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The Future of U.S. Climate Policy: Coal, Carbon Markets, and the Clean Air Act

October 28, 2014

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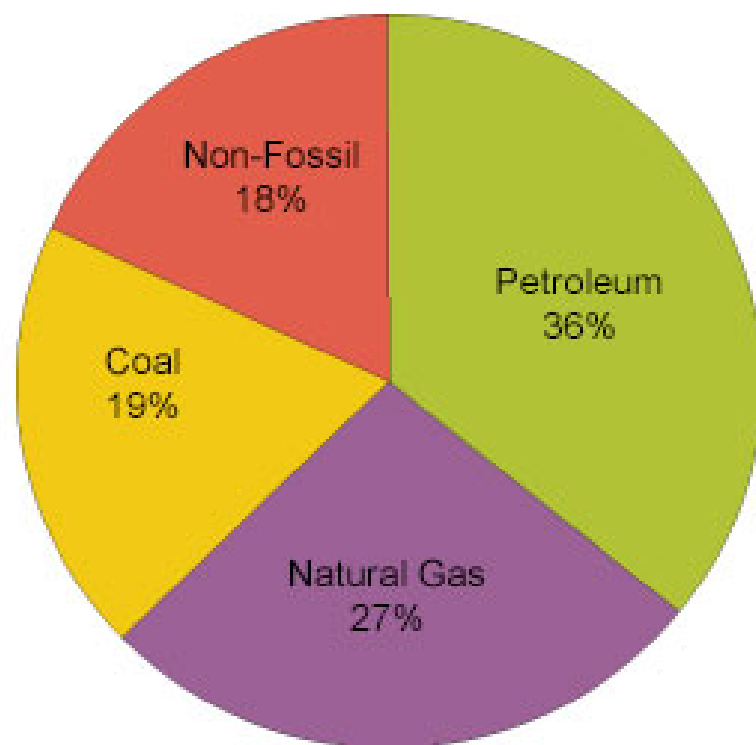


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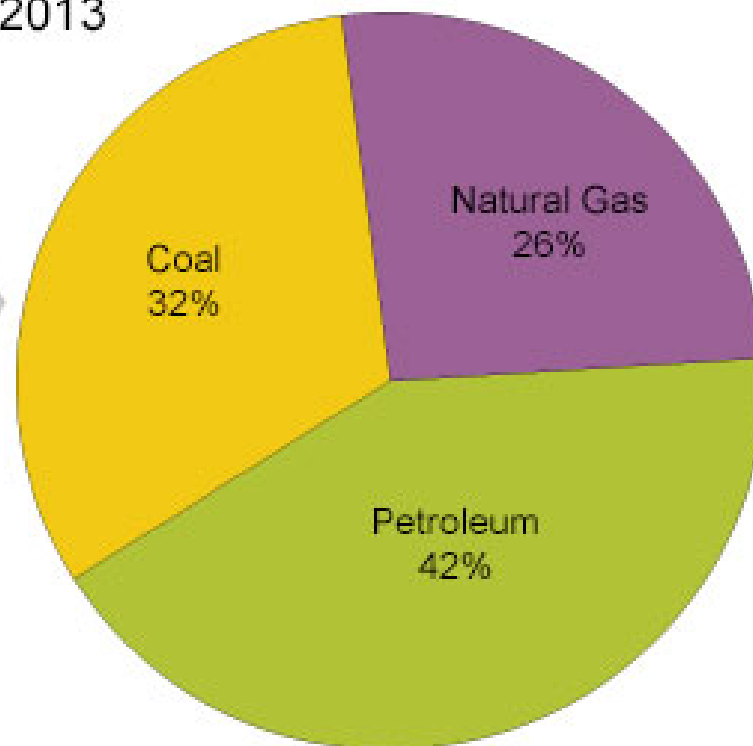


U.S. energy consumption by major fuel type, 2013



Totals may not equal 100 due to independent rounding.
Source: U.S. Energy Information Administration, Monthly Energy Review, Table 1.3 (April 2014), preliminary 2013 data.

Resulting U.S. energy-related carbon dioxide emissions by major fuel type, 2013

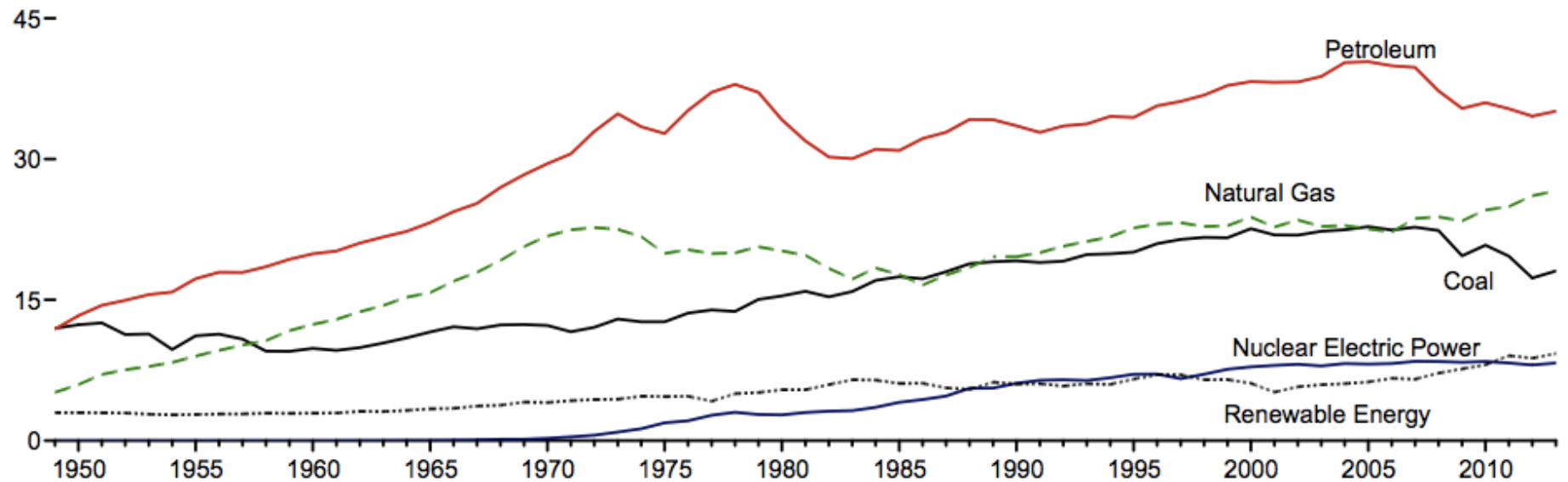


Totals may not equal 100 due to independent rounding.
Source: U.S. Energy Information Administration, Monthly Energy Review, Table 12.1 (April 2014), preliminary 2013 data.

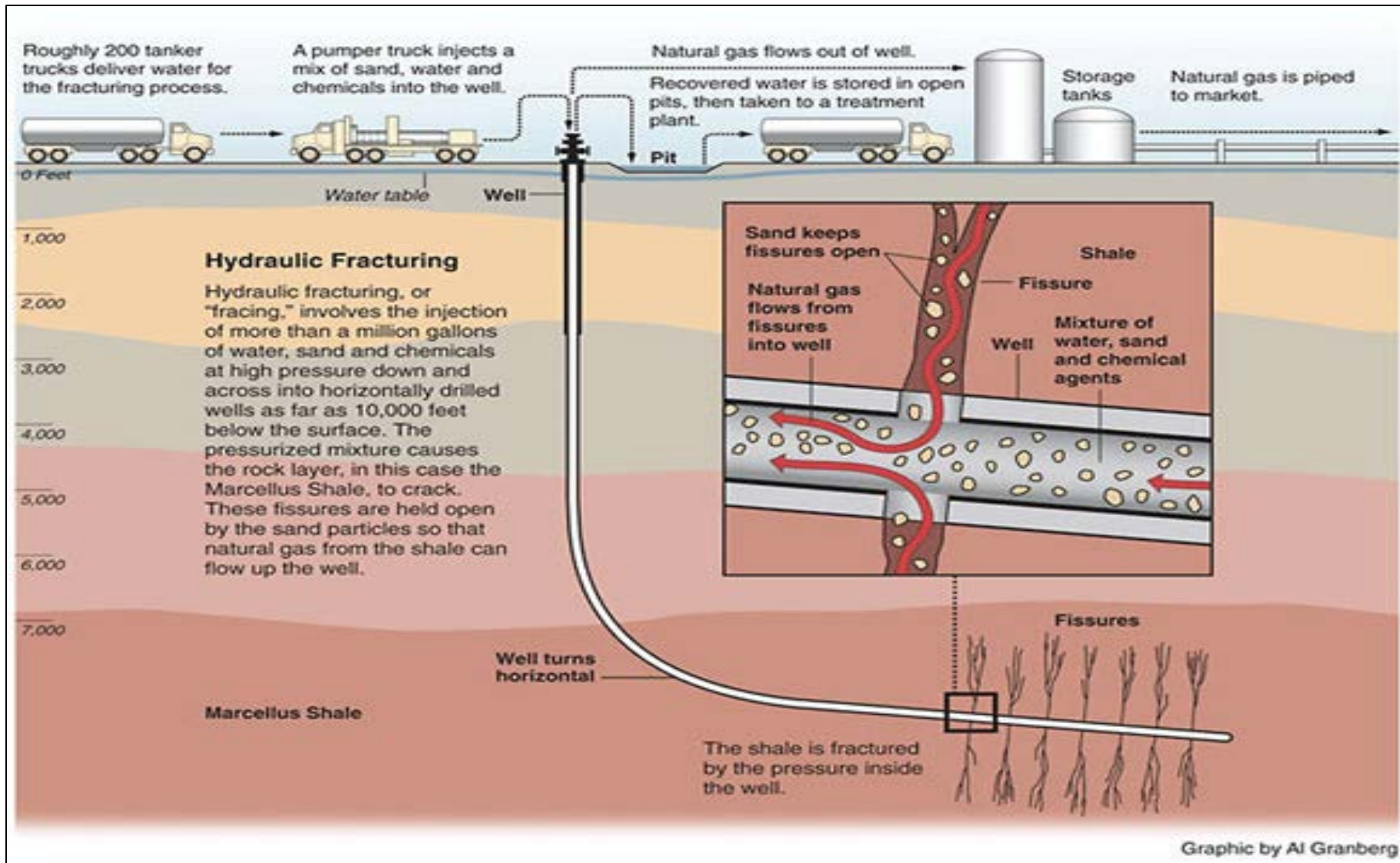
Coal Consumption Declining

Figure 1.3 Primary Energy Consumption
(Quadrillion Btu)

By Source,^a 1949–2013



Hydraulic fracturing (“fracking”)



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Fracking: A silent death sweeps across the nation

“Farmland is tainted. Drinking water turns flammable. And humans along with animals are sick. The cause? Fracking. It's terrorizing the environment, destroying the health of those who live close to the sites and contaminating the food supply . . . if this practice is not contained soon, clean water and food will become a distant memory.”

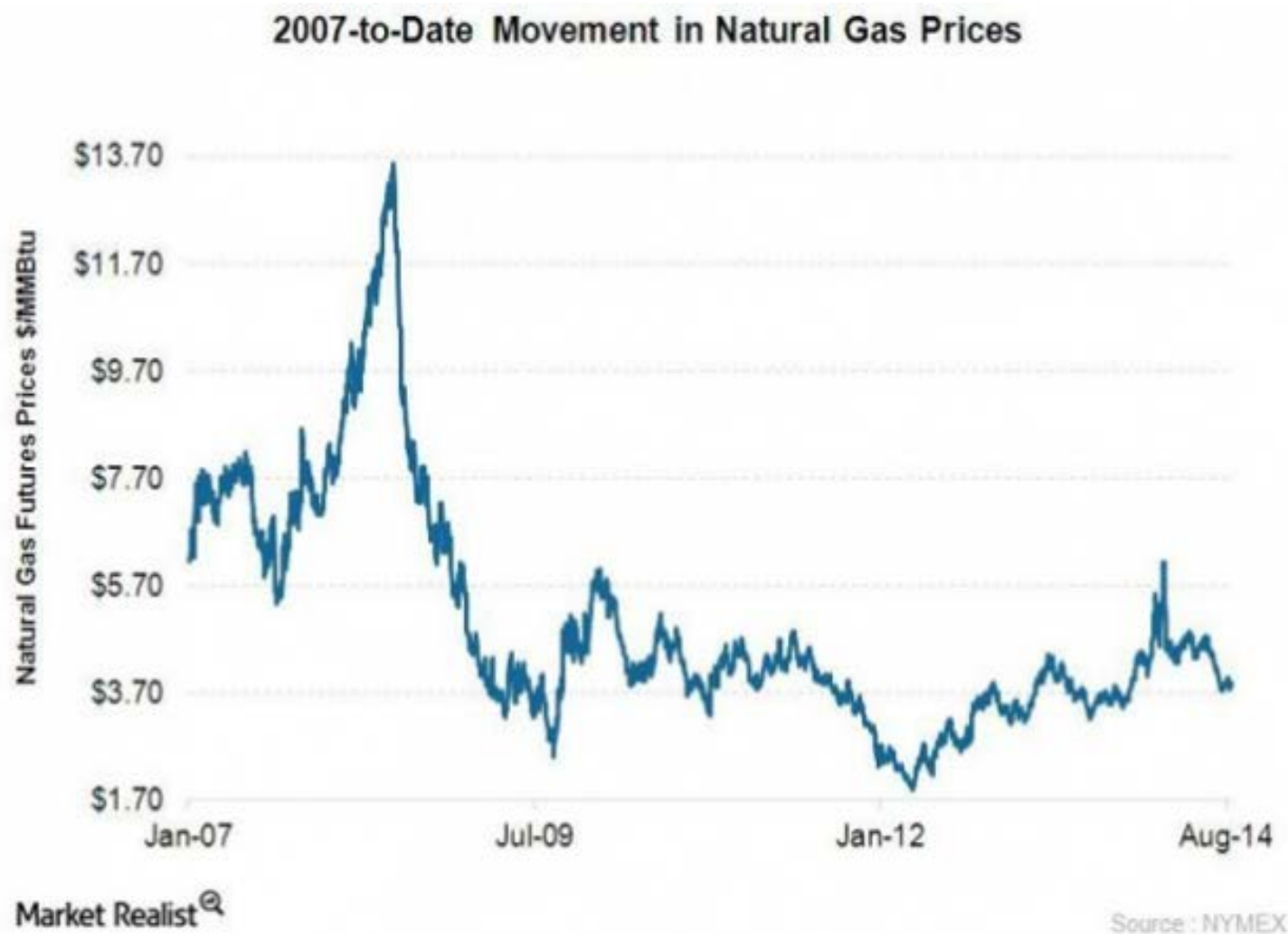
http://www.naturalnews.com/040115_fracking_health_dangers_waste_injection.html



US Natural Gas Production



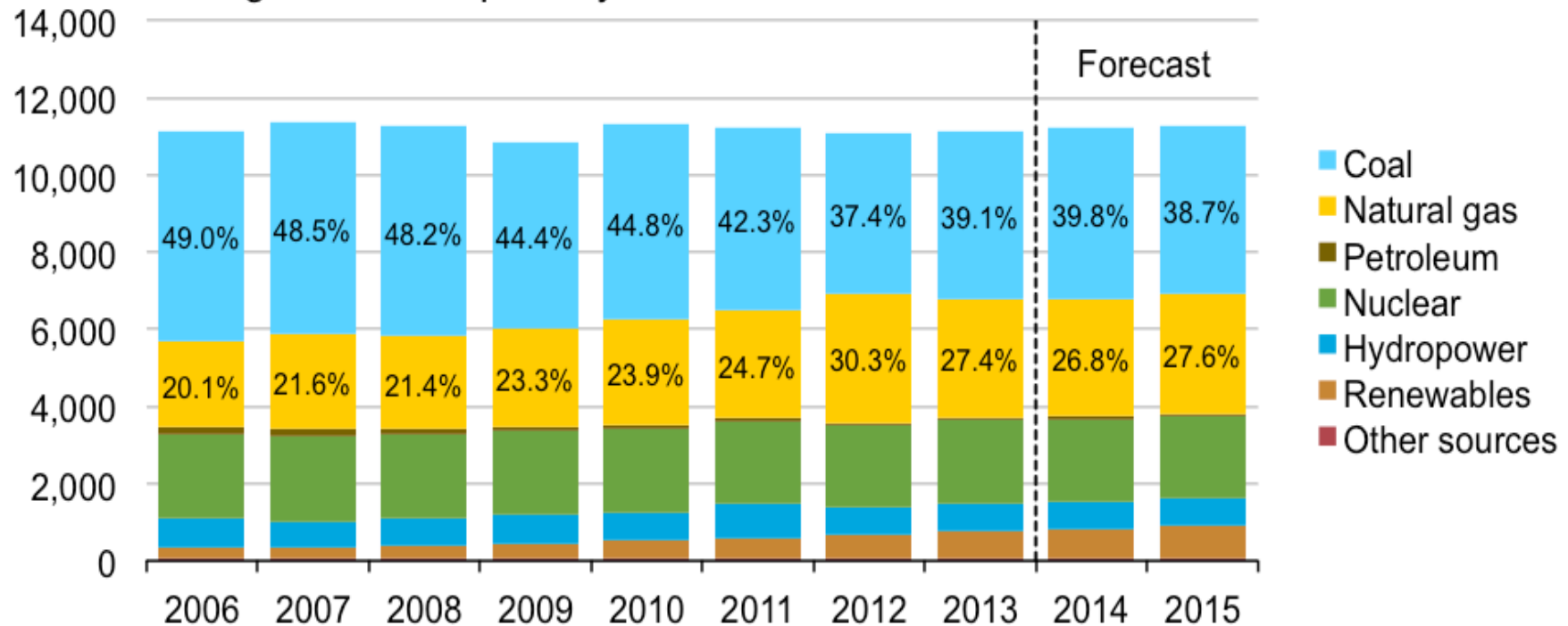
NG Prices



U.S. Electricity from Coal Decreasing 49% (2006) to 39% (2013)

U.S. Electricity Generation by Fuel, All Sectors

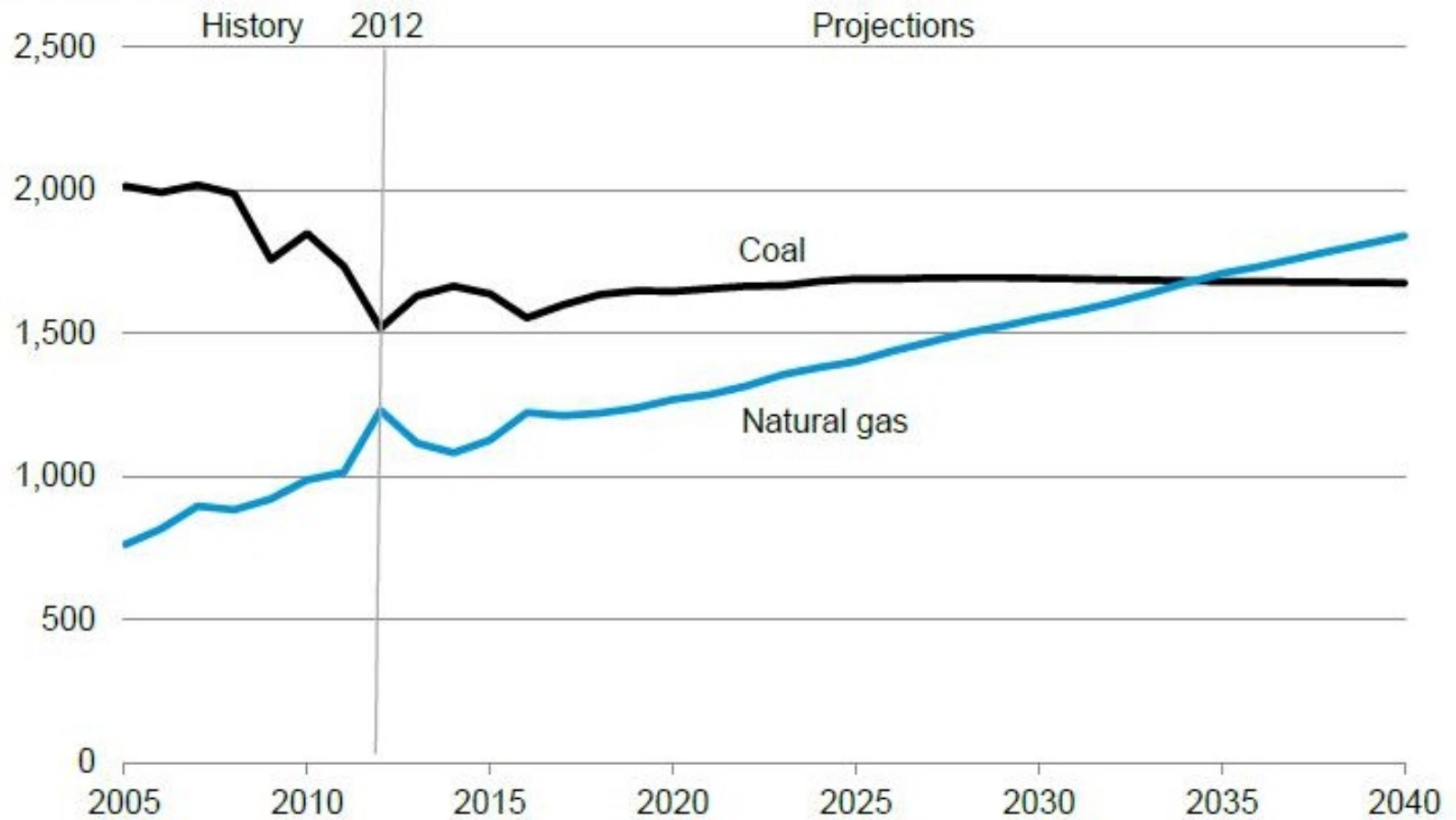
thousand megawatthours per day



Note: Labels show percentage share of total generation provided by coal and natural gas.

Source: Short-Term Energy Outlook, October 2014.

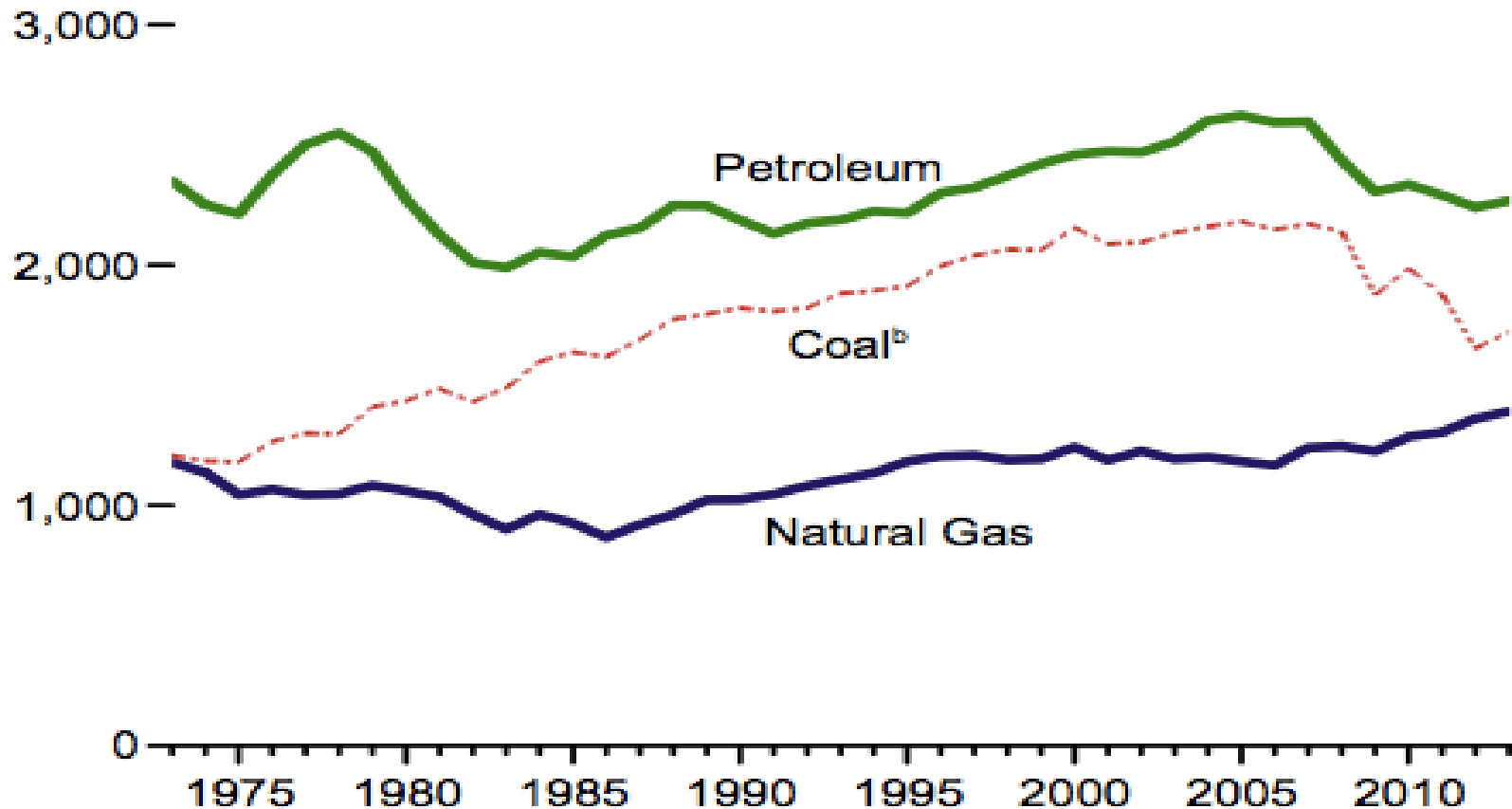
electricity generation by fuel
billion kilowatthours



Source: <https://enerknol.com/wp-content/uploads/2013/12/Natural-Gas-Vs-Coal-Electricity-Generation.jpg>

CO₂ Emissions (million metric tons)

By Major Source, 1973–2013

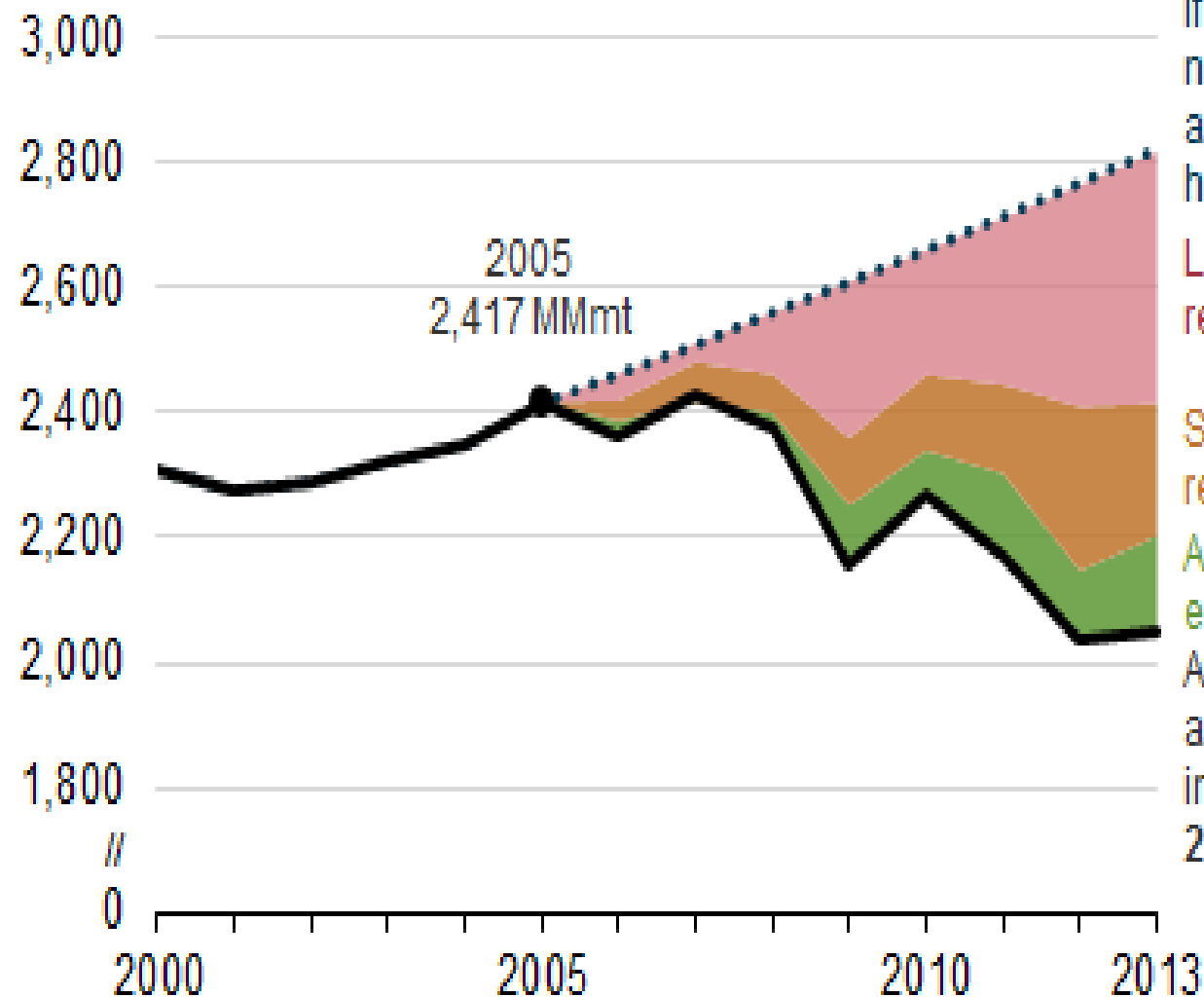


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U.S. electric power carbon dioxide emissions (2000-2013)

million metric tons (MMmt) of carbon dioxide



If demand growth had remained near 2% and carbon intensity fixed at 2005 levels, emissions would have been **2,817 MMmt**

Lower demand growth alone reduced emissions by **402 MMmt**

Switching among fossil fuels further reduced emissions by **212 MMmt**

Adding noncarbon sources reduced emissions by **150 MMmt**

After these reductions, actual carbon dioxide emissions in the power sector were **2,053 MMmt** in 2013.



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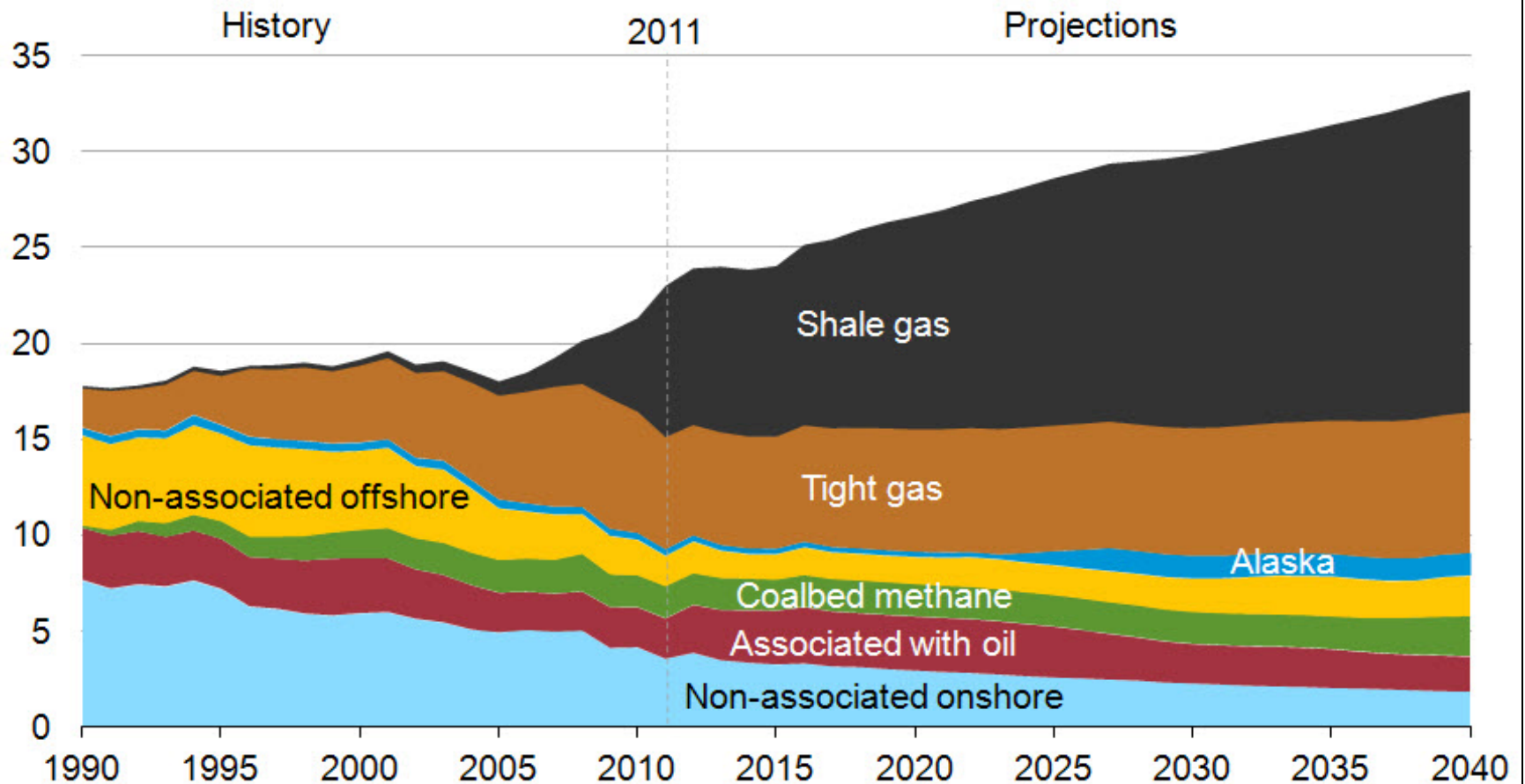
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“Prediction is very difficult, especially if it's about the future.”

-- Niels Bohr, Nobel laureate in physics



U.S. dry natural gas production trillion cubic feet

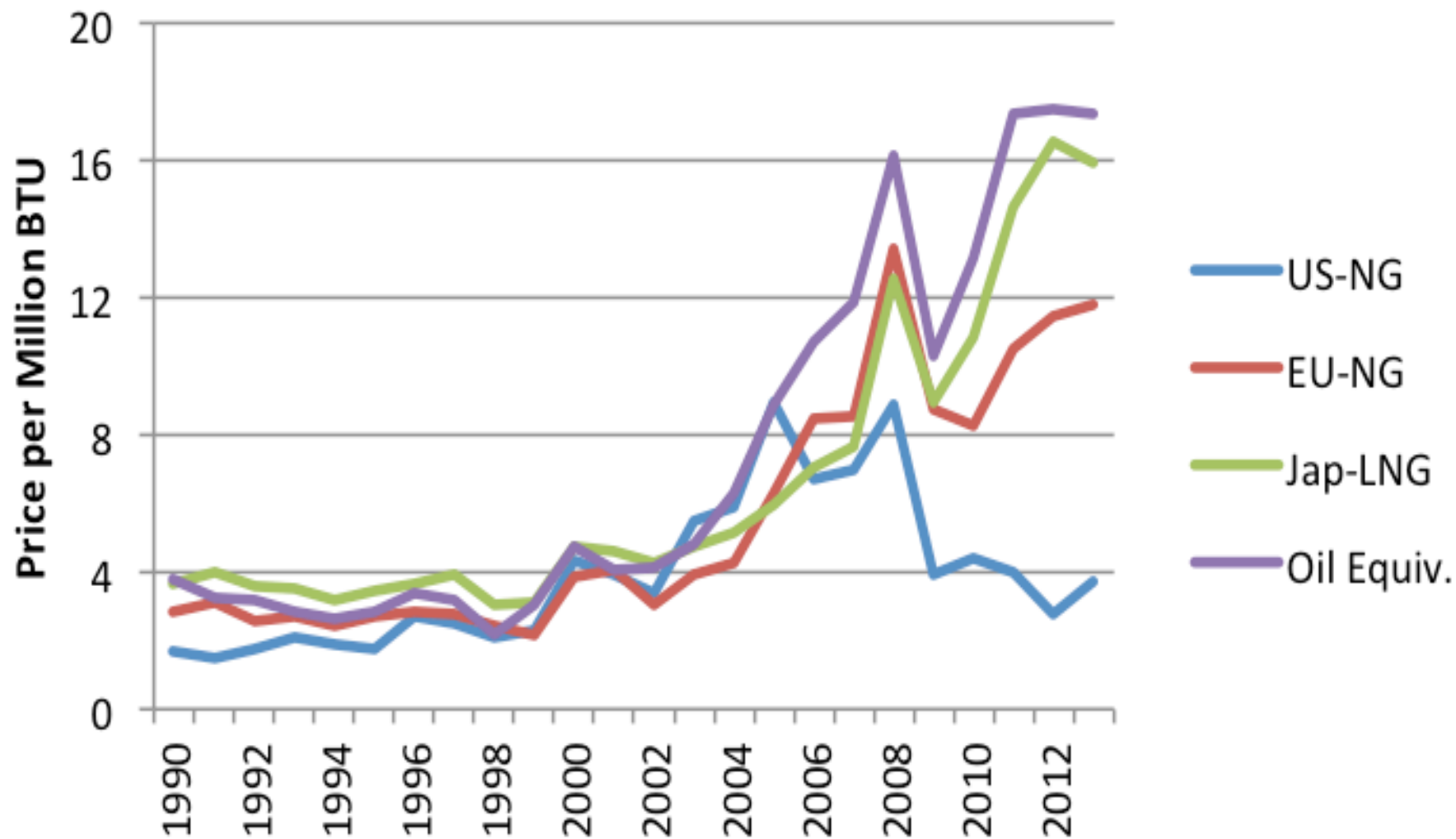


Source: U.S. Energy Information Administration, *Annual Energy Outlook 2013 Early Release*

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Natural Gas Price Comparison



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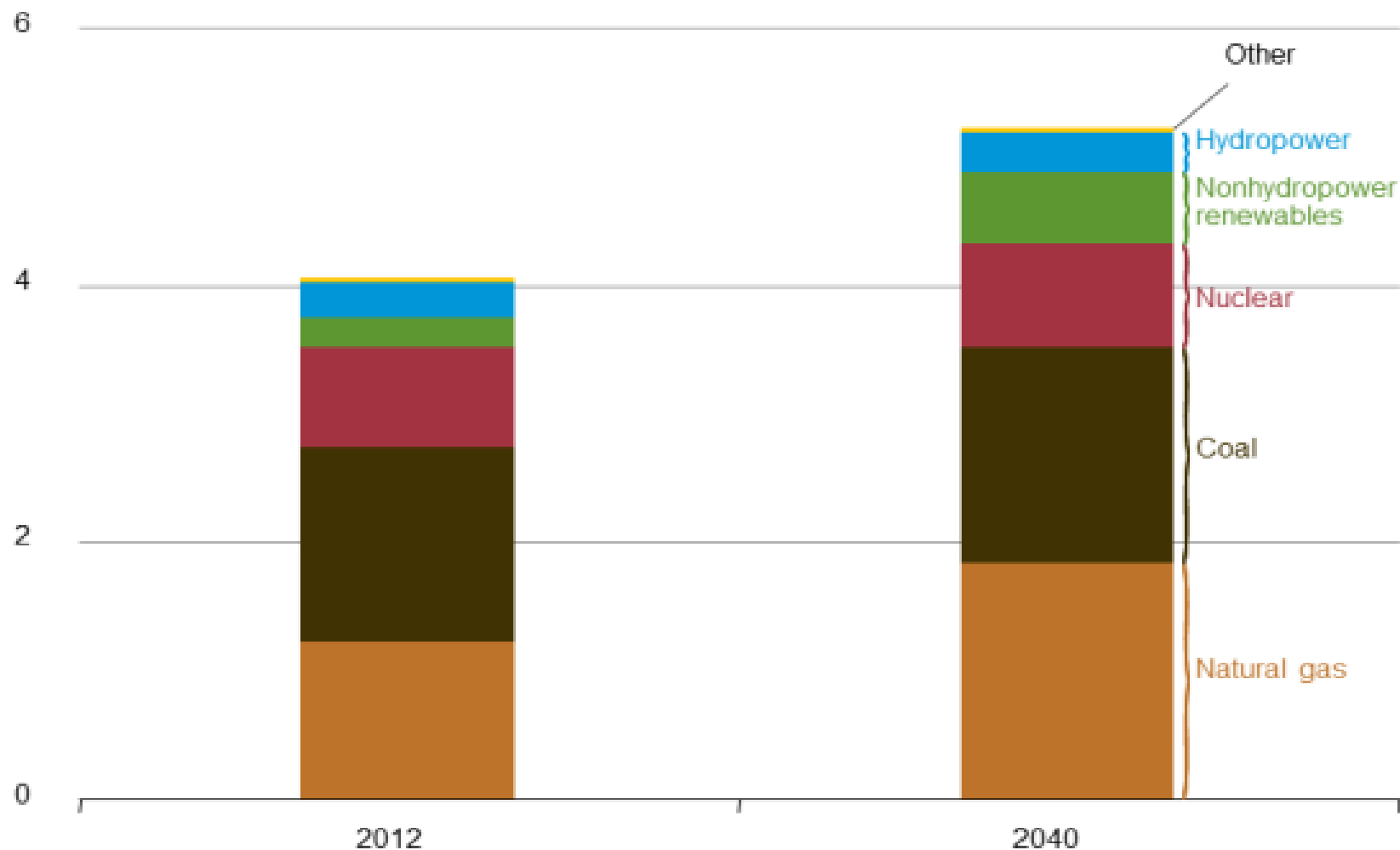
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Slow Approvals of LNG exports

- Sept 29, 2014, FERC approves Dominion Cove Point to liquefy and export 5.75 million metric tons of LNG ships at existing offshore pier at Calvert County, MD.
- Department of Energy conditionally approves export of LNG both Free Trade Agreement and non-Free Trade Agreement countries
- FERC has approved three other LNG export projects in the Gulf of Mexico: Sabine Pass, Freeport, and Cameron LNG Project.
- Fourteen LNG export proposals pending

Figure IF7-1. Total U.S. electricity generation by energy source, 2012 and 2040

billion kilowatthours



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A National Energy Policy?

- E. Donald Elliott, *Why the United States Does Not Have a Renewable Energy Policy*, 43 ENVIRONMENTAL LAW REPORTER 10095 (Feb. 2013).

<http://ssrn.com/abstract=1878616>

- EPA's Proposed Clean Power Rule, CAA §111(d), 79 *Fed. Reg.* 34830 (June 18, 2014), <http://www.gpo.gov/fdsys/pkg/FR-2014-06-18/pdf/2014-13726.pdf>

U.S. power plant capacity additions
Jan-Jun 2013 vs. Jan-Jun 2014
megawatts (MW)

