



The Rio Tinto - University of Queensland (UQ) Energy Exchange Series

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U.S. Energy Independence: Successes, Challenges & Implications for Global Energy Trends

- I. U.S. Energy Policy
- II. U.S. Energy Evolving Mix
- III. U.S. Energy Independence
- IV. Recent Industry Developments: Shale Oil & Gas
- V. Evolving Environmental & Climate Policy
- VI. Future Outlook

What Drives U.S. Energy Policy

- Americans Energy Use
- Historically: 1973 Arab Oil Embargo, Carter Administration
- Bush Administration: National Energy Plan
- Obama Administration:
 - 1st Term: Economy + Stimulus = Green Jobs
 - 2nd Term: Climate Policy Just Announced

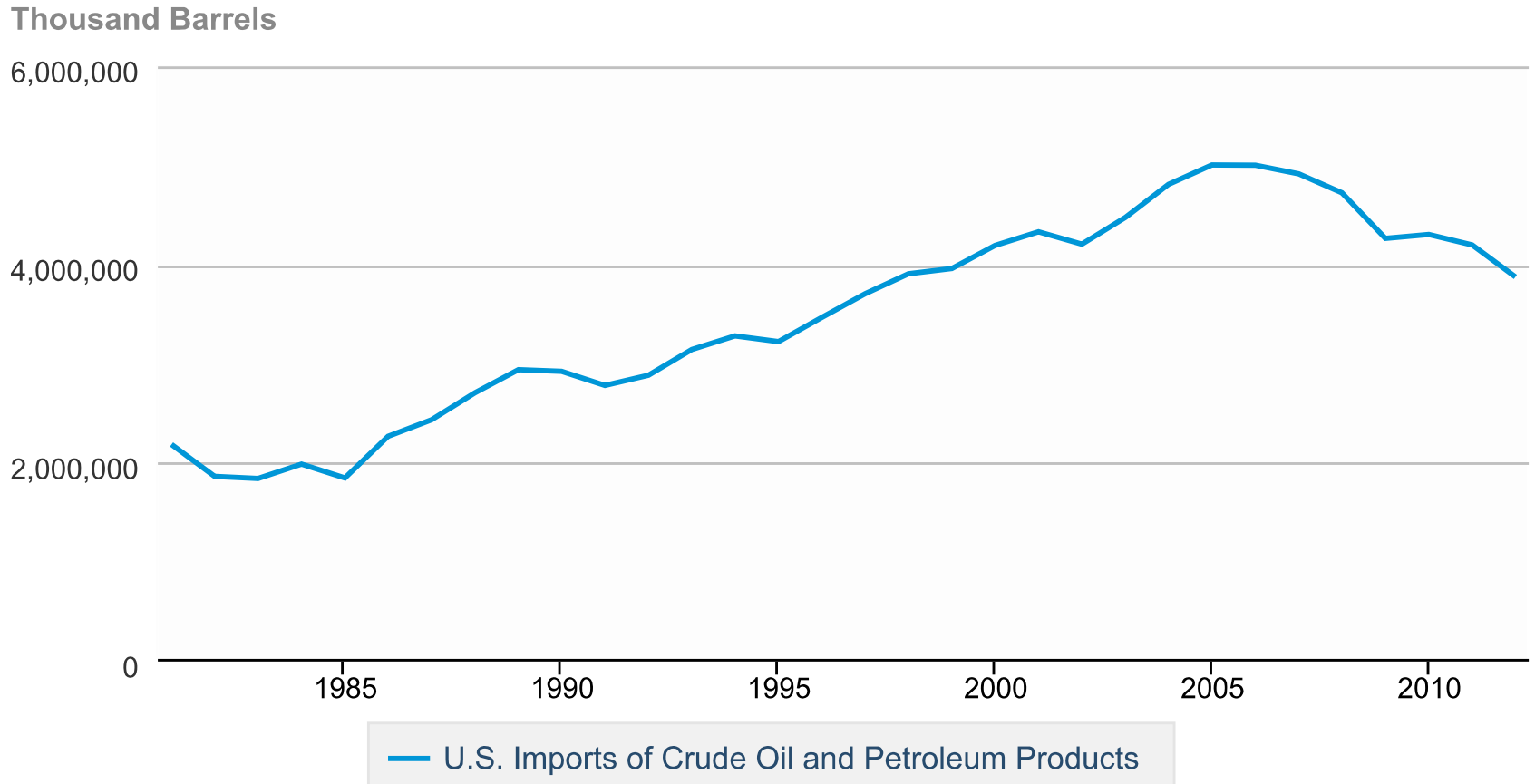
U.S. Energy Evolving Mix

- Traditional Sources: Petroleum, Natural Gas, Coal
- Renewables: Nuclear, Wind, Solar, Hydrogen/Hybrids,

U.S. Petroleum

- Petroleum:
 - U.S. Oil Imports: Historic and Projected: U.S. crude oil imports fell 13.2% to an 18-year low for May of 7.7 million bpd
 - Production Levels: EIA expects U.S. crude oil production to rise from an average of 6.5 million bpd in 2012 to 7.3 million bpd in 2013 and 8.1 million bpd in 2014. (Highest levels since 1992)
 - Driven Primarily by Fracking
 - U.S. As a Net Exporter by 2020: IEA

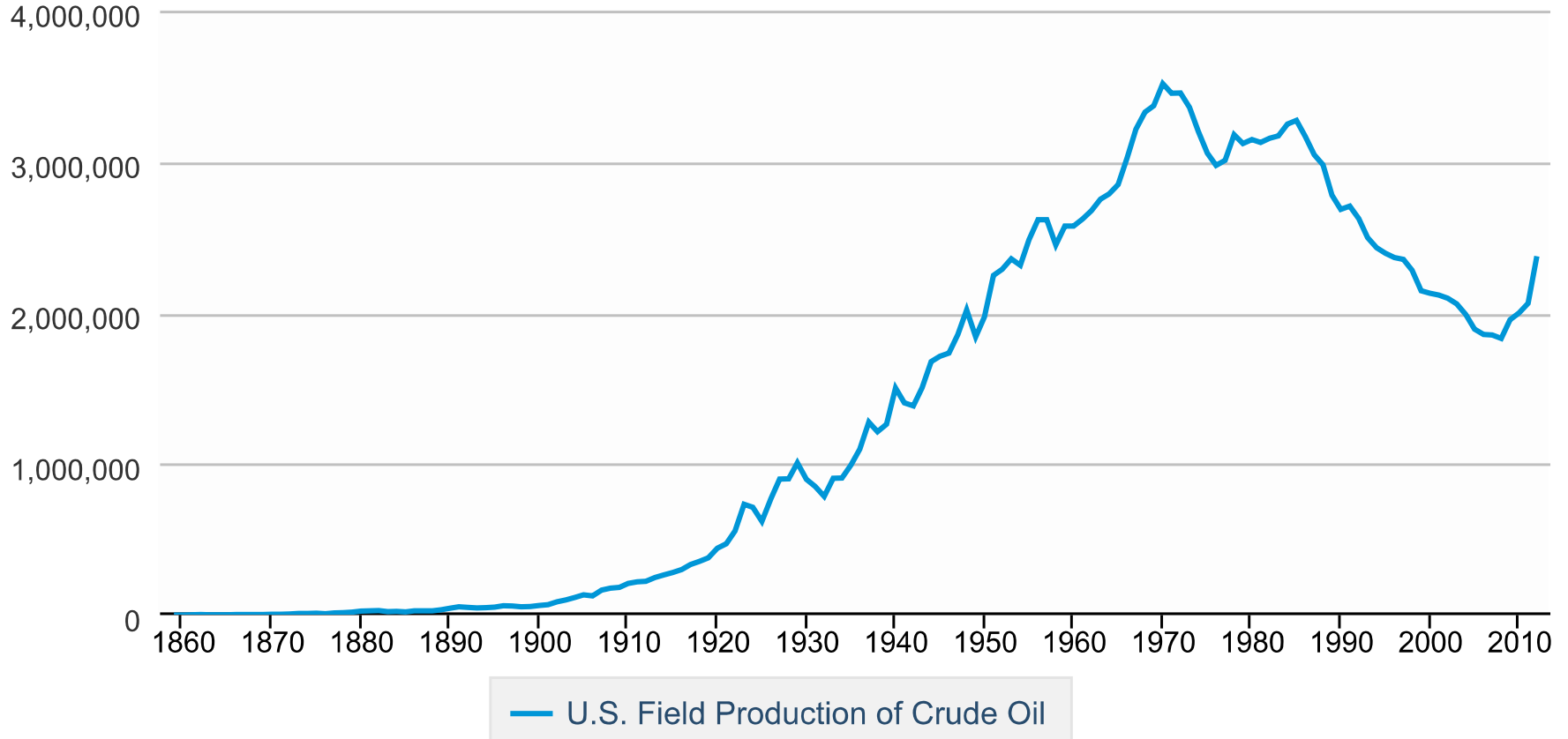
U.S. Oil Imports



Source: U.S. Energy Information Administration

U.S. Production Levels

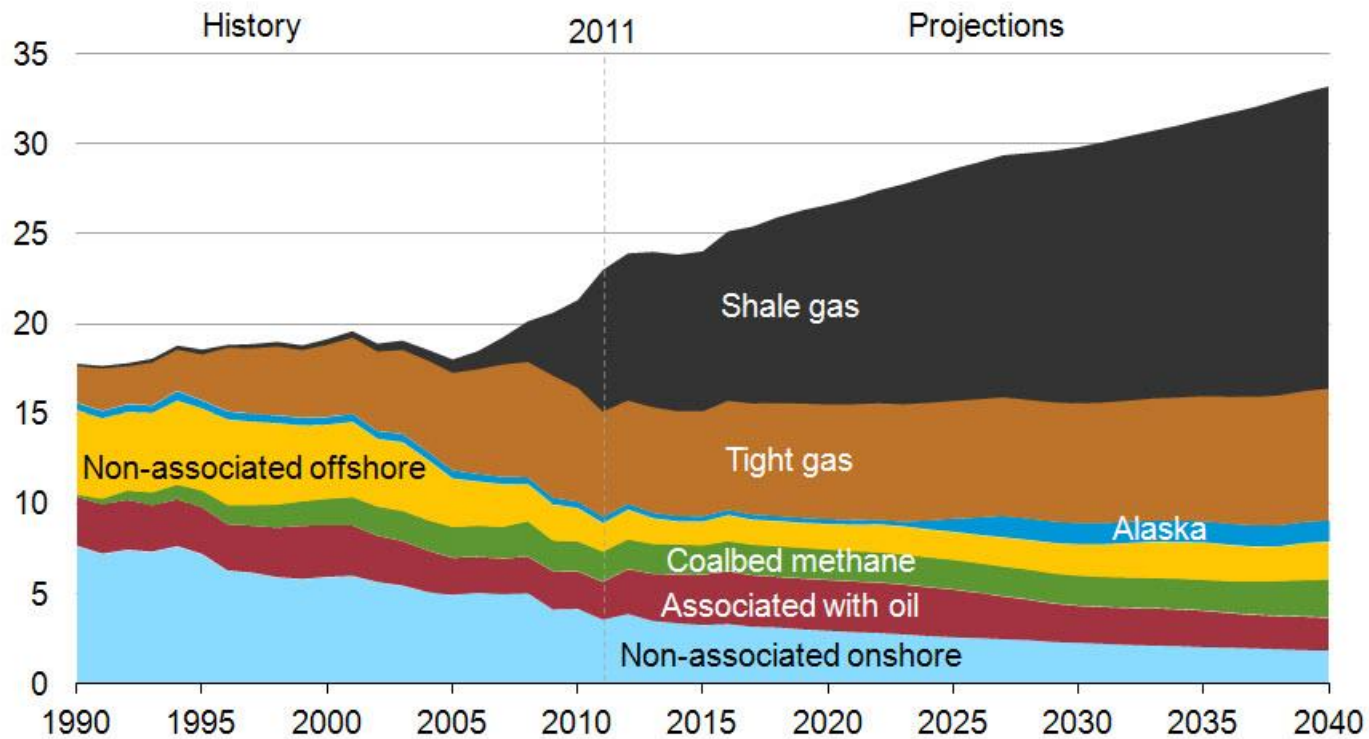
Thousand Barrels



Source: U.S. Energy Information Administration

U.S Natural Gas Production

U.S. dry natural gas production
trillion cubic feet



Source: U.S. Energy Information Administration, *Annual Energy Outlook 2013 Early Release*

LNG

Production & Exports:

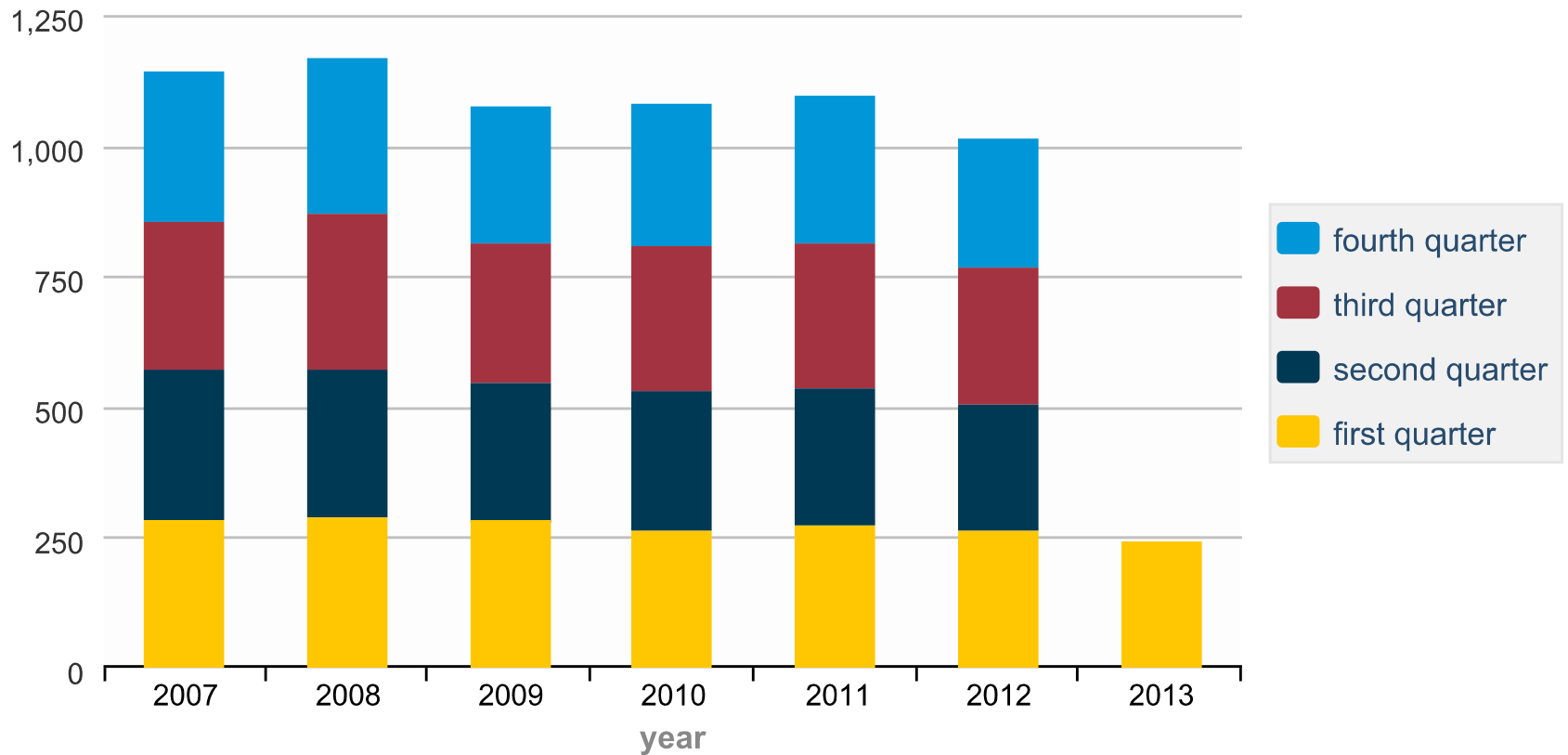
- Debate Over Export Policy
- Approvals: May 2011 & 2012
- Future of Federal Approval Policy

U.S. Coal

- Production Levels
- Political Battles over Emissions
- Outlook: Strong for Electricity Generation

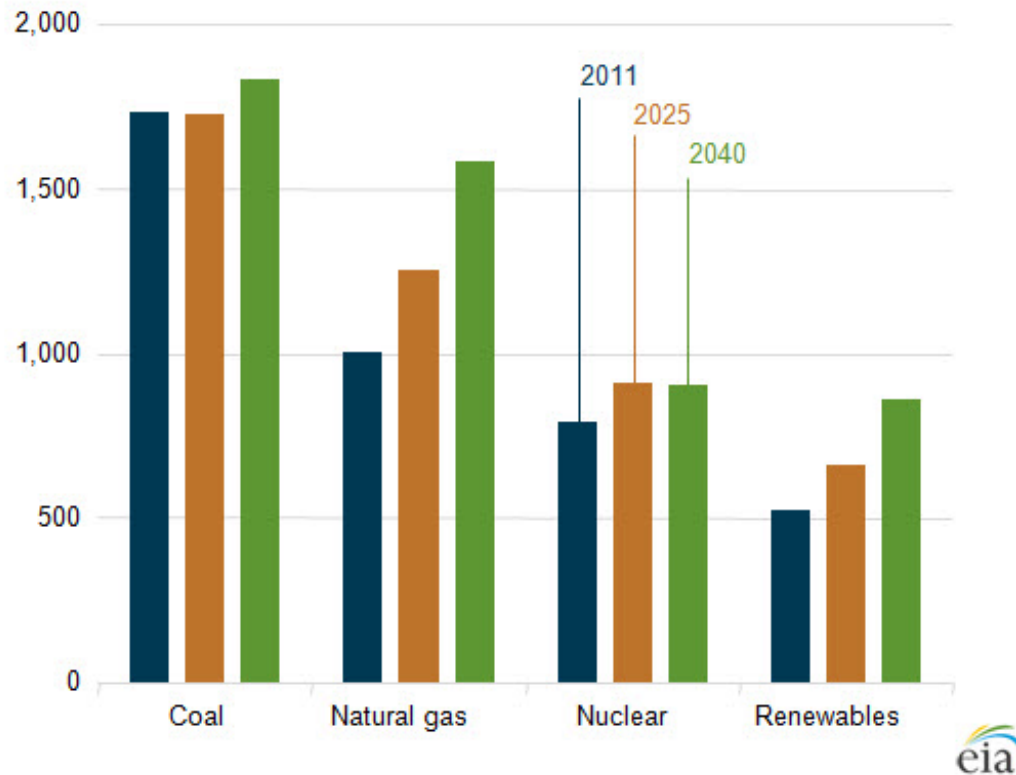
U.S. Coal Production

million short tons



Coal: Electricity Generation

Figure 76. Electricity generation by fuel, 2011, 2025, and 2040 (billion kilowatthours)



State of U.S. Renewable Industry

- Nuclear: Great Strides in past 4 years due to Administration policy
- Wind & Solar: New Domestic and International Markets
- Automotive: From Hydrogen to Hybrid to Tesla

MODEL S
ZERO EMISSIONS. ZERO COMPROMISES.



Automotive: From Hydrogen to Hybrid to Tesla

- Economic Success: Repayment of DOE Loan
- Tesla Phenomenon:
 - Marketing Genius
 - Founder: Elon Musk: Paypal, SpaceX, HyperLoop
- Retail Cost: Starting \$62,000 (after \$7,500 tax credit)

U.S. Energy Independence

- Elusive Goal – Often Politically Motivated
- Regulatory Battles Over Domestic Production: Administration vs. Congress
- International Energy Agency Declaration that U.S. will be a net exporter of petroleum by 2020
- Healthy Skepticism: Variable Factors
- Impact on U.S. Middle East Relations

Impact on U.S.-Middle East Relations



Photo Credit: June 2011 AFP

Impact on U.S. – Middle East Relations

- Saudi Arabia
 - Production Levels: from 10 to 9.3 million bpd
 - Reaction Publicly vs. Privately
 - U.S. Relationship Beyond Energy
- Iraq:
 - Production Levels
 - Kurdish Issue
- Iran:
 - Effects of Sanctions
 - Future Prospects for Gas Exports: Debate on contract structure and how to attract foreign capital to develop these energy resources

Impact on U.S.-Middle East Relations

- Arab Spring: Effect on World Oil Market & Immediate Impact on U.S. Gas Prices
- OPEC: U.S. Relations & Future of Organization
- GASPEC: Future In Light of U.S. Successes

Recent Industry Developments: Shale Oil & Gas



Photo Credit: [zhuda/Shutterstock](#)

Recent Industry Developments: Shale Oil & Gas

- Fracking: Policy, Politics & Economics
 - Policy: U.S. Secretary of Energy Advisory Board Recommendation
 - Develop shale gas responsibly while protecting human health and environment
 - Politics:
 - New York vs. Pennsylvania
 - Organized Opposition: Gasland I & II, issue advocacy
 - Organized Support: CSR, issue advocacy
 - Economics: Shale Oil Development: North Dakota

Evolving Environmental & Climate Policy

- Environmental Policy: 2 Stark Examples
 - Administration Support for Nuclear
 - Keystone Pipeline:
 - 830,000 bpd of oil from Canadian Tar Sands to Gulf of Mexico
 - President Obama has said he would approve the project if it doesn't significantly increase carbon emissions
 - Ongoing Political Battle

Keystone Pipeline Opposition



Photo Credit: Sandiego350.org

Keystone Pipeline: Opposition

- Bad for the environment: increases carbon pollution
- Danger to population in location of pipeline
- Will not create more permanent jobs
- Will not affect oil production nor prices in U.S.

Keystone Pipeline: Supporters

- Keystone XL Pipeline will support the significant growth of crude oil production in the United States.
- Construction of the 1,179-mile Keystone XL Pipeline will require 9,000 skilled American workers.
- Oil pipelines are safe and efficient, and TransCanada has one of the best safety records in the industry.
- Keystone XL has the potential to reduce the amount of oil America imports from unstable regions of the world.

U.S. Climate Policy

- Driven by the International Community: IEA elusive goal: limit the average global temperature increase to no more than 2 degrees Celsius to avoid potentially catastrophic climate change.
- Obama Administration Plan Just Announced
- U.S. Policy: Cost vs. Effectiveness
 - Link Between Energy Efficiency and Climate Policy
 - Carbon Standards for Emissions
 - Increase in Renewable Sources: Goal 2020 Double
 - Energy Efficiency: Goal 2030 Double
 - Industrial Efficiency
 - Clean Coal and Carbon Capture Utilization and Storage
 - Reduce Methane Emissions
 - Fossil Fuel Subsidy Reform: End to production subsidies
 - DOE Loan Guarantee Program

Future Outlook for U.S. Energy Policy

- Speed of Development: New Technologies
- Economic Outlook for U.S. & Worldwide
- Geopolitical Factors – Especially Middle East
- OPEC Market Share
- U.S. Shale Gas and Oil Production Potential
- Climate Policies
- Political Factors & Regulatory Policies:
 - Obama Legacy
 - 2016 Presidential Elections