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U.S. Energy Policy: The Burdens of the Past and Moving Forward

John P. Banks
Foreign Policy and Energy Security Initiative

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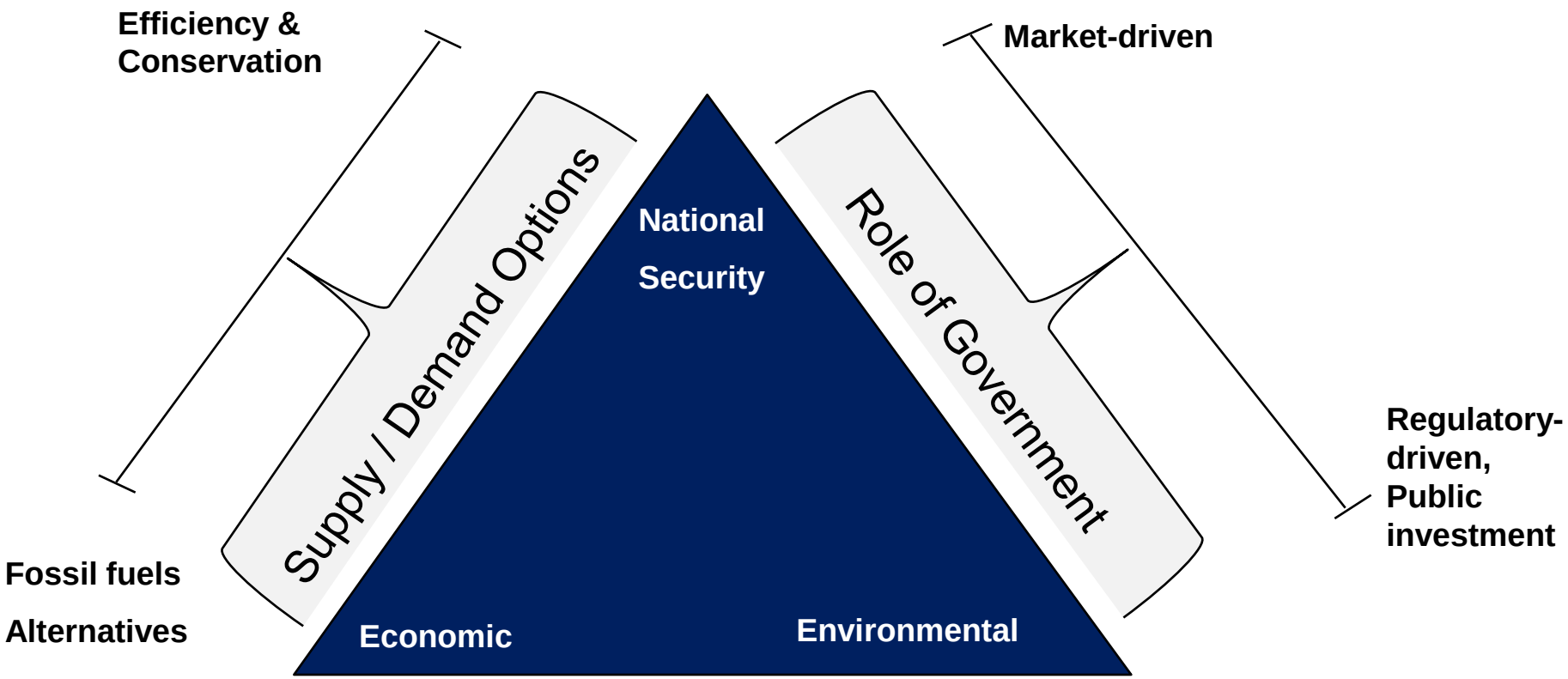
U.S. Energy Policy: The Burdens of the Past and Moving Forward

John P. Banks
Nonresident Fellow
Brookings Institution

September 25, 2012

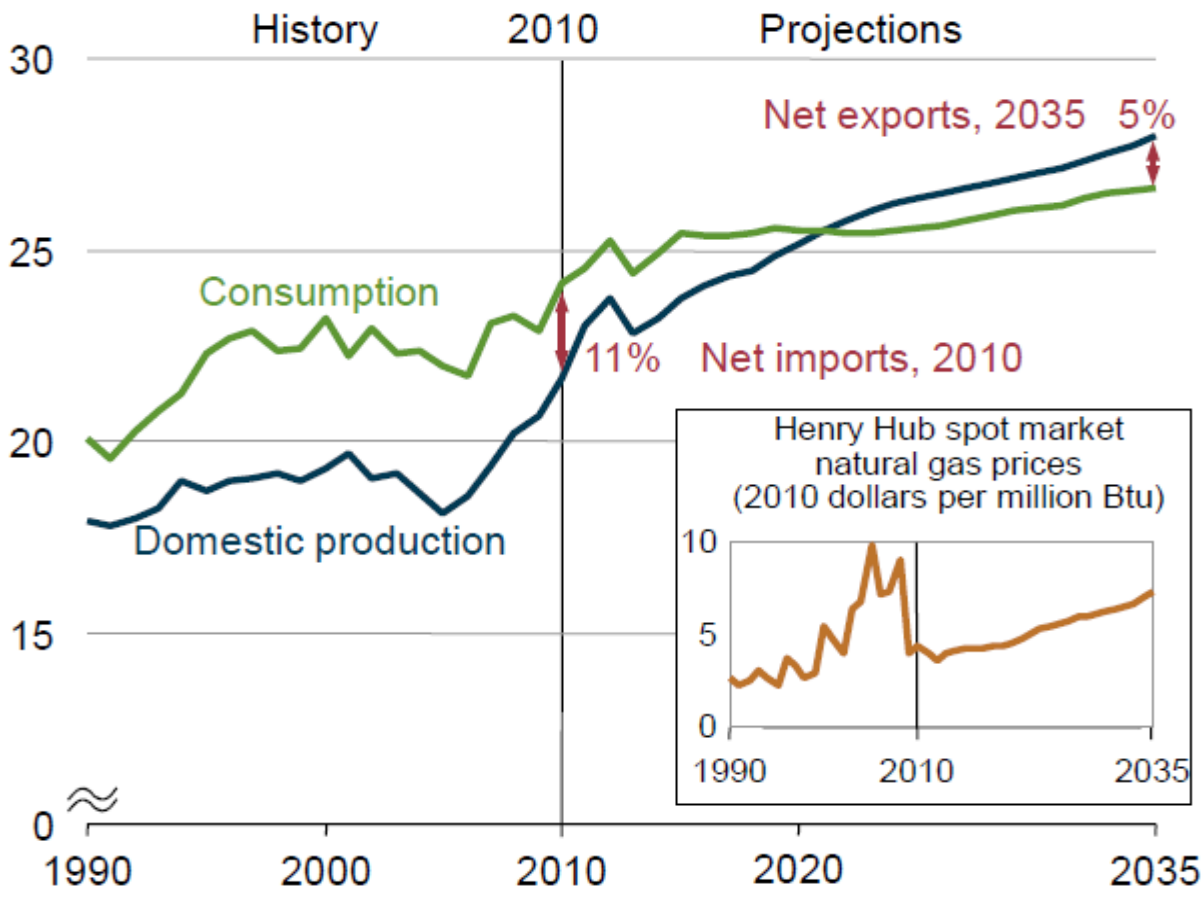
BROOKINGS MOUNTAIN WEST - UNLV

Challenges of US Energy Policy



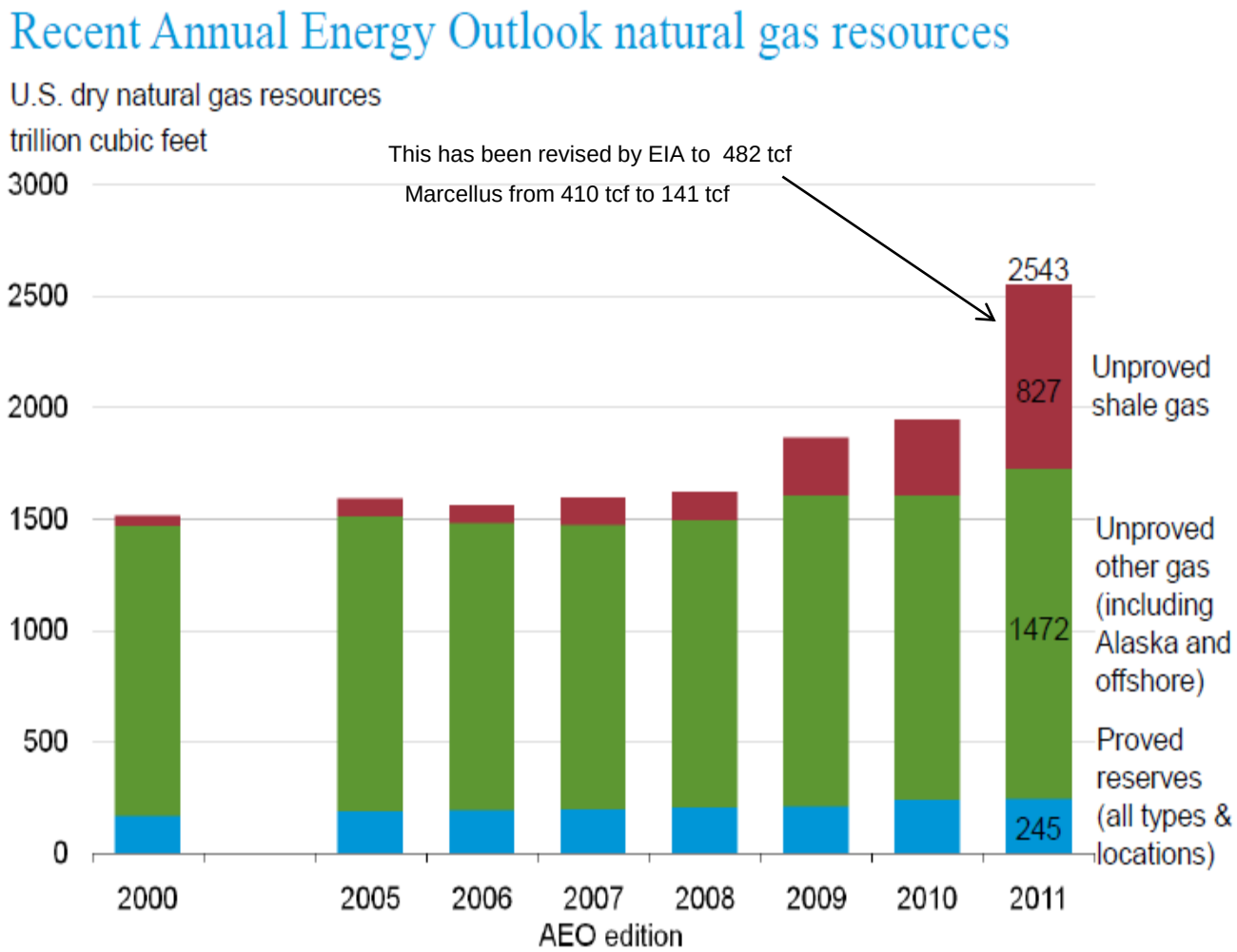
Natural Gas – RISING ROLE OF SHALE GAS

US Natural Gas Production, Consumption, Imports – 1990 -2035 (tcf)



Source: *US EIA Annual Energy Outlook*, June 2012

Enormous Shale Gas Resource (USG estimates)



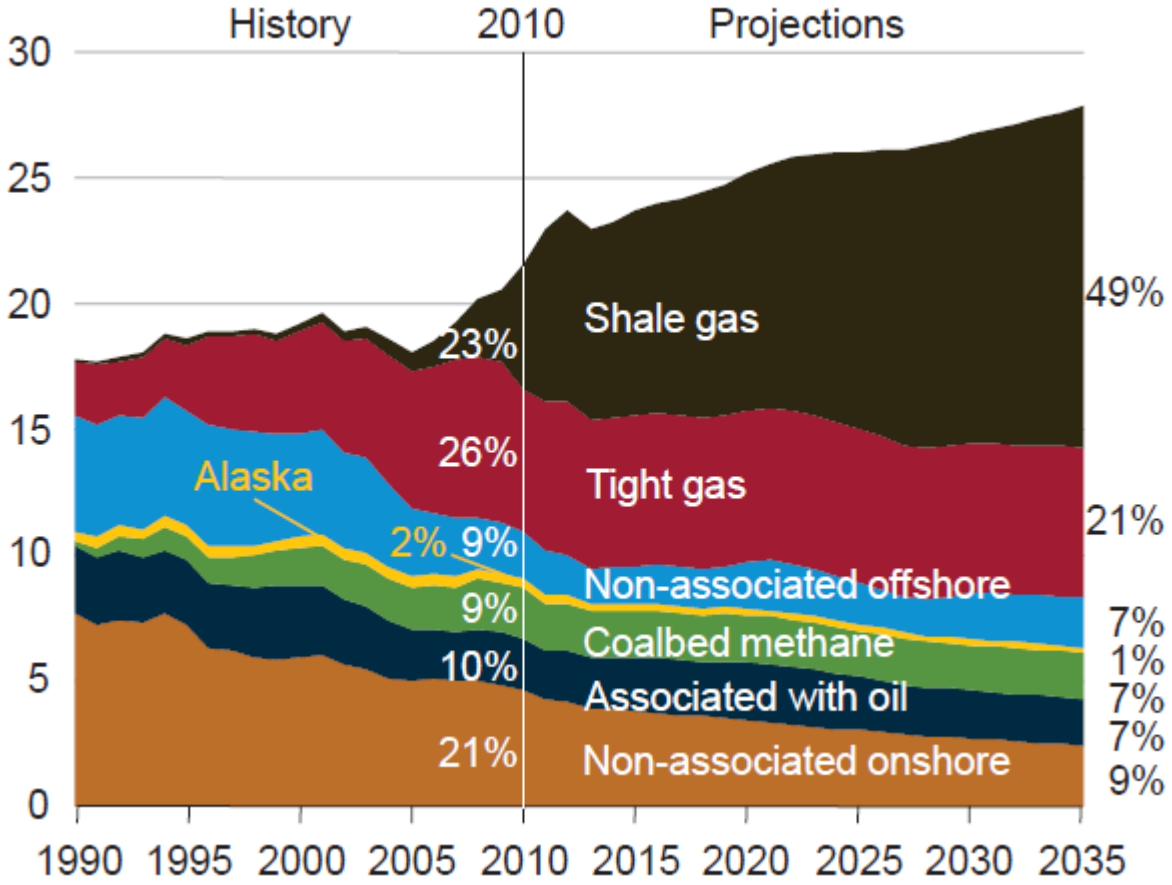
Source: EIA, Annual Energy Outlook 2011 and earlier editions

Most estimates of <u>total</u> range from 1,800 to 2,500 tcf

US current consumption: total of @ 23 Tcf (or 62 bcf/d)

Natural Gas – RISING ROLE OF SHALE GAS

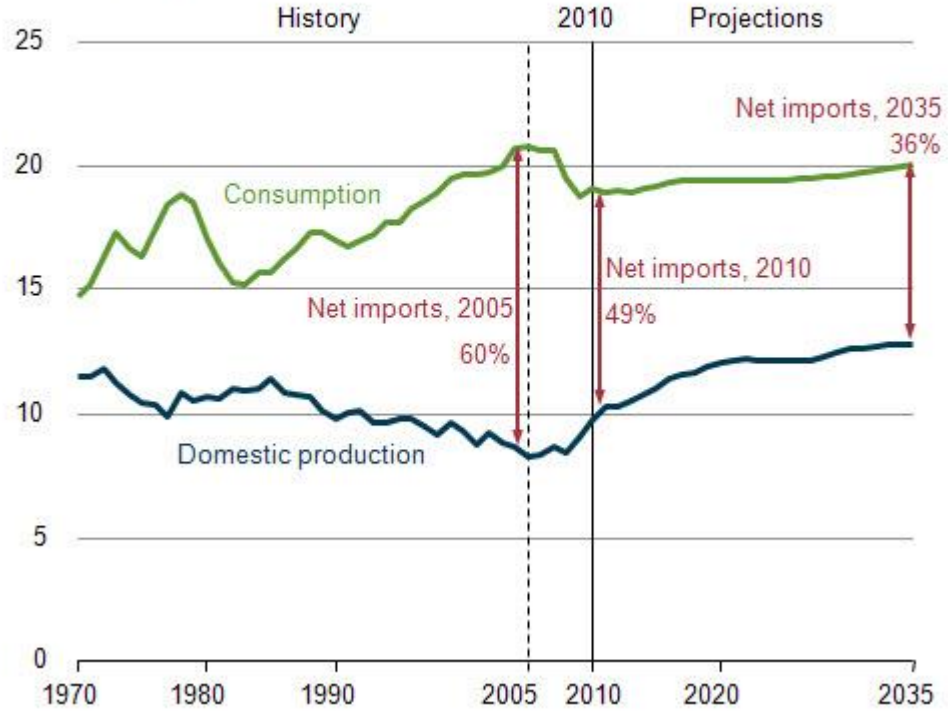
US NATURAL GAS PRODUCTION – 1990 -2035 (tcf)



Source: *US EIA 2012 Early Release*, Jan 2012

OIL: US Production Up - Imports Down

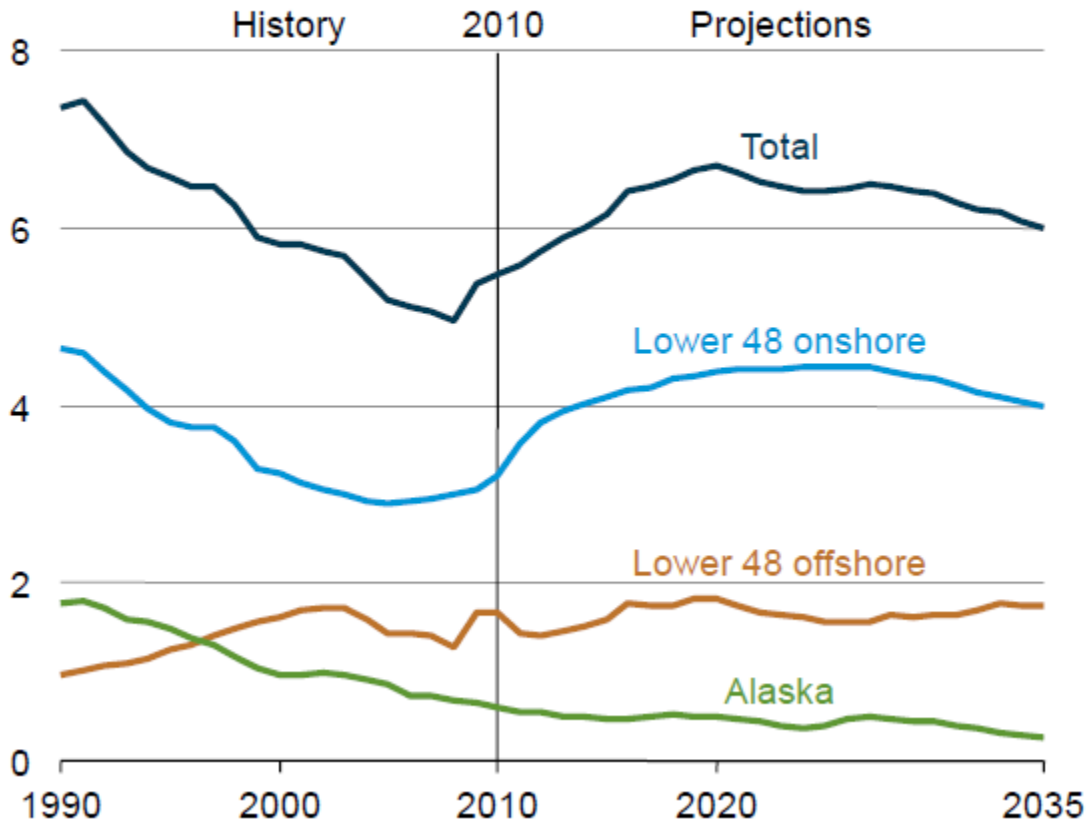
Figure 3. Total U.S. petroleum and other liquids production, consumption, and net imports, 1970-2035
(million barrels per day)



Source: US EIA

Projections of US Crude Oil Production

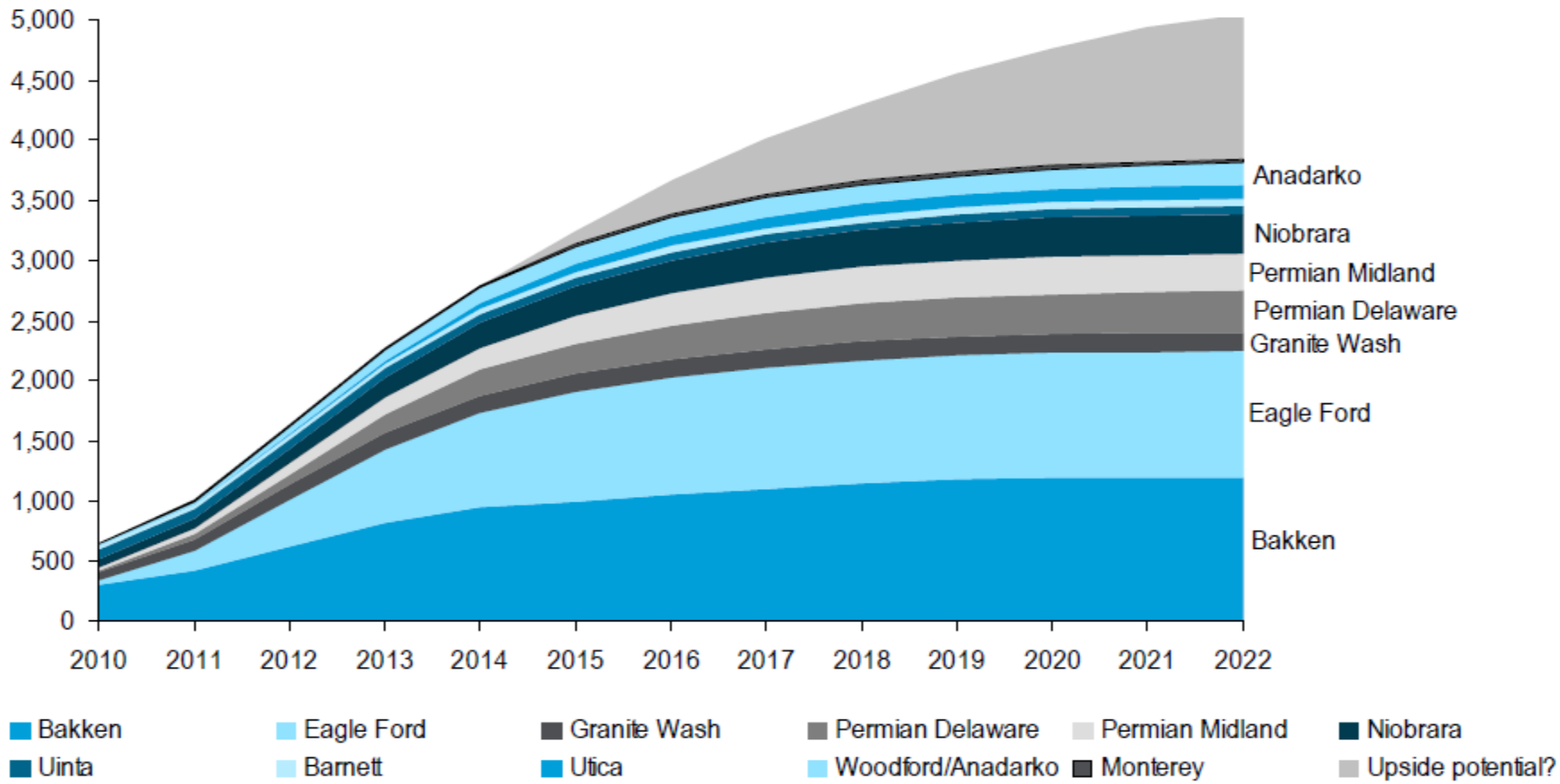
Figure 112. Domestic crude oil production by source, 1990-2035 (million barrels per day)



Source: *US EIA Annual Energy Outlook*, June 2012

CitiGroup: Big Potential for US Shale Liquids Production

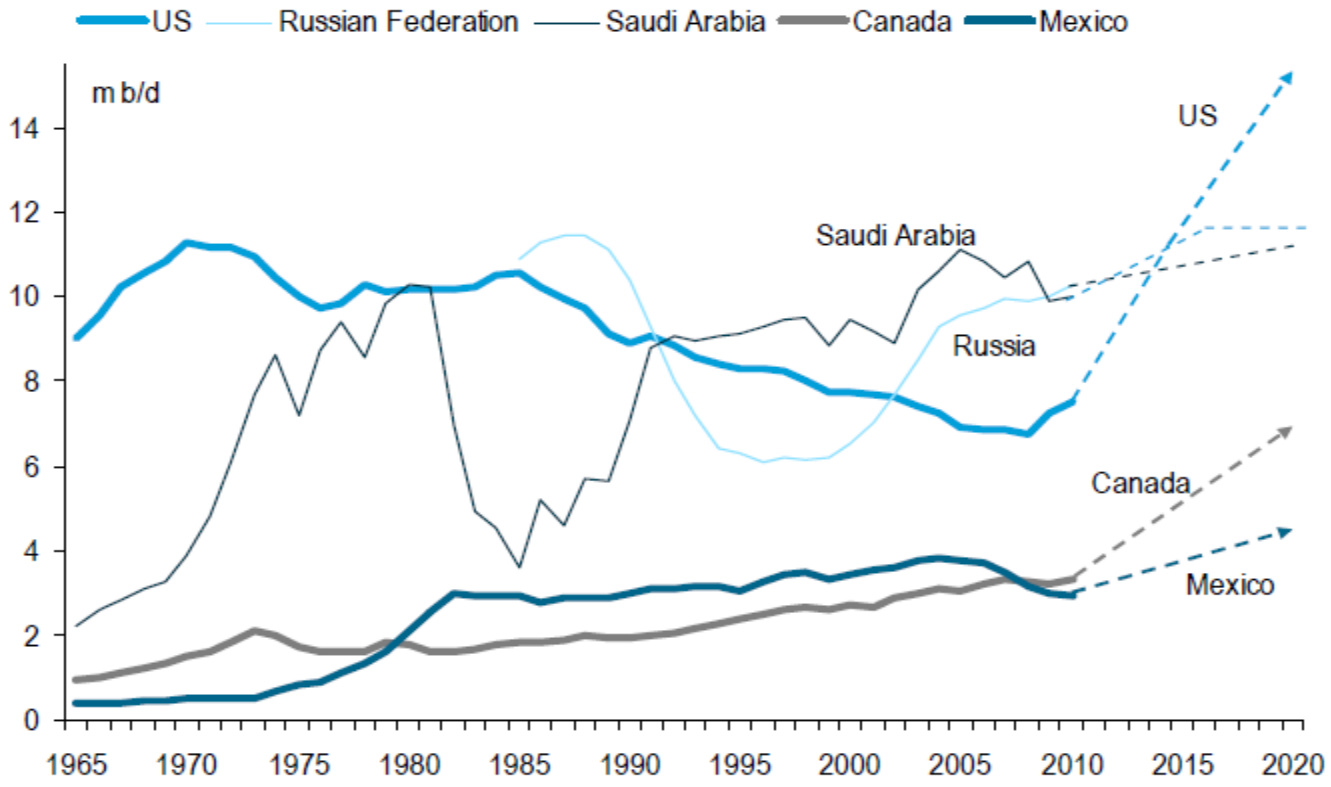
Figure 14. US shale liquids projections could see +3.8-m b/d of growth by 2020



Source: *CitiGroup Report, April 2012, page 17.*

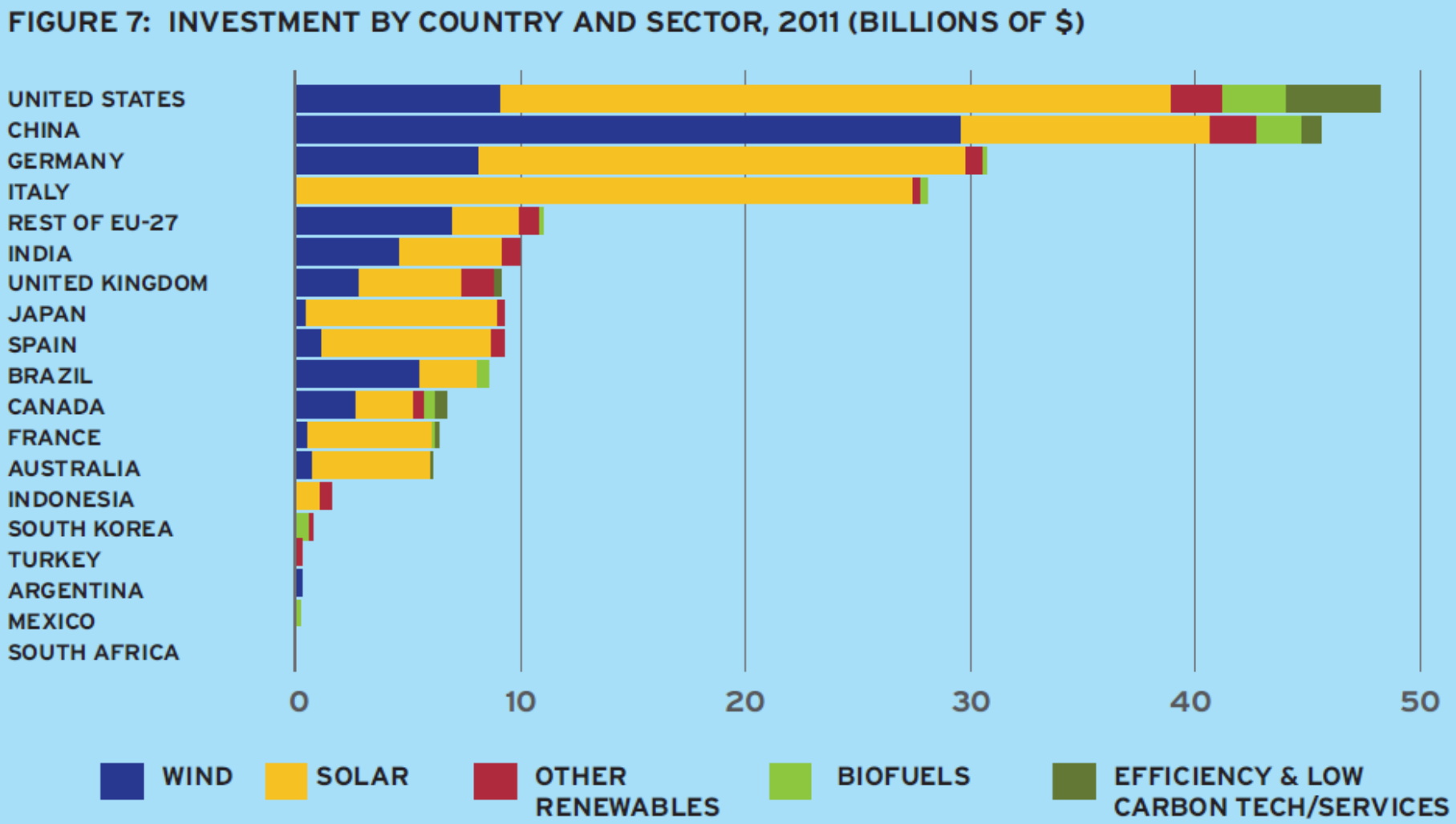
CitiGroup: US Production Could Overtake Saudi & Russia

Figure 8. US production could overtake Saudi Arabia and Russia's this decade



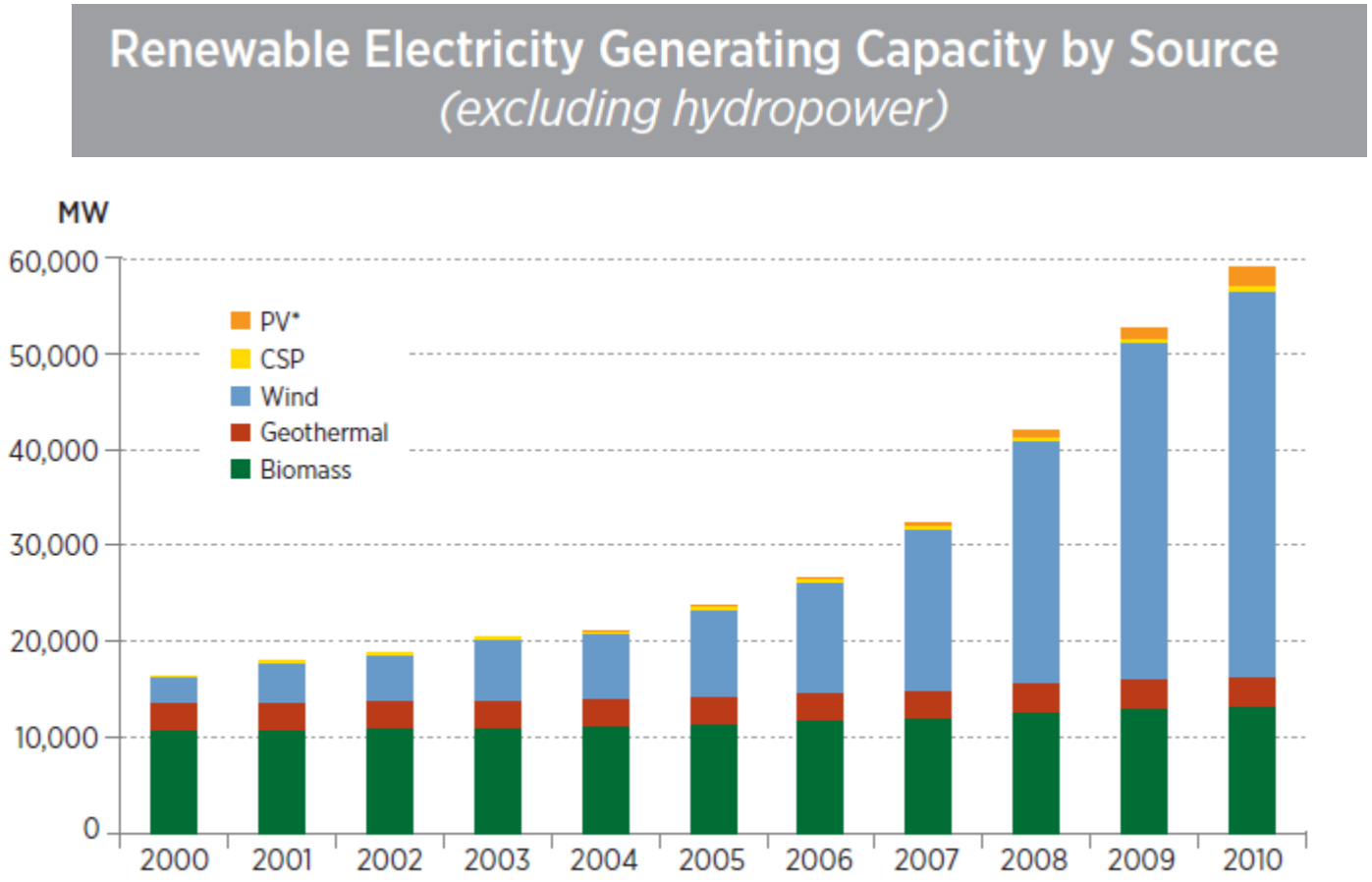
Source: *CitiGroup Report, April 2012, page 13*

PEW: US Leads Global Clean Energy Technology Market



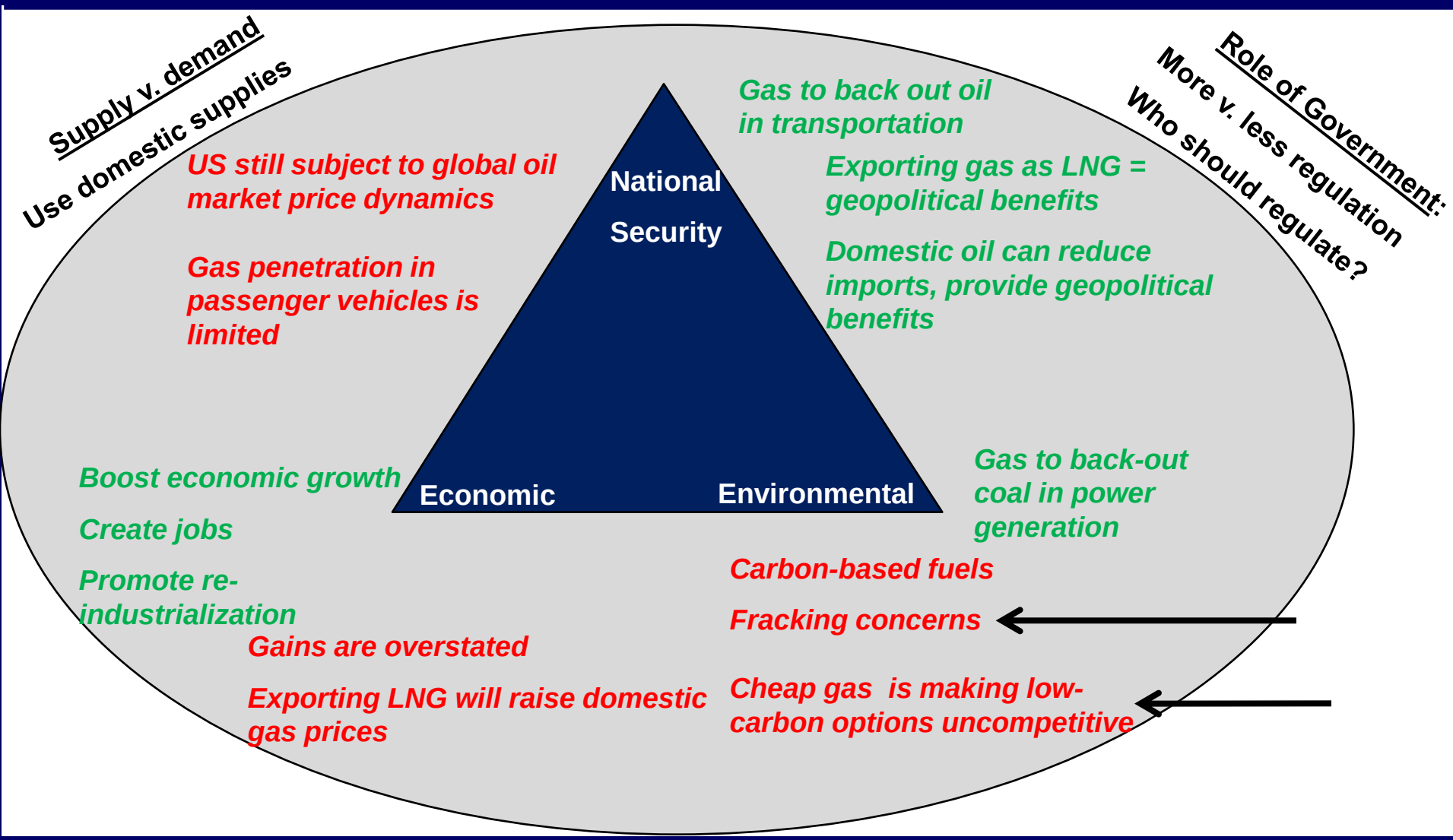
Source: Pew Charitable Trust, *Who's Winning the Clean Energy Race*, 2011 edition page 14

US Clean Energy Market



U.S. DOE, 2010 Renewable Energy Data Book (September 2011).

Shale Gas and Tight Oil



Shale Gas & Tight Oil – Environmental Concerns

NYC DEC Hearing - 11-30-11 (photo: J Banks)

Shale Gas & Tight Oil – Environmental Concerns

New York City – June 5, 2012 (photo: J Banks)

Shale Gas Environmental / Regulatory challenges

WATER

1. Quality
   - Surface water contamination
   - Aquifer contamination
2. Volume
   - Water use at scale
3. Disposal

GHG Emissions

- Natural gas leaks, venting, flaring

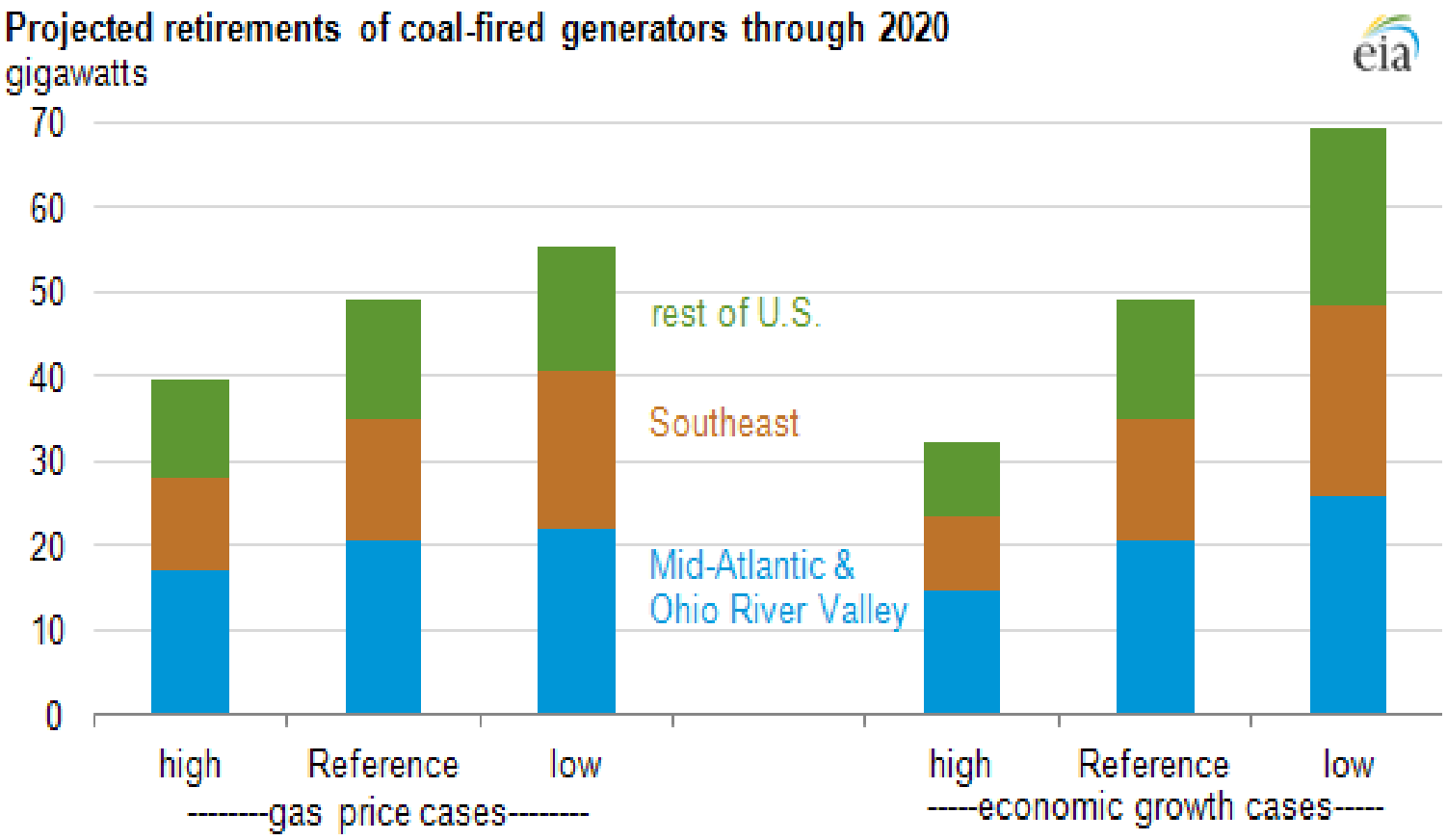
Pollution

- Air
- Noise
- Surface disruption

Other

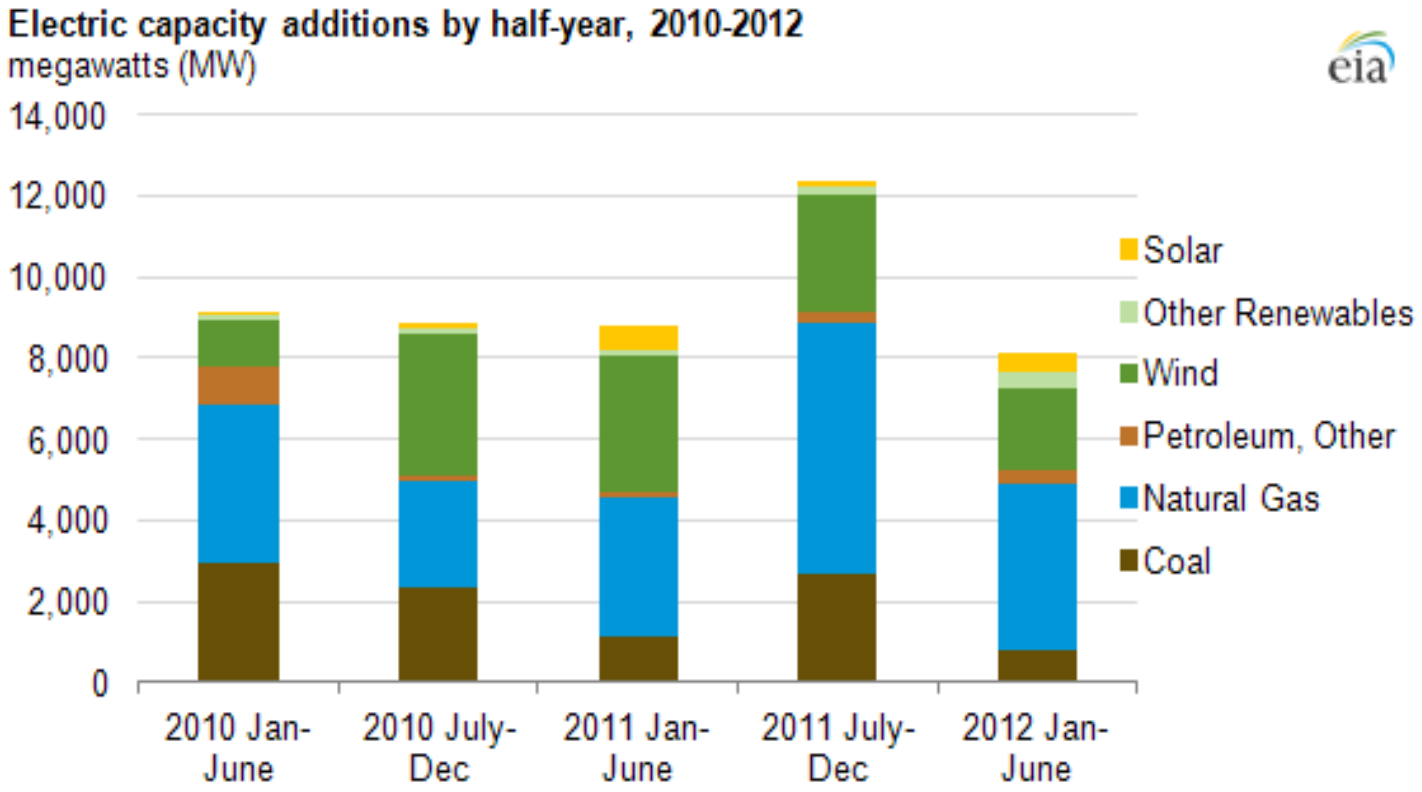
- Seismic

Coal Plant Retirement Projections



http://www.realclearenergy.org/charticles/2012/07/30/coal_retirements_2012-2016.html

CHANGING ECONOMICS OF POWER SECTOR



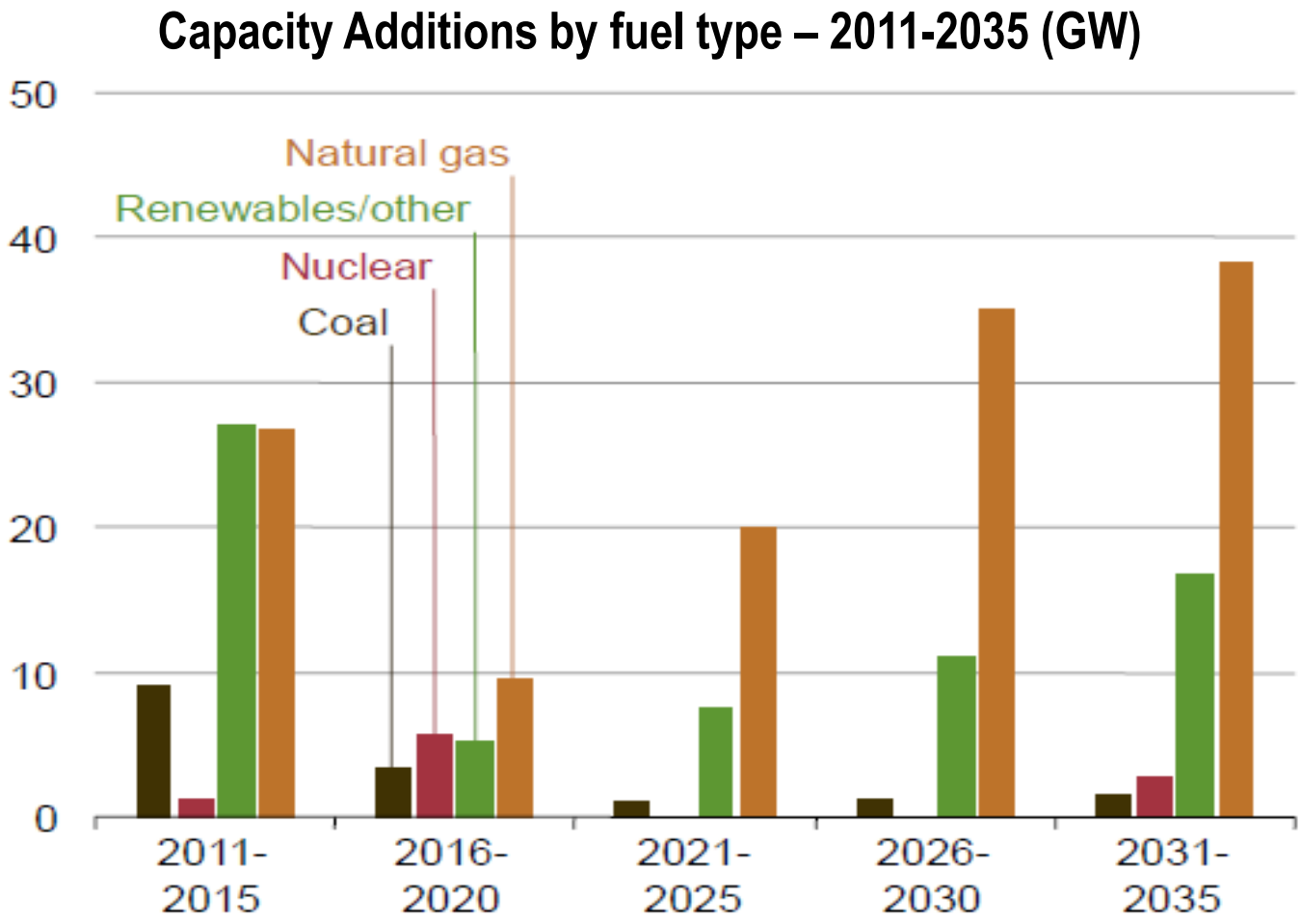
Source: US EIA. http://www.eia.gov/todayinenergy/detail.cfm?id=7610&src=email

Nuclear: Lack of Cost Competitiveness is Hurting

From **Jeffery Immelt, CEO of GE (July 2012)**

- ***It's just hard to justify nuclear, really hard. Gas is so cheap and at some point, really, economics rule. So I think some combination of gas, and either wind or solar … that's where we see most countries around the world going."***

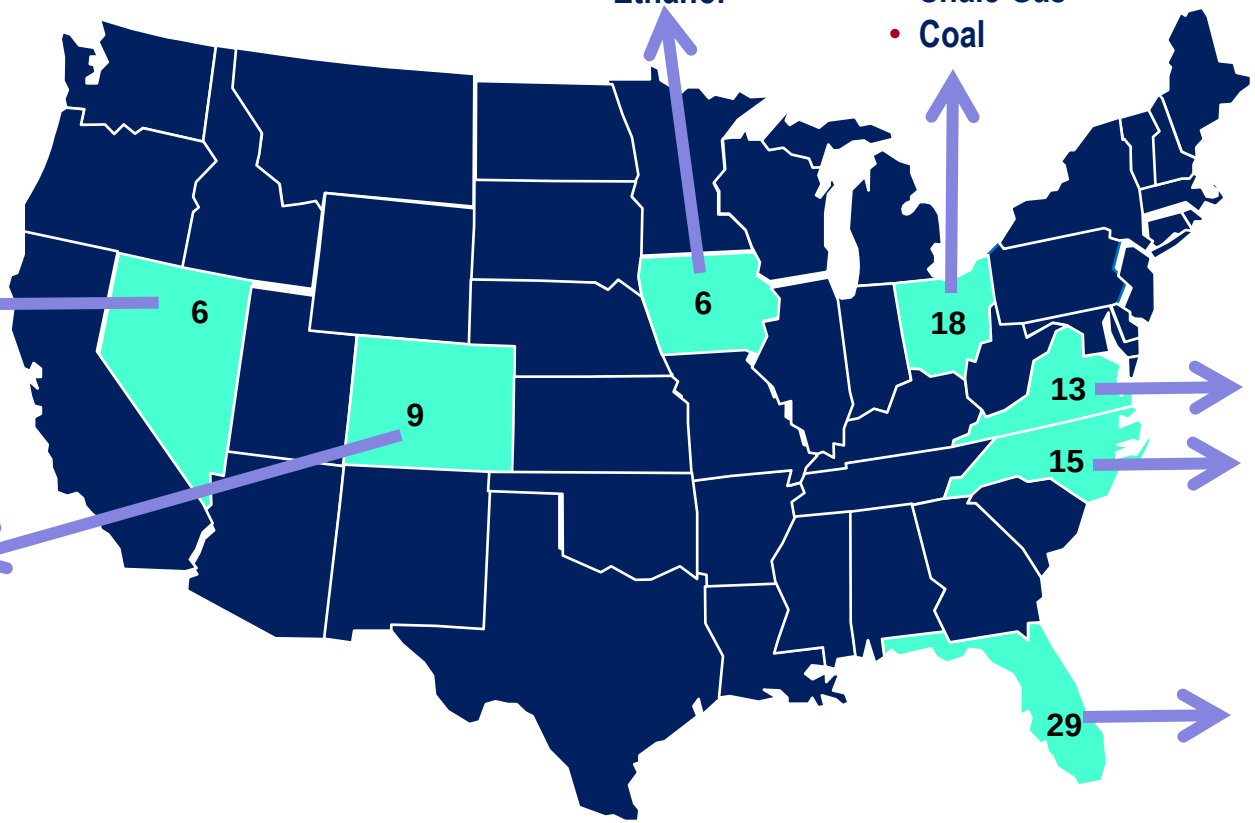
Electricity Generation Trends – 2010-2035



Source: *US EIA Annual Energy Outlook*, June 2012

Energy & Toss-Up States

TOTAL ELECTORAL COLLEGE VOTES SHOWN: 96



Iowa:
- Wind
- Ethanol

Ohio:
- Shale Gas
- Coal

Nevada:
- Nuclear
- Renewables

Colorado:
- Shale gas
- Wind

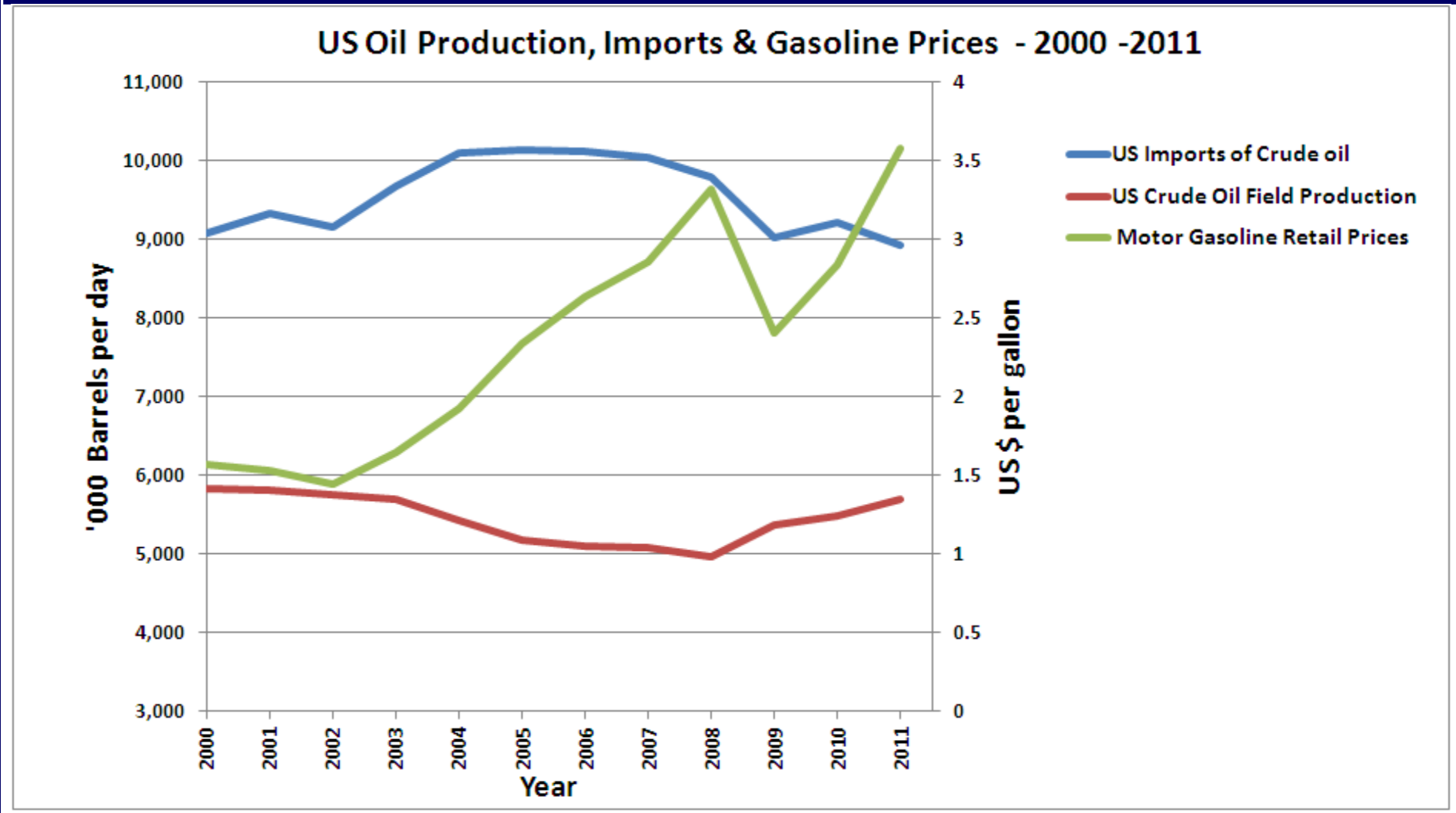
Virginia:
- Offshore drilling

North Carolina:
- Offshore drilling

Florida:
- Offshore drilling

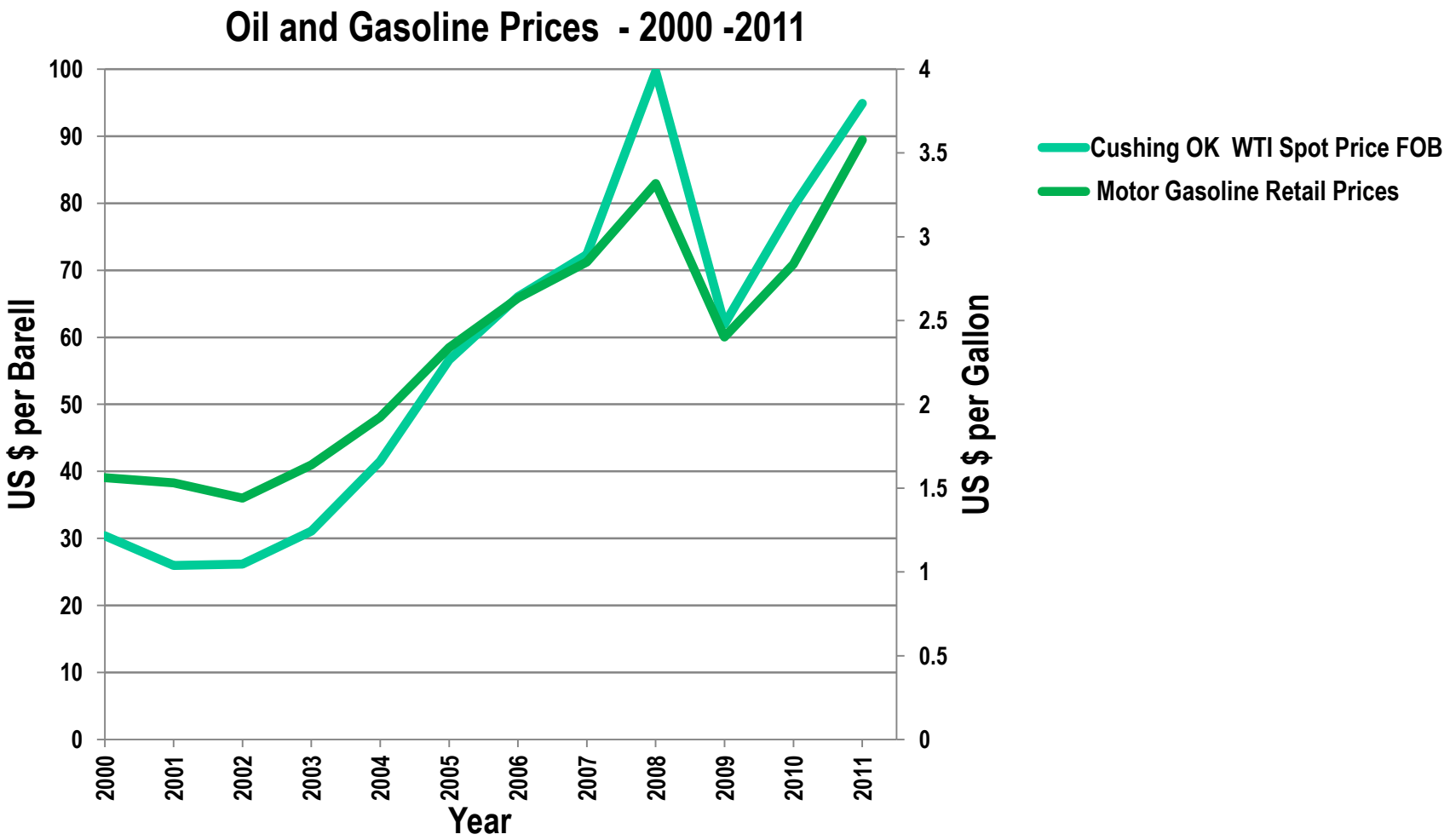
The End

OIL: US Production Up - Imports Down - Prices?



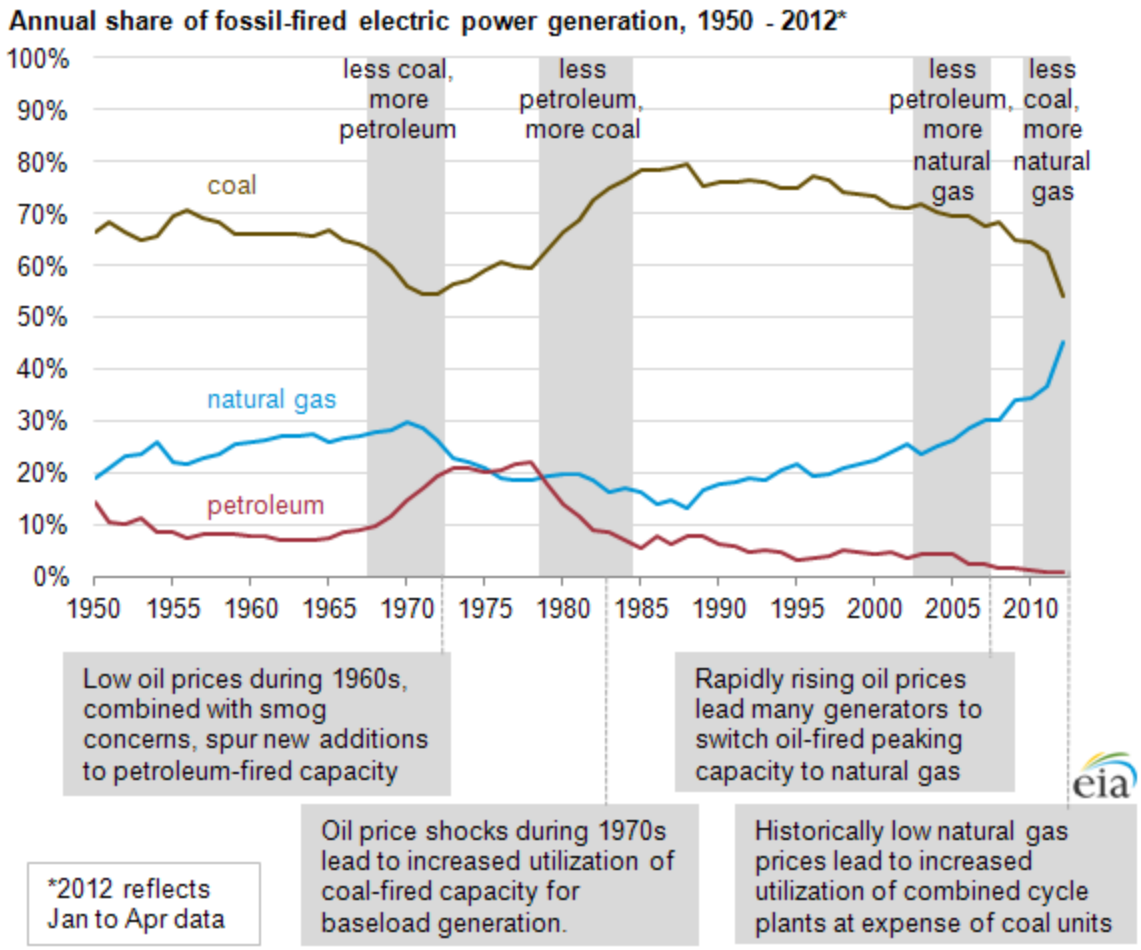
Source: US EIA

Crude Prices and Gasoline Prices



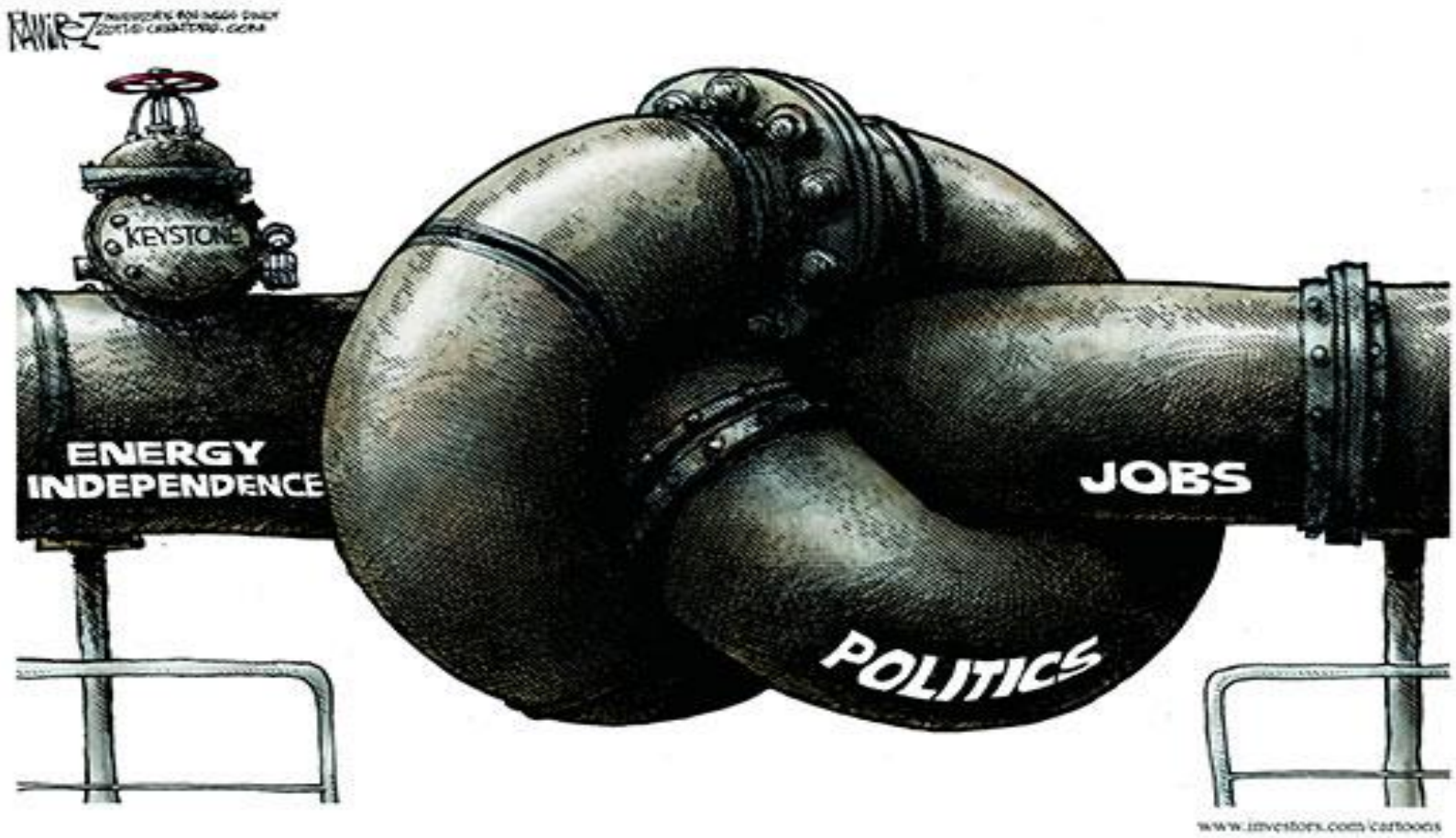
Source: US EIA

CHANGING ECONOMICS OF POWER SECTOR

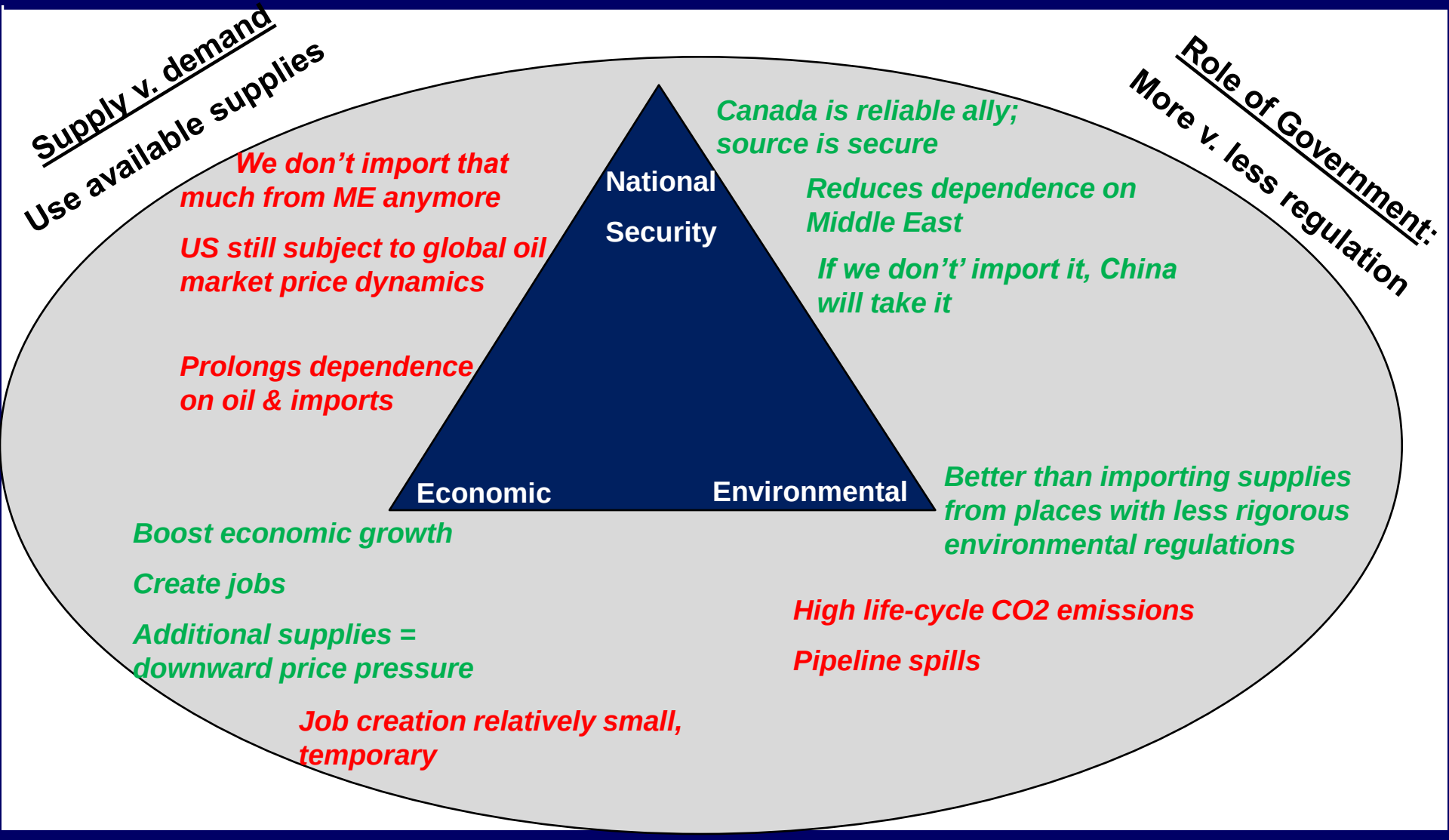


Source: US EIA. http://www.eia.gov/todayinenergy/detail.cfm?id=7090

Keystone XL Pipeline



Keystone XL


Supply v. demand
Use available supplies
Role of Government:
More v. less regulation
National
Security
Economic
Environmental
We don't import that much from ME anymore
US still subject to global oil market price dynamics
Prolongs dependence on oil & imports
Canada is reliable ally; source is secure
Reduces dependence on Middle East
If we don't' import it, China will take it
Boost economic growth
Create jobs
Additional supplies = downward price pressure
Job creation relatively small, temporary
Better than importing supplies from places with less rigorous environmental regulations
High life-cycle CO2 emissions
Pipeline spills