

BROOKINGS | QUALITY. INDEPENDENCE. IMPACT.

# National Energy Security CIBO 33<sup>rd</sup> Annual Meeting

October 13, 2011

Kevin Massy  
Assistant Director, Energy Security Initiative  
The Brookings Institution

 Energy Security Initiative  
at BROOKINGS

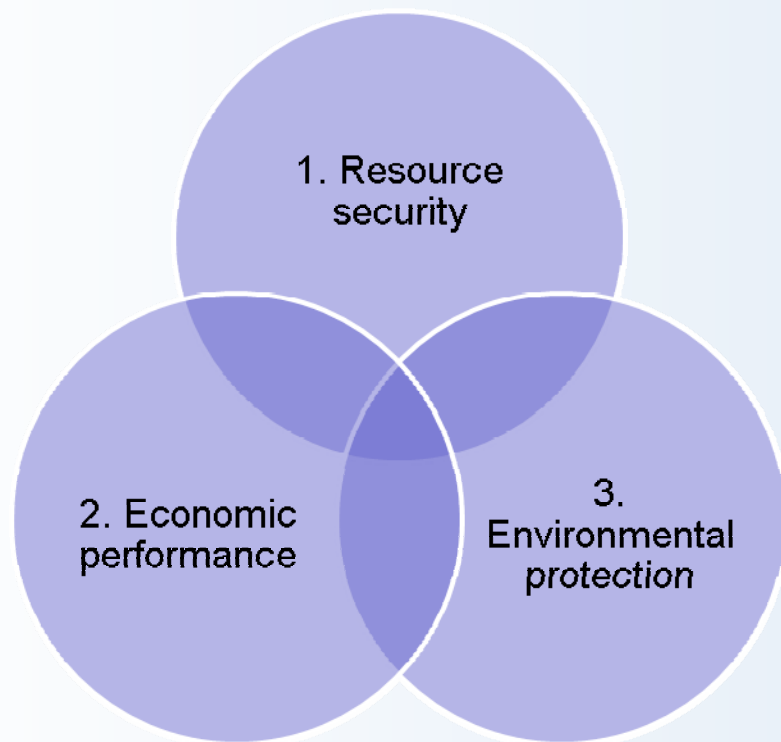
## Outline

1. What is Energy Security?
2. Energy Security and the US Energy Mix
3. US Energy Landscape
4. Global Energy Markets
5. Summary of Challenges and Options for Enhancing US Energy Security

## What is energy security?

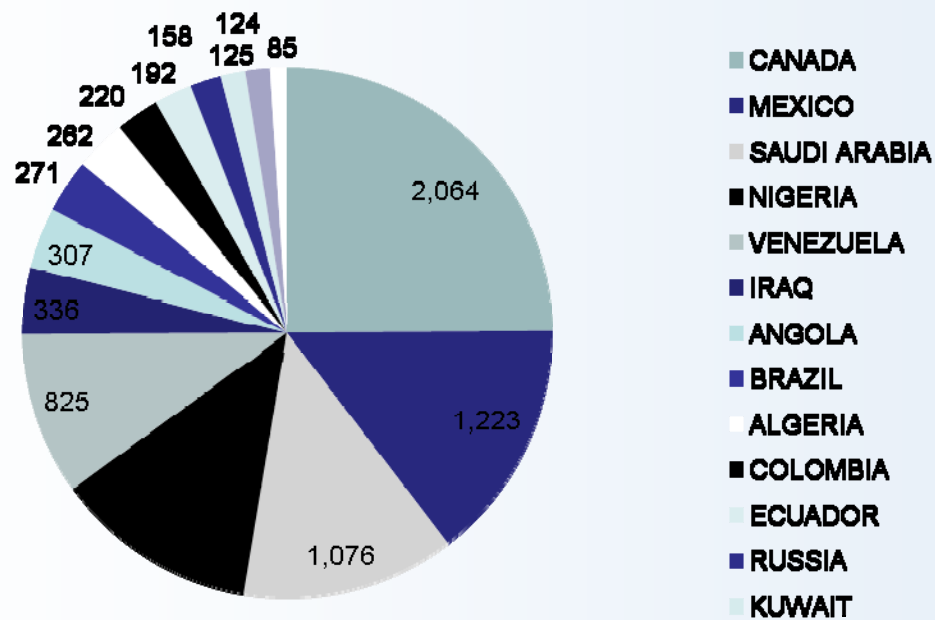
“Sustainable access to requisite volumes of energy at affordable prices”

# The components of energy security



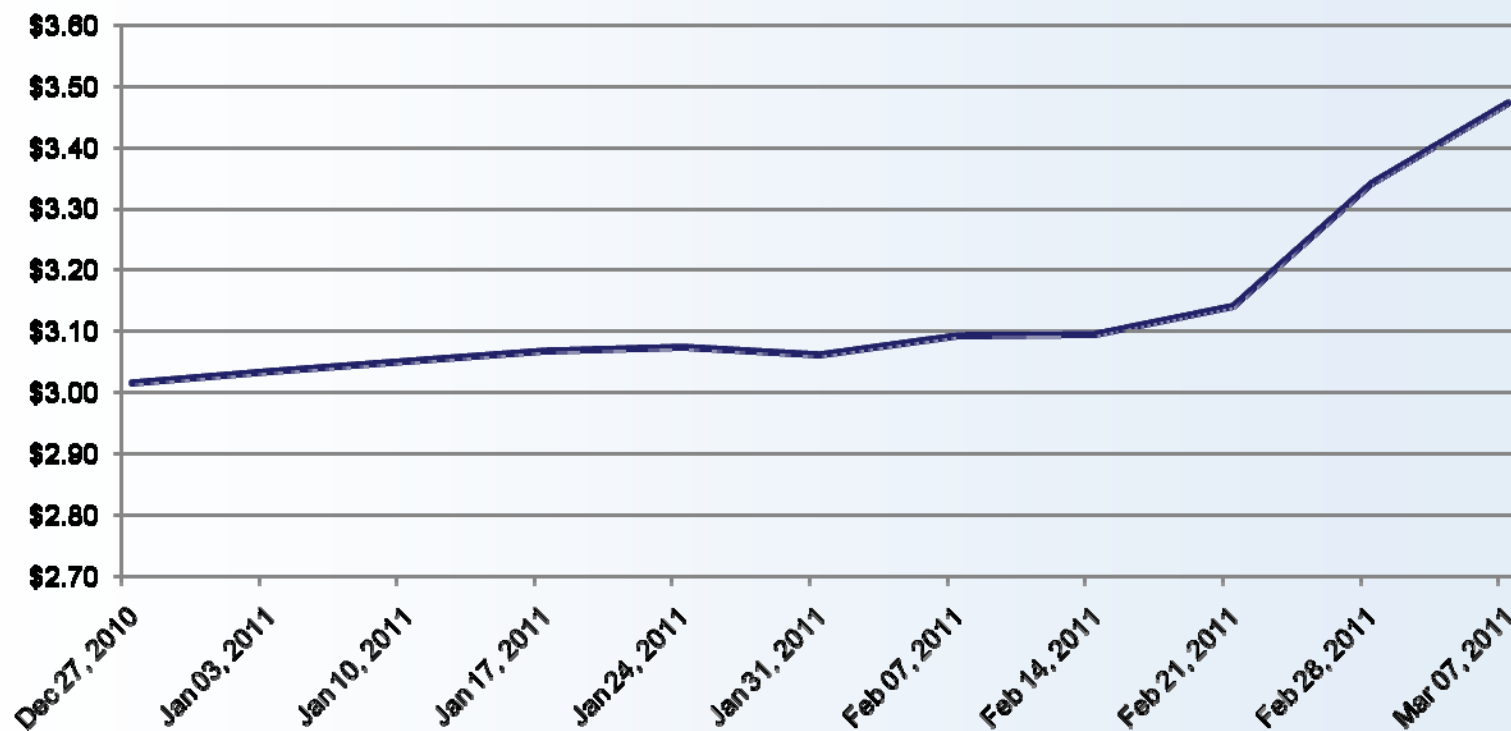
# US “energy independence” is a myth

US crude oil imports (kbpd) by country



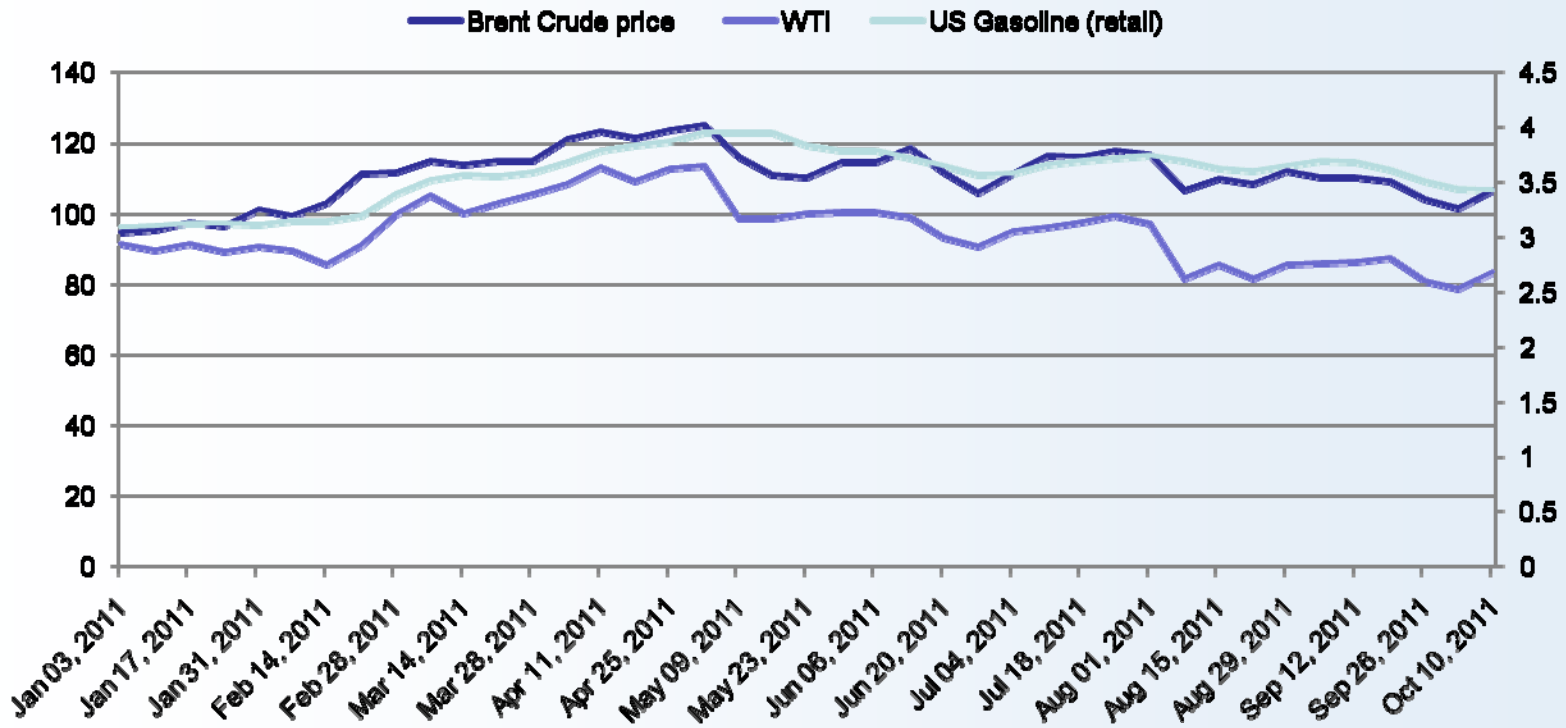
Source: EIA

## Local effects of a global oil market



Source: EIA/ BP

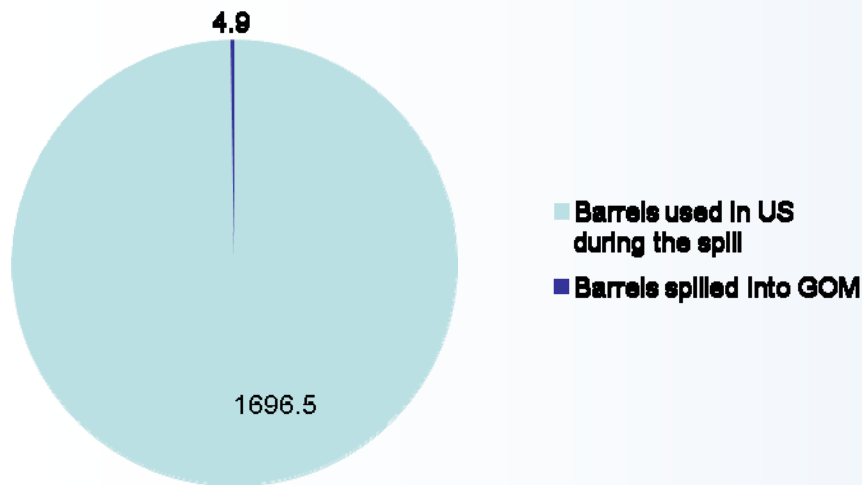
# Local effects of a global oil market



Source: EIA/ BP

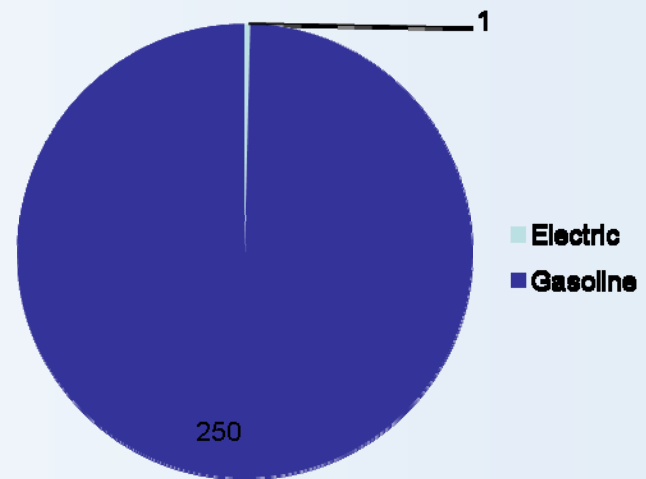
# US reliance on oil to remain high

US oil demand in context



Source: EIA/ Interior Dept

Oil demand in the US vehicle fleet



Source: Earth Policy Institute

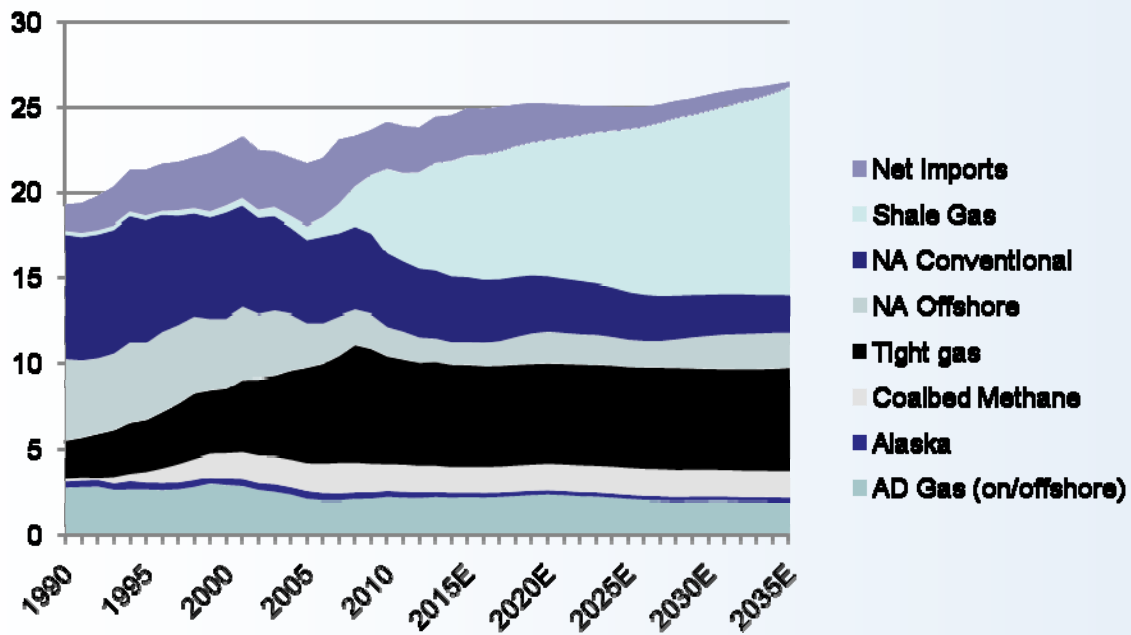


## Energy trade is increasing

- In 1990, two thirds of global oil was consumed in the country that produced it
- Today, over half of global oil (>40mbd) is traded internationally, most along maritime routes
- The United States, China, Japan, Europe and India all now rely on imports of oil to meet demand
- The stability of the world oil market depends upon uninterrupted production and the security of shipping lanes

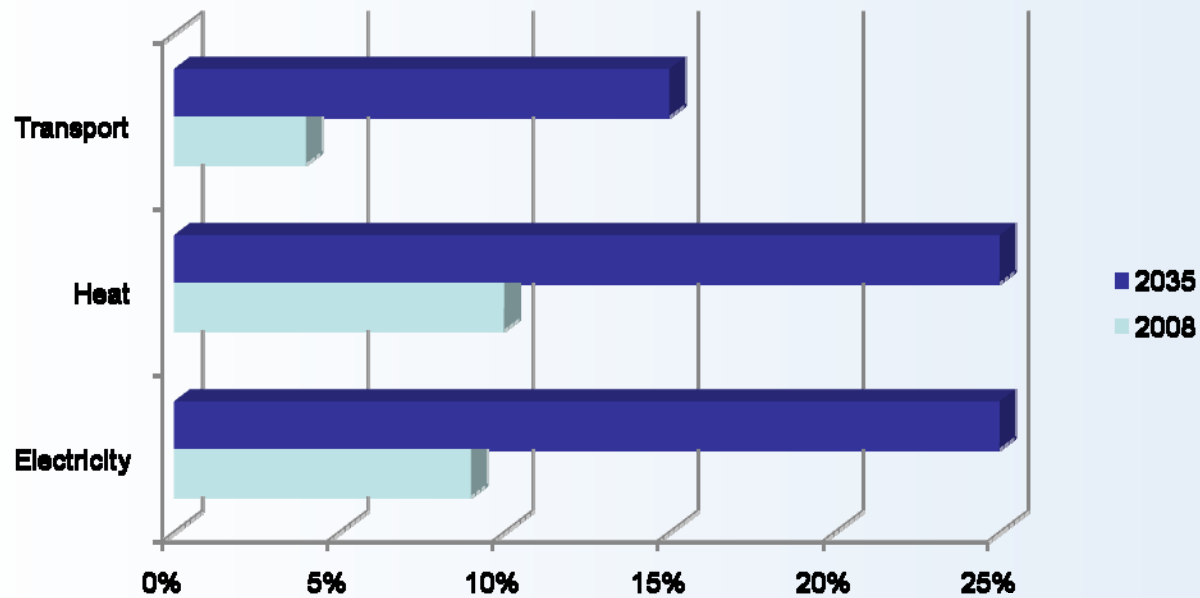
# Shale gas: a medium-term solution

US annual natural gas production (tcf) to 2035



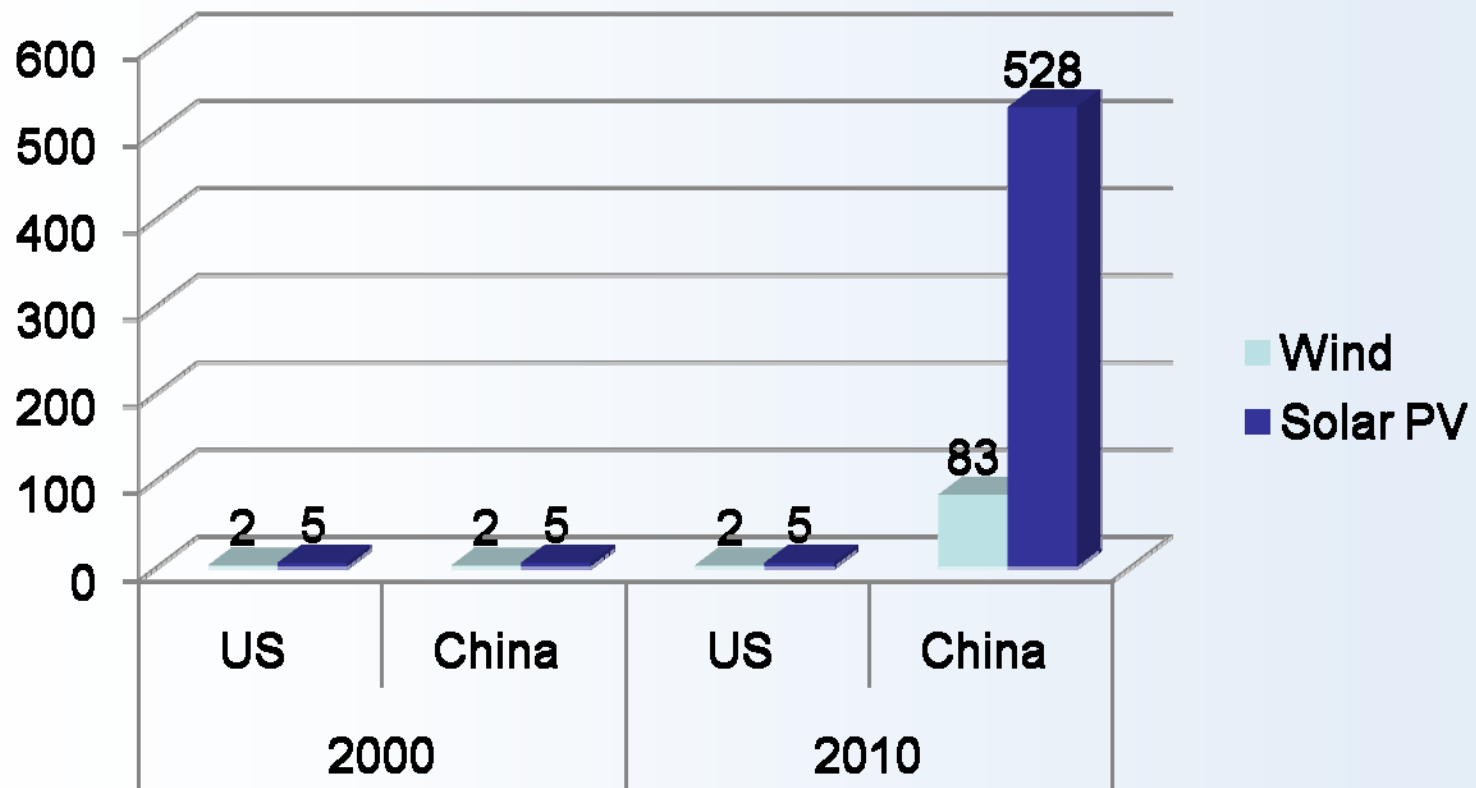
Source: EIA

## Renewable energy: a long-term solution



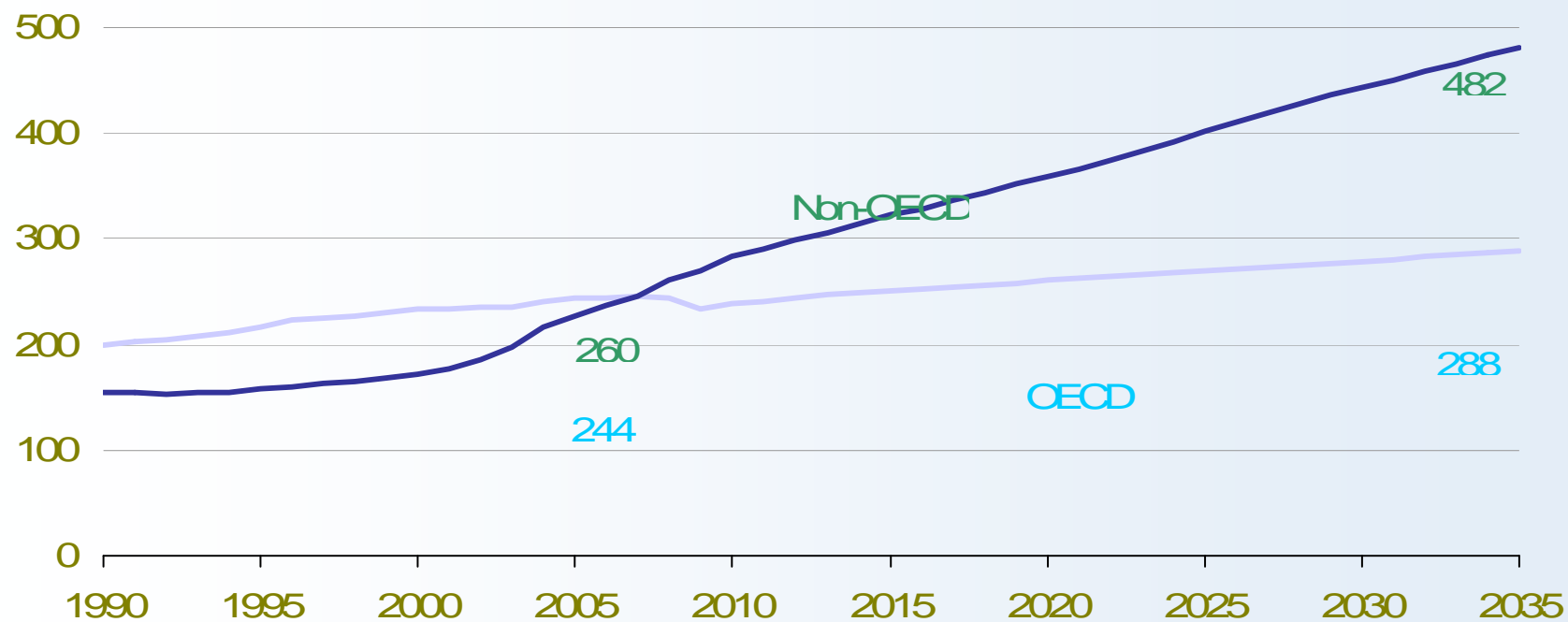
Source: IEA

# Renewables: the “Sputnik moment”



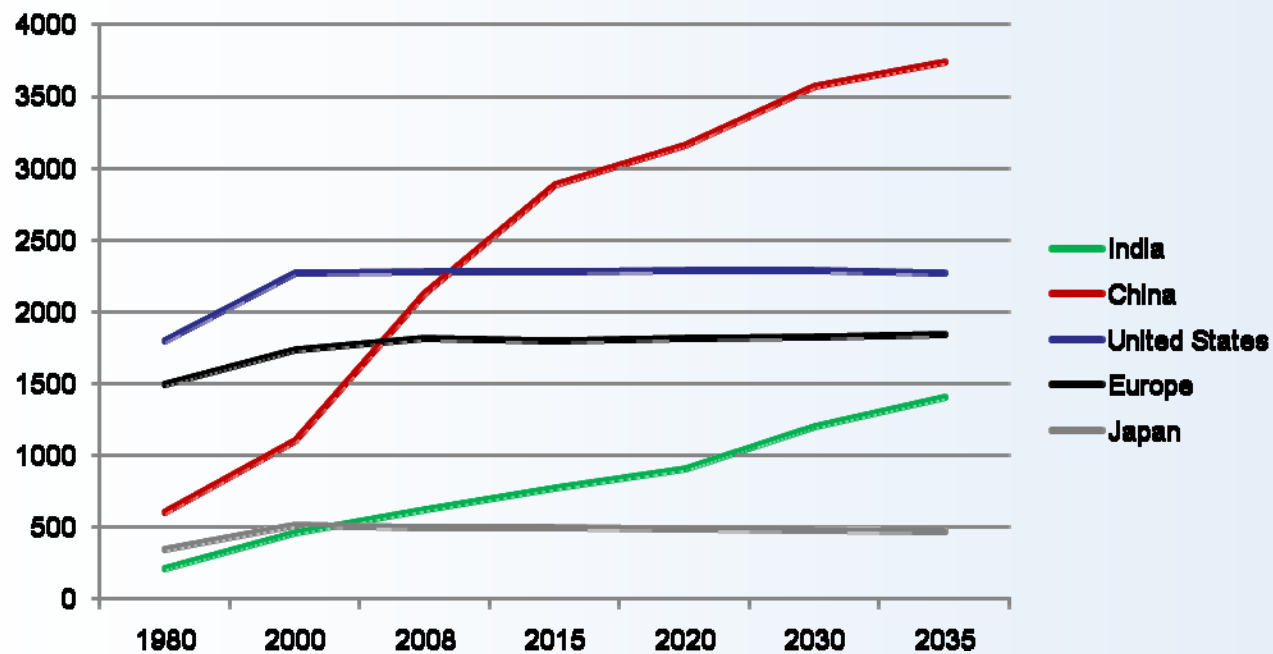
Source: American Council on Renewable Energy

## World energy consumption in the OECD and Non-OECD

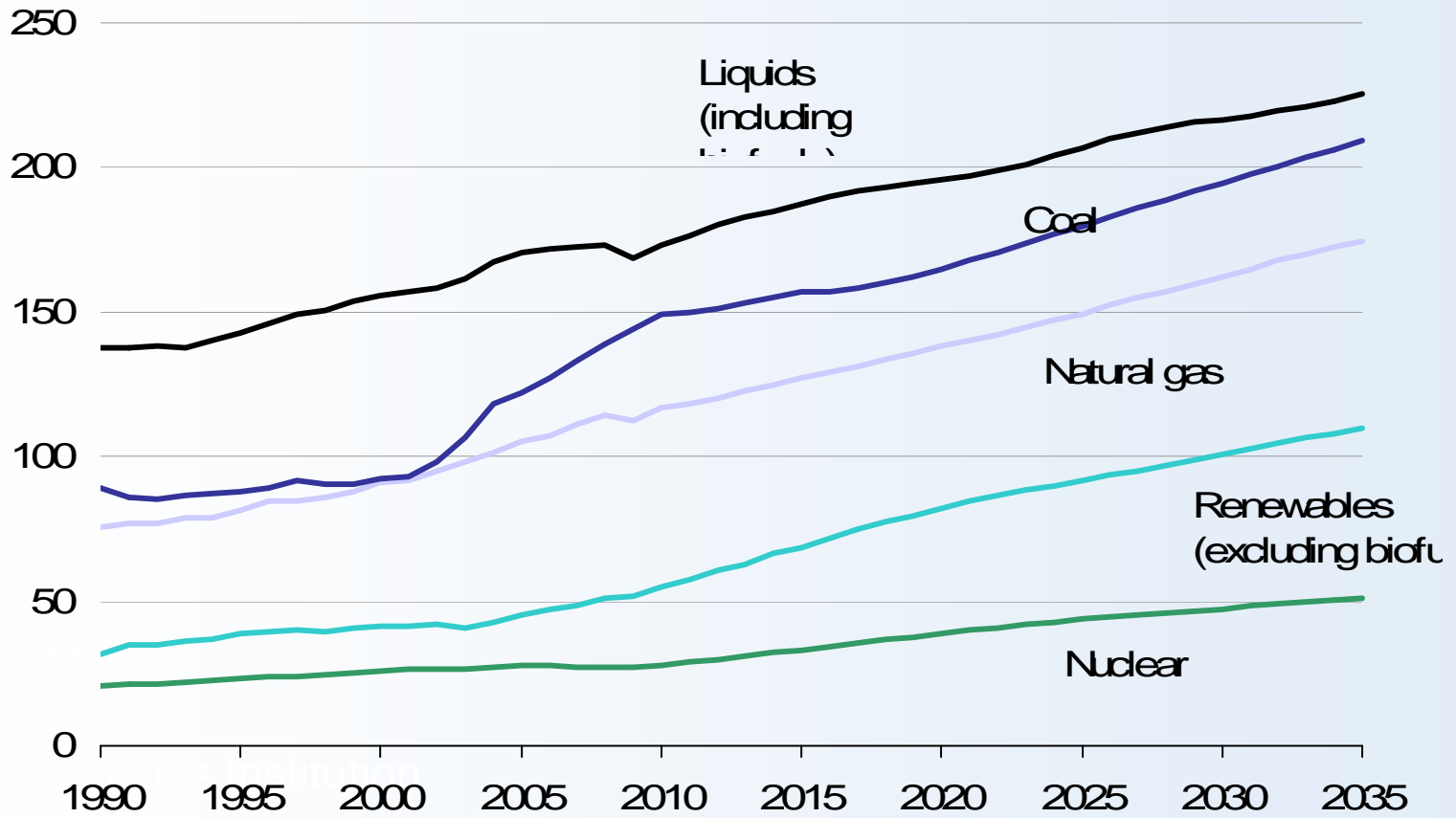


# Global energy competition is increasing

Global primary energy demand by region to 2035 (mtoe)

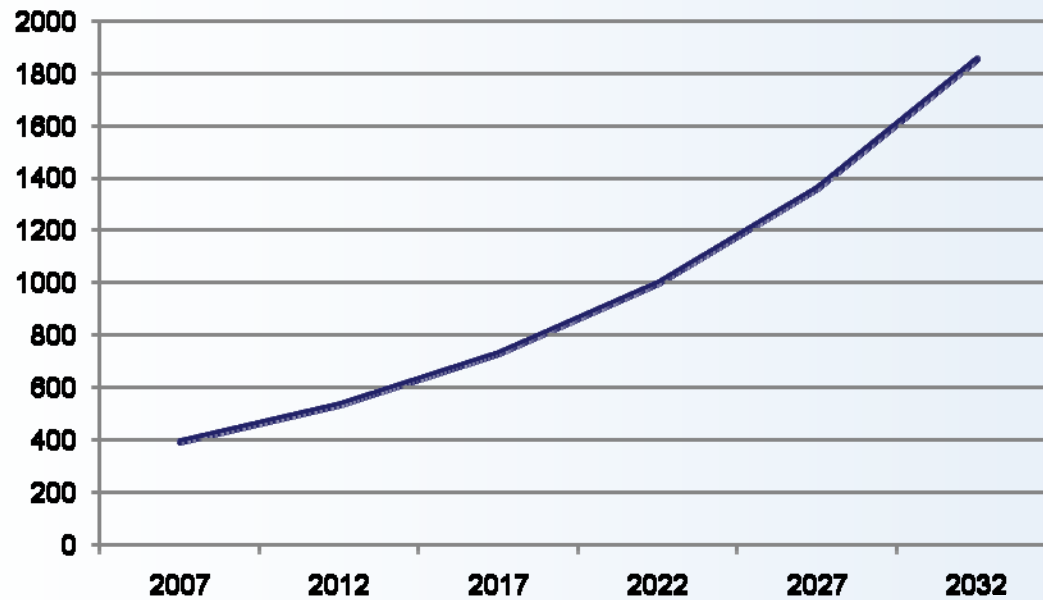


Source: International Energy Agency



# Energy demand in India

Indian Energy Demand to 2032 (mtoe)

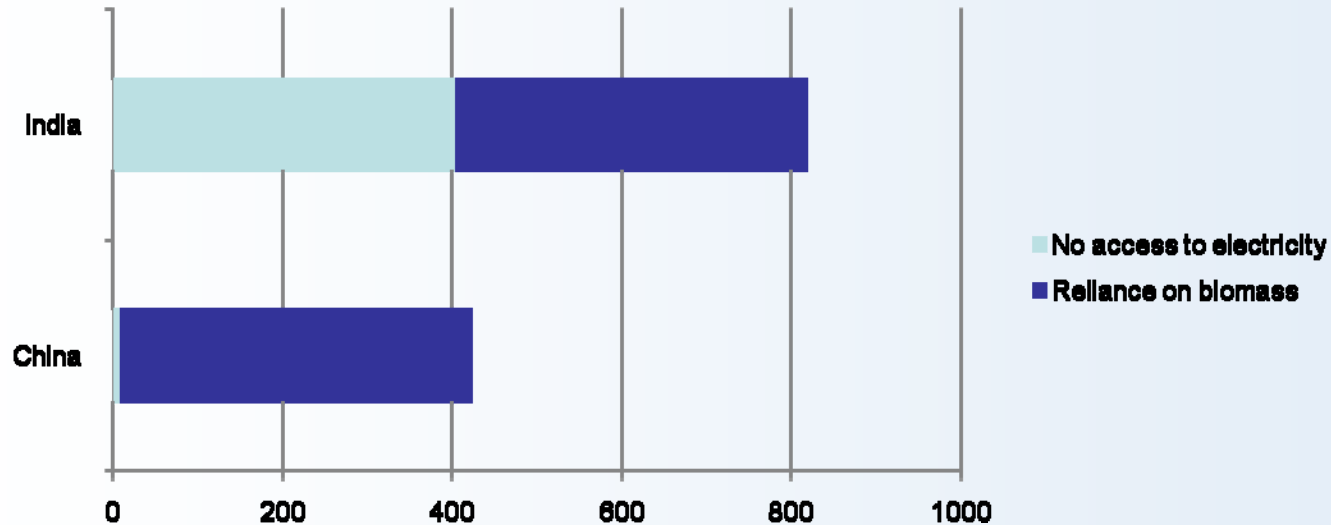


Source: GoI Integrated Energy Plan



## Energy poverty in Asia

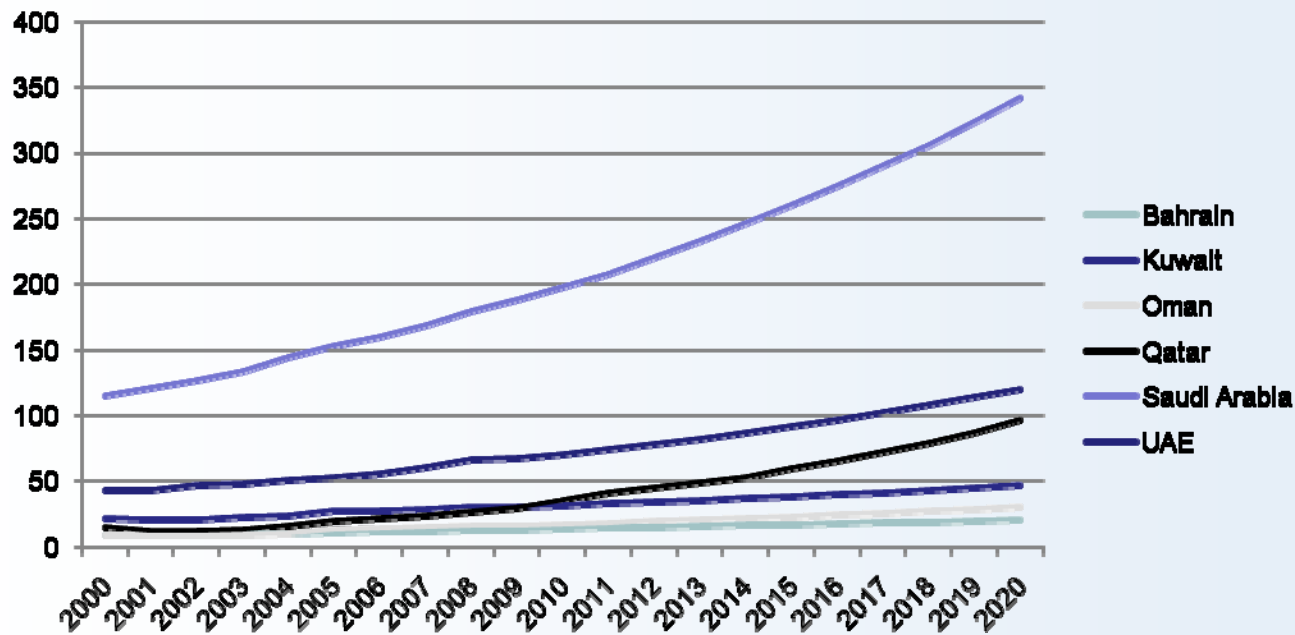
Rates of Electrification and Energy Access in India and China (million people)



Source: International Energy Agency

# Energy demand in the Middle East

GCC Energy Demand to 2020 (mtoe)



Source: Economist Intelligence Unit

## Energy security challenges for the US

- Increasing competition for resources as Asia continues rapid development
- Continued dependency and “path” dependency on oil
- Rising prices and rising volatility in oil markets
- Potential drawdown of nuclear power in the industrialized world
- Risk to weak economies of higher energy costs
- Direct and indirect risks from climate change

# Measures to increase US energy security

## DOMESTIC

- Increased US production
- Support for technology development, especially low-carbon sources such as renewables/ CCS
- Efficiency and conservation

## INTERNATIONAL

- Maintenance of global energy trade framework
- Maintenance of stability in supplier countries
- Cooperation with rising energy consumer nations

## US role in emerging market energy security

- Financing
  - » Carbon markets
- Private-sector investment
  - » Operational efficiency
  - » Rationalization
- Technology transfer
- Education and policy design
  - » Regulatory frameworks
  - » Standards, codes, targets

Thank You

[kmassy@brookings.edu](mailto:kmassy@brookings.edu)

Massy

Brookings Institution