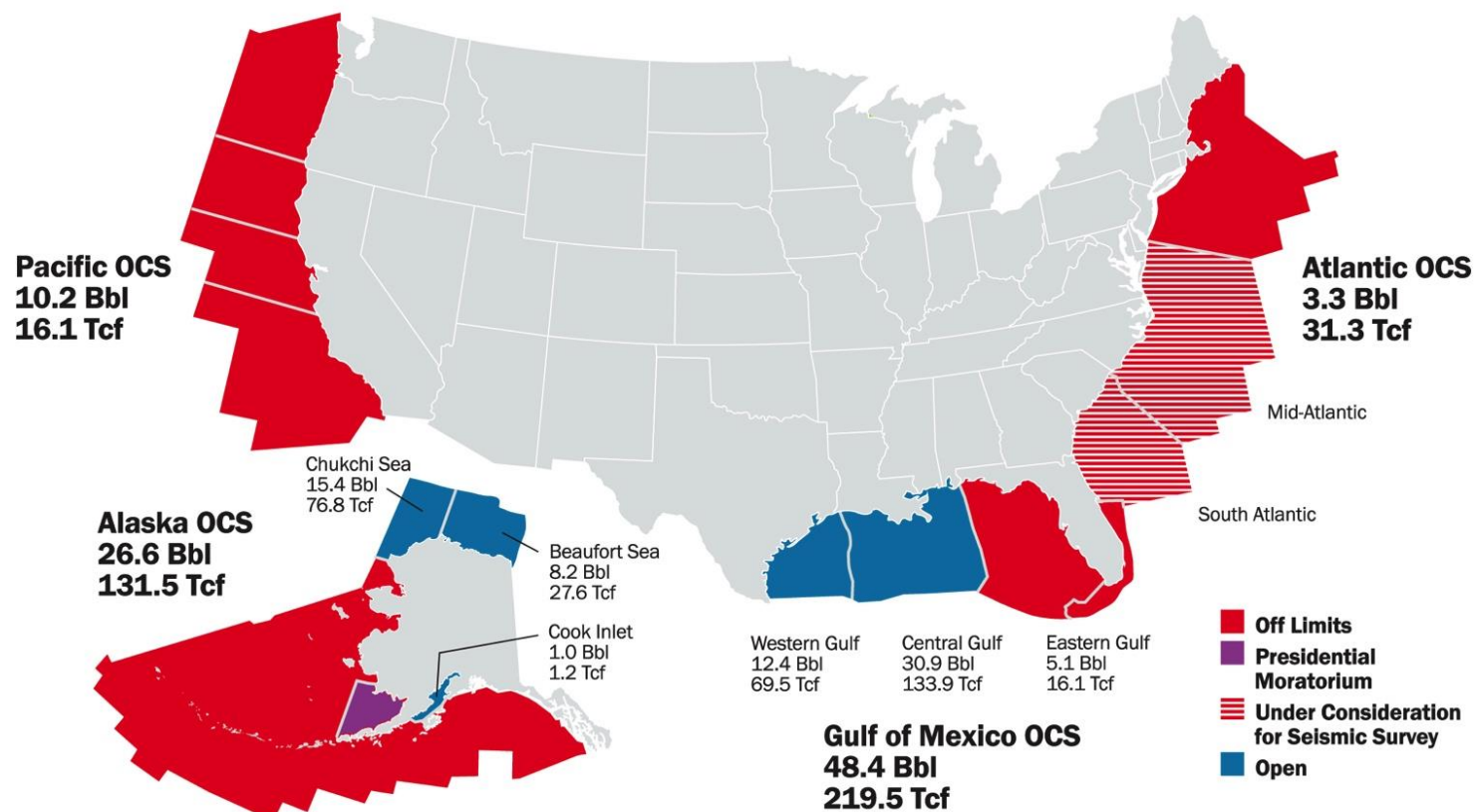




# Potential of Domestic and Canadian Resources

# 87% of federal offshore acreage is off-limits to development

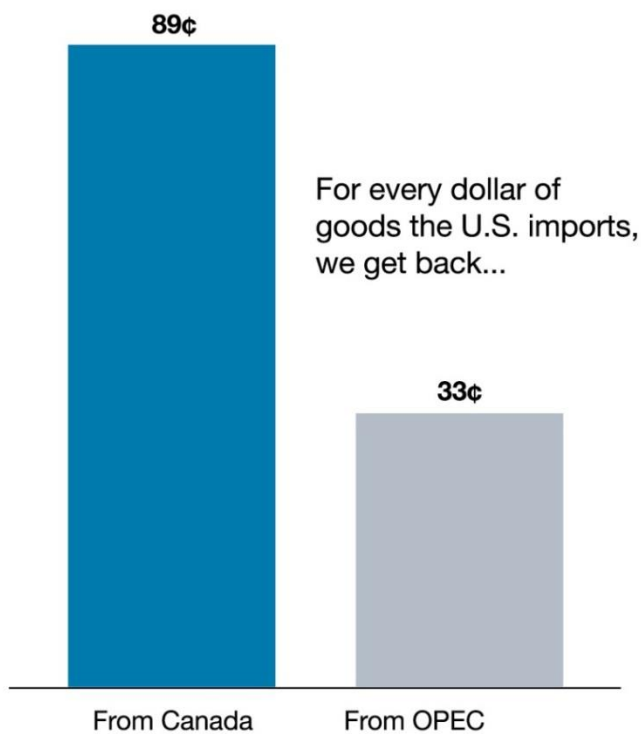
**U.S. Offshore Undiscovered Technically Recoverable Federal Oil and Natural Gas Resources**  
(billion barrels - Bbl and trillion cubic feet - Tcf)



Source: The Bureau of Ocean Energy Management (BOEM), 2011.

# Development of Canadian oil sands would benefit the U.S. economy

2011 Trade in Goods



Source: <http://www.census.gov/foreign-trade/balance/>



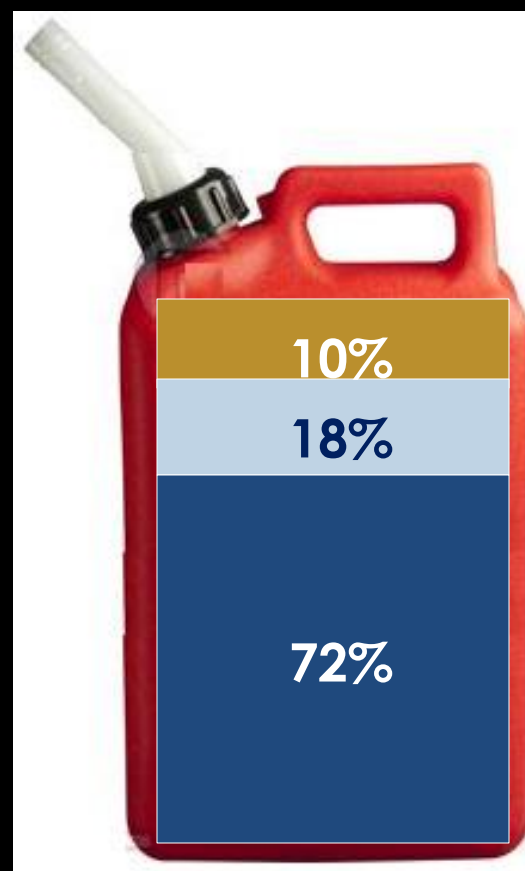
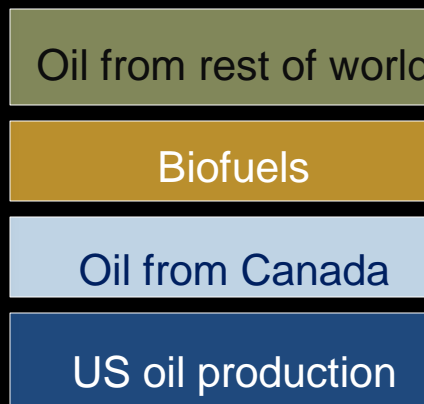
# FILLING AMERICA'S TANK

Within 11 years Canada & U.S. can provide all our liquid fuel needs



**EIA forecast**

## Sources of liquid fuel supply: 2024



**Potential**

# America's choice

**increase**

oil & natural gas  
development

2020

**raise**

oil & natural gas  
taxes

**jobs**

+ 1,100,000 jobs



**government revenue**

+ \$127 billion



**energy production**

+ 4 million barrels'  
worth of oil and  
natural gas per day



**jobs**

- 48,000 jobs

**government revenue**

- \$29 billion

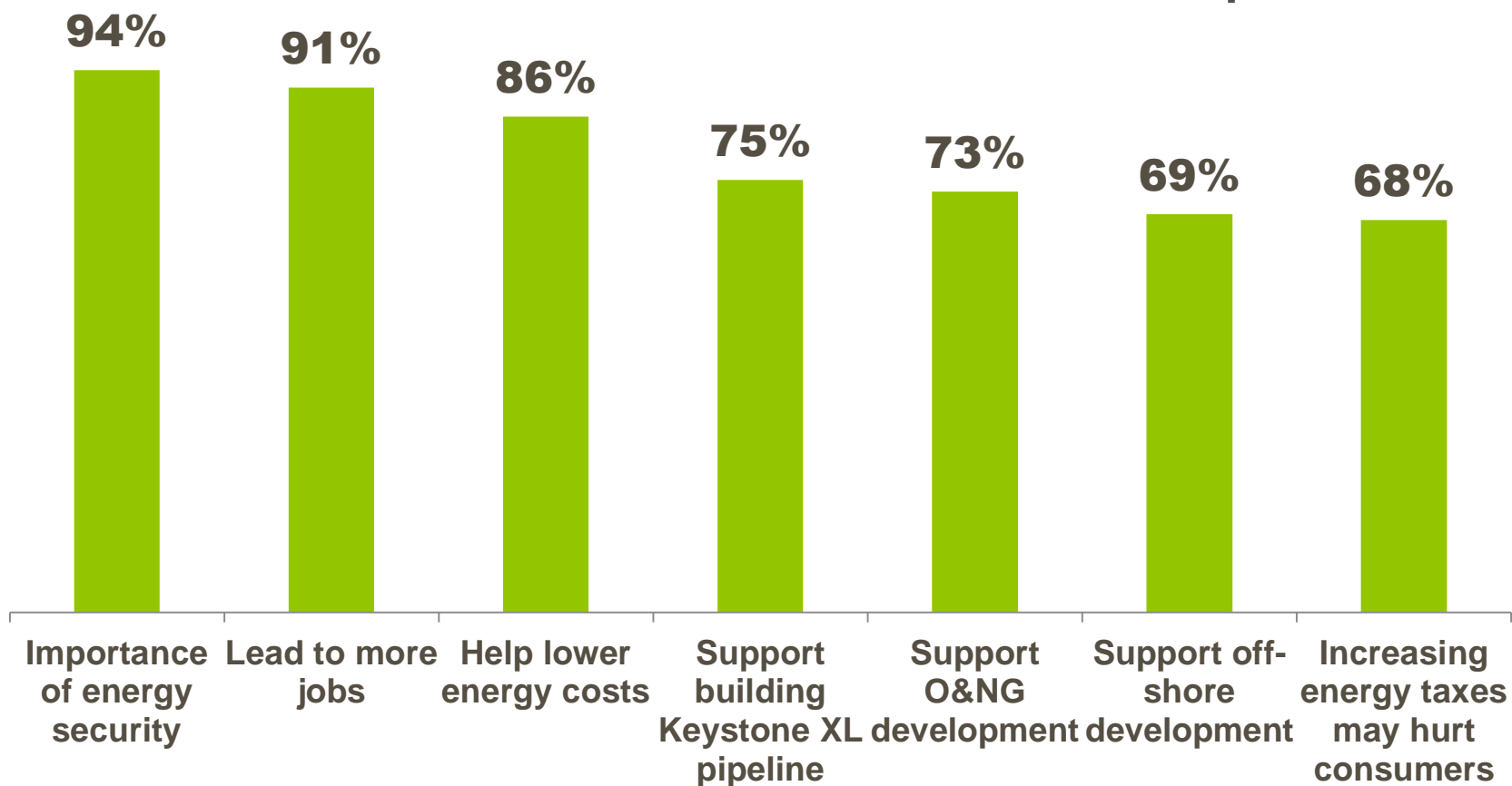
**energy production**

- 700,000 barrels'  
worth of oil and  
natural gas per day



# Voters voice strong support for increased domestic oil and natural gas development

**Harris Poll Results on Increased U.S. Oil and Natural Gas Development**



# INVESTING ★ IN AMERICA

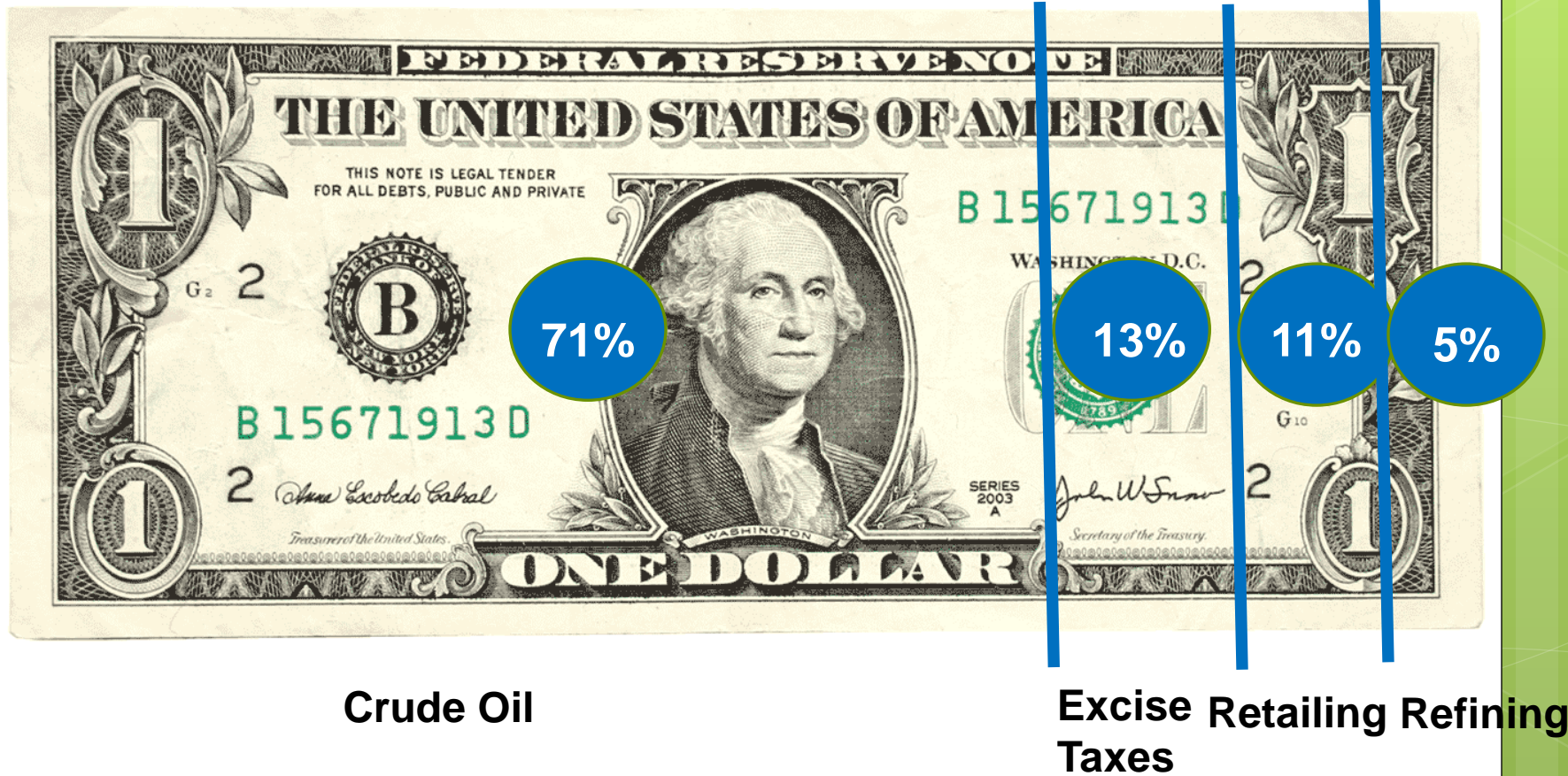
For more information visit:

[www.api.org](http://www.api.org)

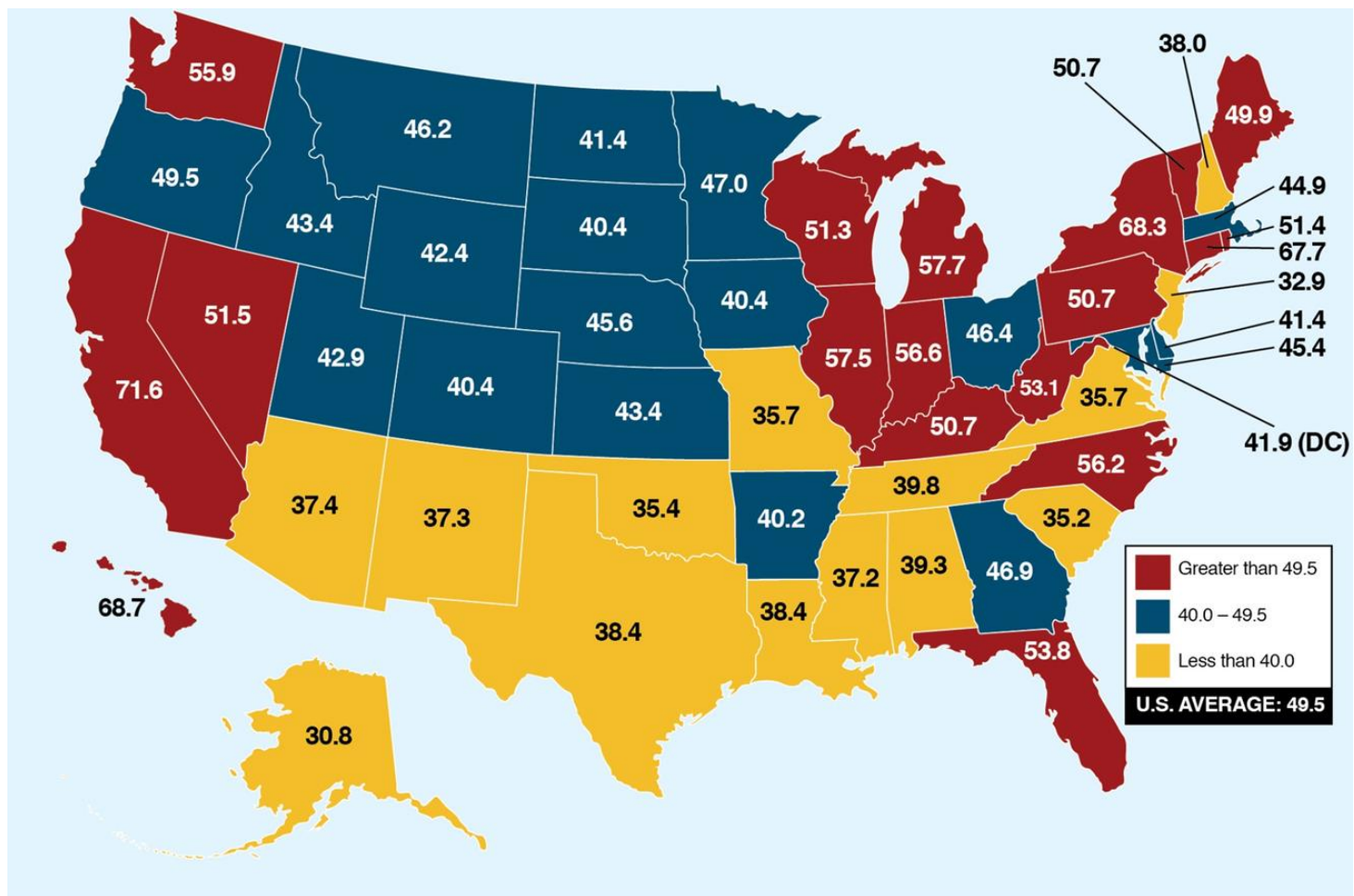
[www.energytomorrow.org](http://www.energytomorrow.org)

[www.energycitizens.org](http://www.energycitizens.org)

# Why does gasoline fuel cost what it does?



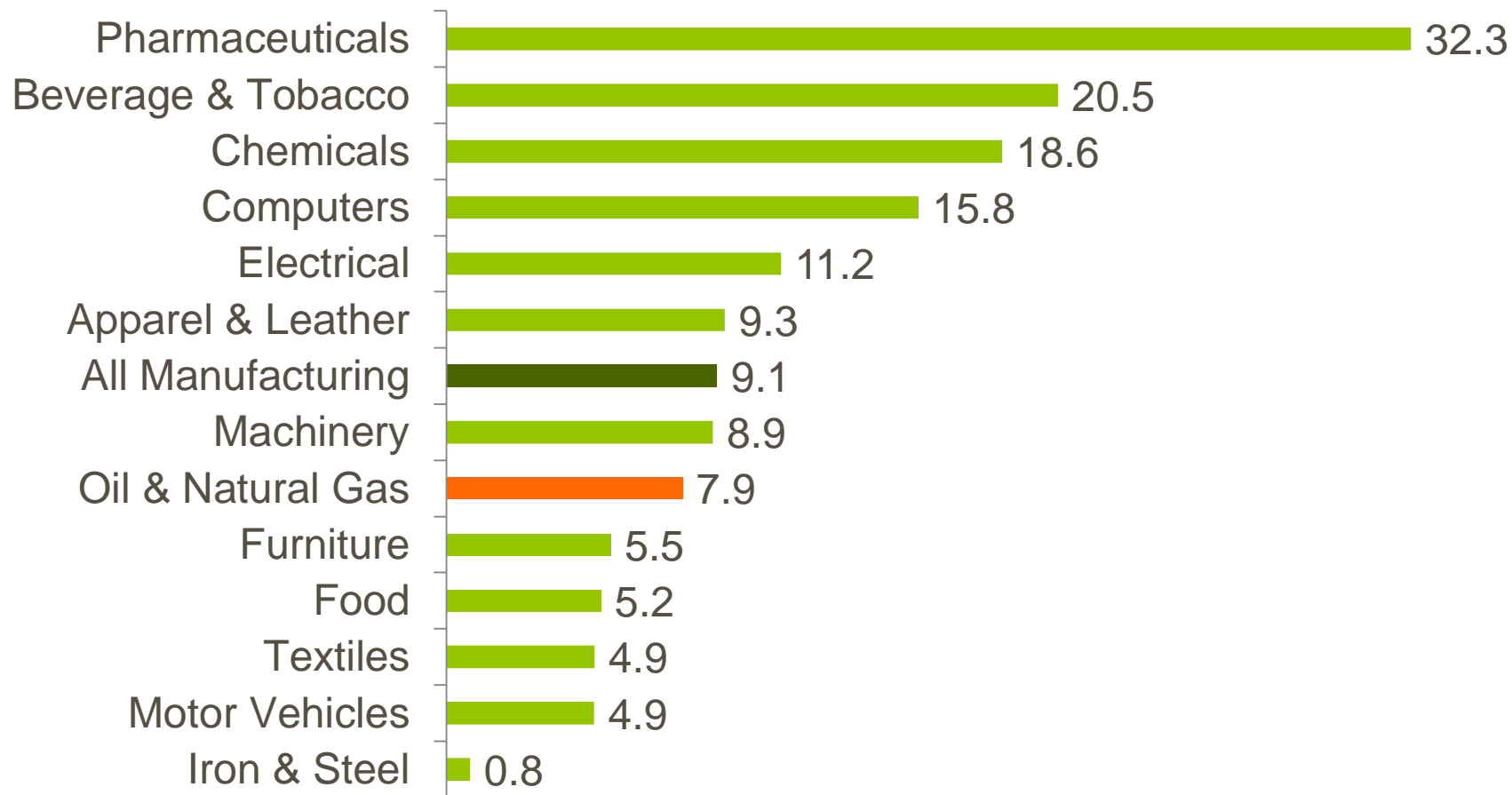
## Gasoline prices can vary by state because of the difference in state taxes



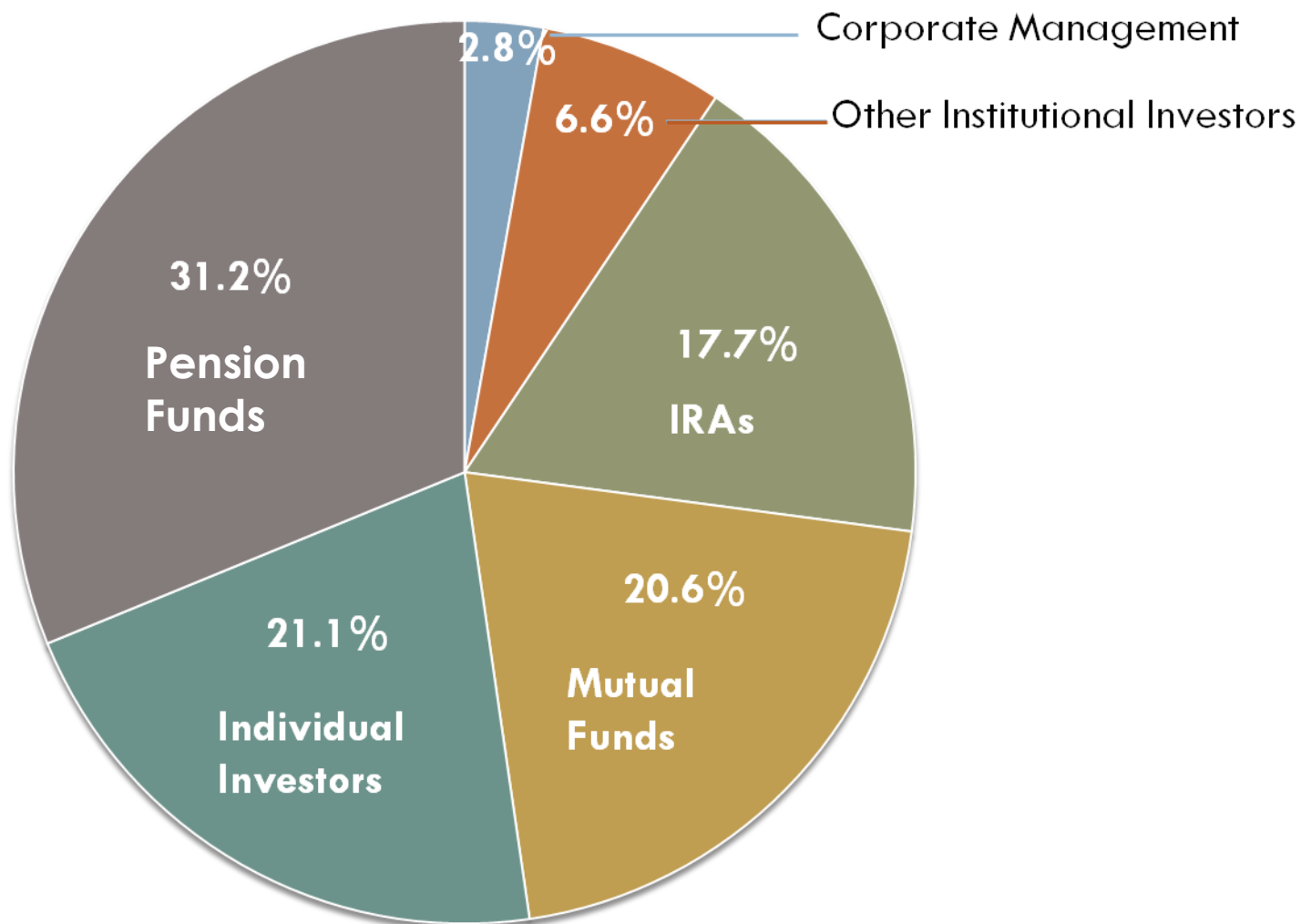
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## Second Quarter 2013 Earnings by Industry

(cents of net income per dollar of sales)



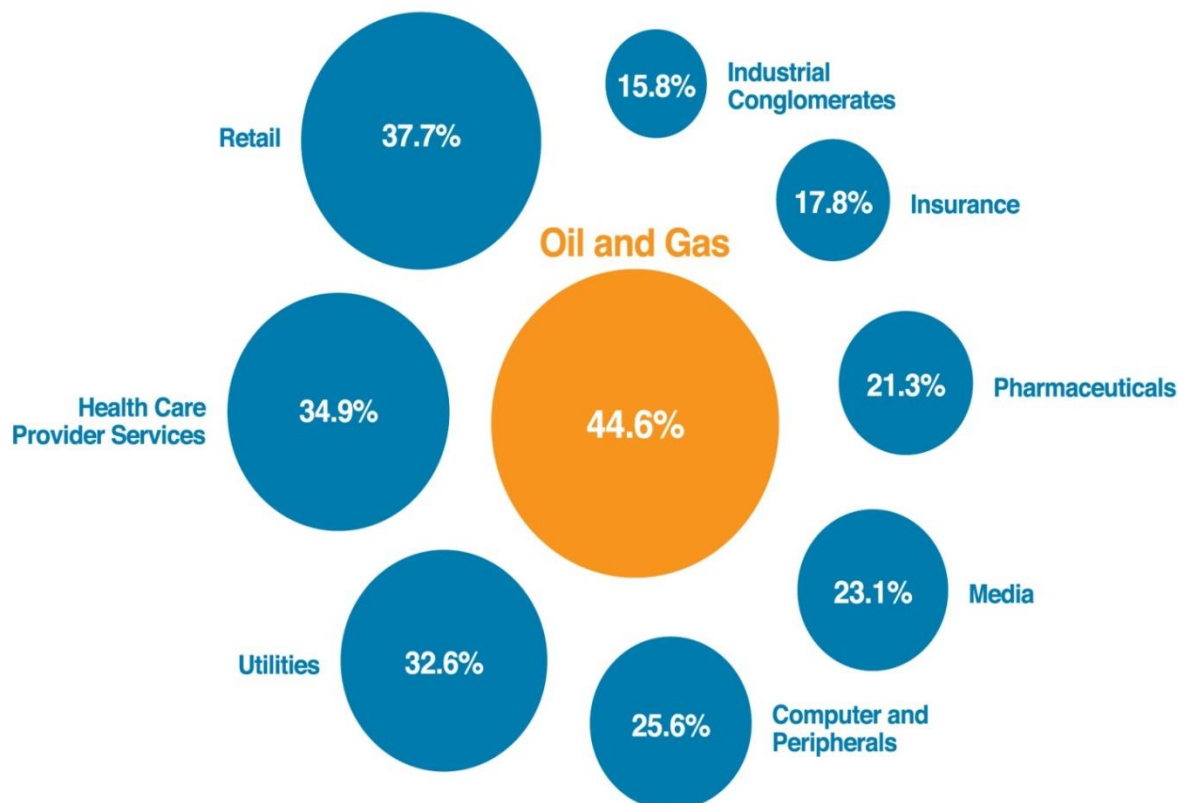
## Who owns U.S. oil and natural gas companies? Answer: tens of millions of Americans





# The oil and natural gas industry is one of the most heavily taxed industries in America

**Effective Tax Rates Among Industries**  
(averaged over 2007-2012)



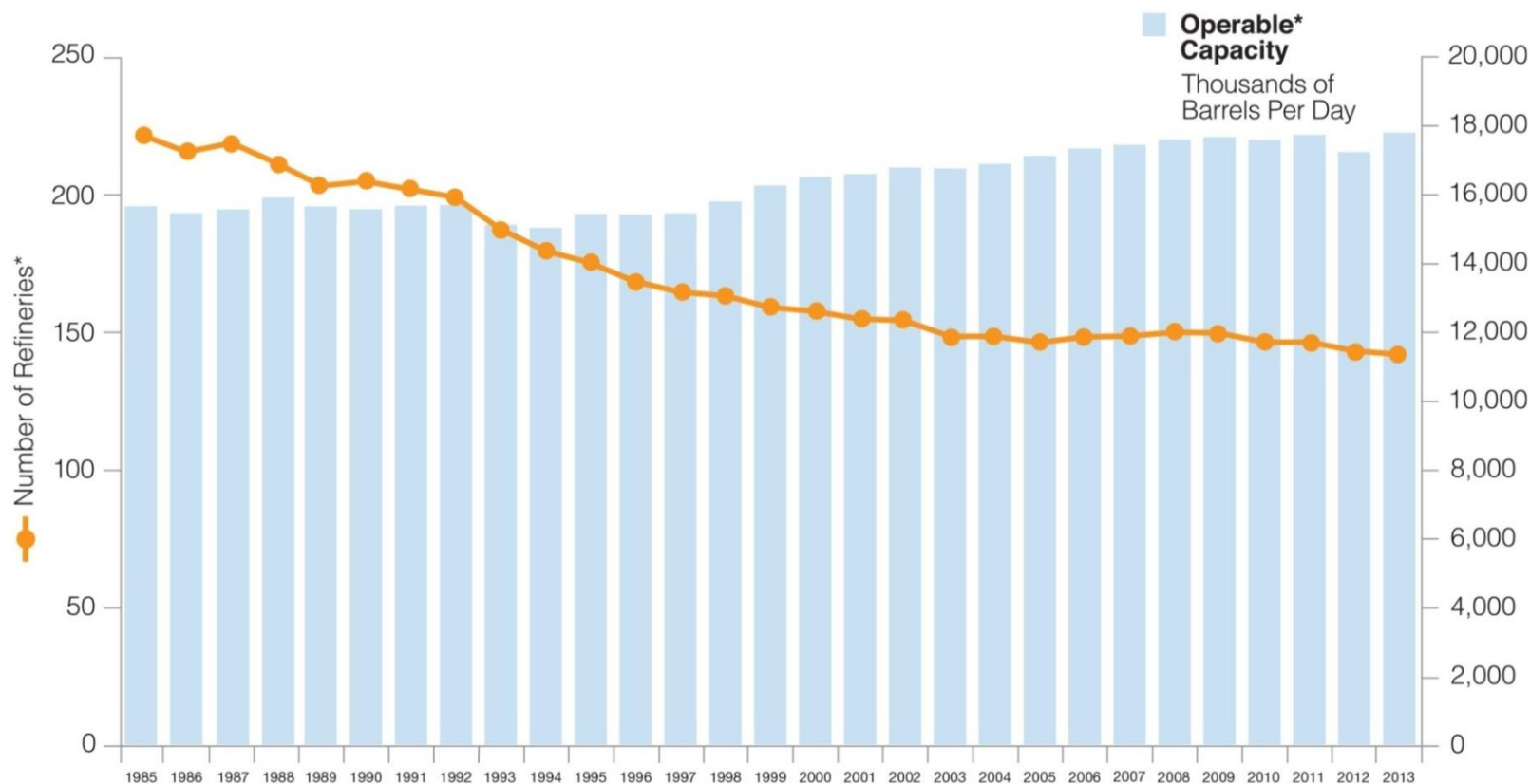
Tax rate is total income taxes, which include income taxes imposed by federal, state, and foreign governments, divided by pretax income.  
Source: S&P Research Insight; S&P 1500 by GICS Industry Code.



# Refineries and Fuels



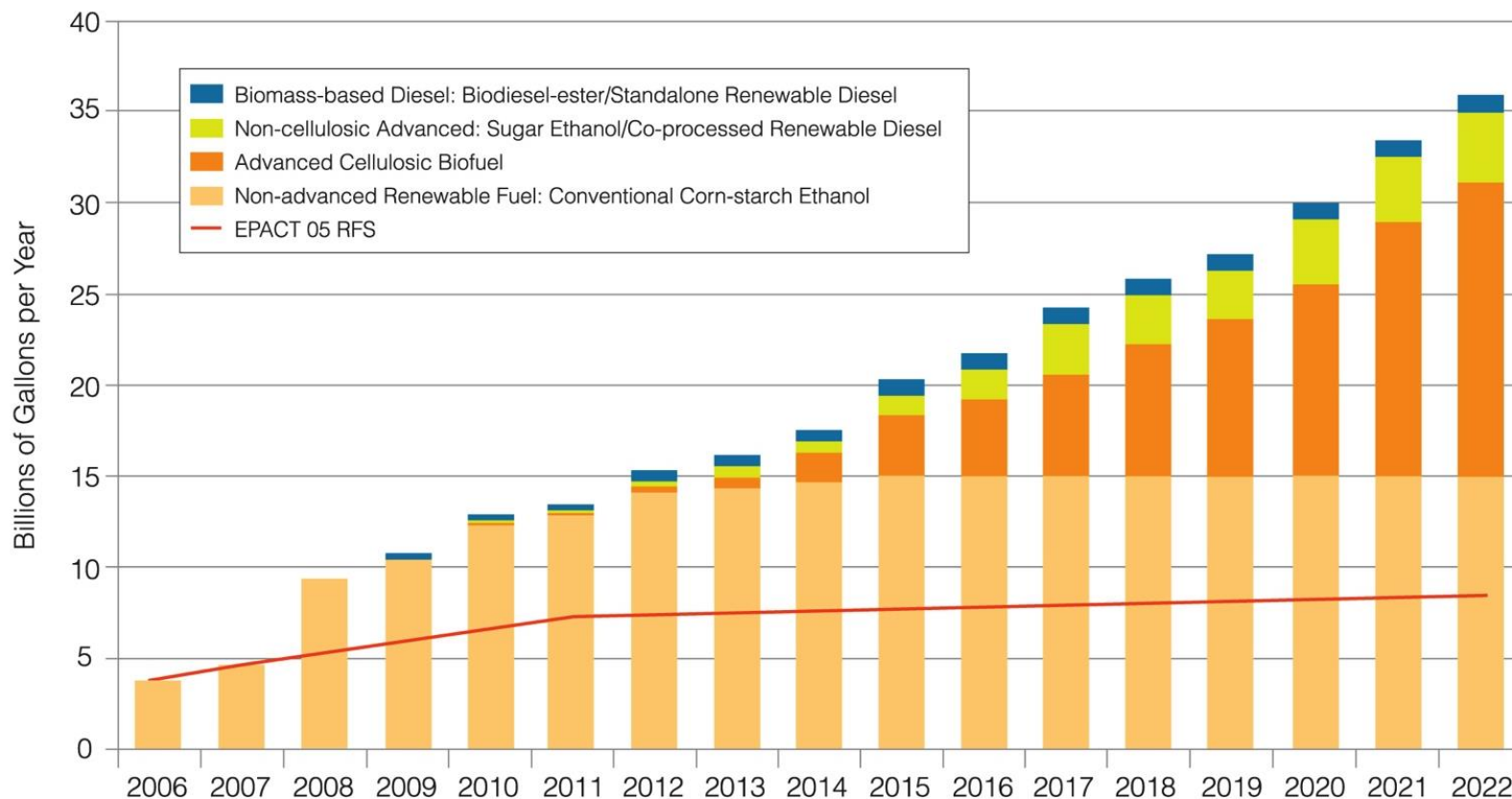
## Number of refineries declines but capacity expands



\*Operable as of January 1st of each year.

Source: EIA, *Petroleum Supply Annual*.

## Expanding alternative fuels for transportation: current laws



Source: EIA and Energy Independence Security Act of 2007.

## The Blend Wall

We are rapidly approaching the point when EPA's ever increasing alternative fuel mandates exceed what can be safely blended into the nation's vehicles.

NERA predicts gasoline prices could be **30%** greater AND diesel prices **300%** greater by **2015**.



The Energy Policy Research Foundation estimates that as a result gasoline prices could increase from **20 cents per gallon** up to **\$1.00 per gallon** by next year.