



US Energy Independence:

**The Road to Self Sufficiency
and Implications for the
Geopolitics of the Middle East**

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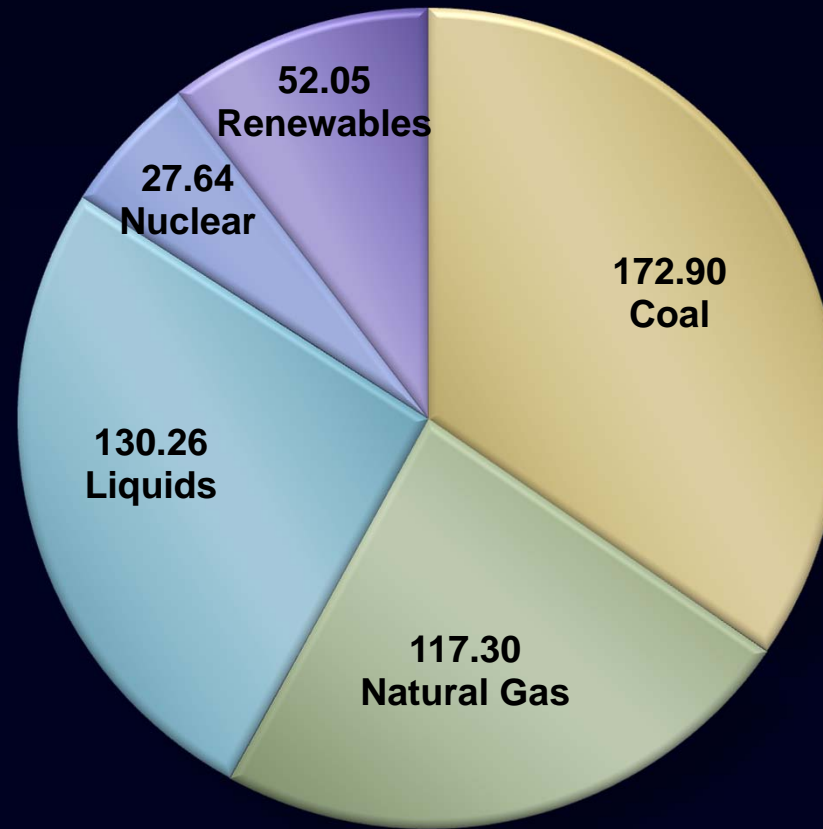
ABANA Luncheon – The Harvard Club, New York City

NASA's NanoSail-D
Source: sciencenews.org

US Energy Independence

- Definition: The state of US energy market where key indicators in play (Price, spare capacity, other) are insensitive to external supplies
- Benchmark: 90% self-sufficiency

World Energy Use by Fuel Type – 2010

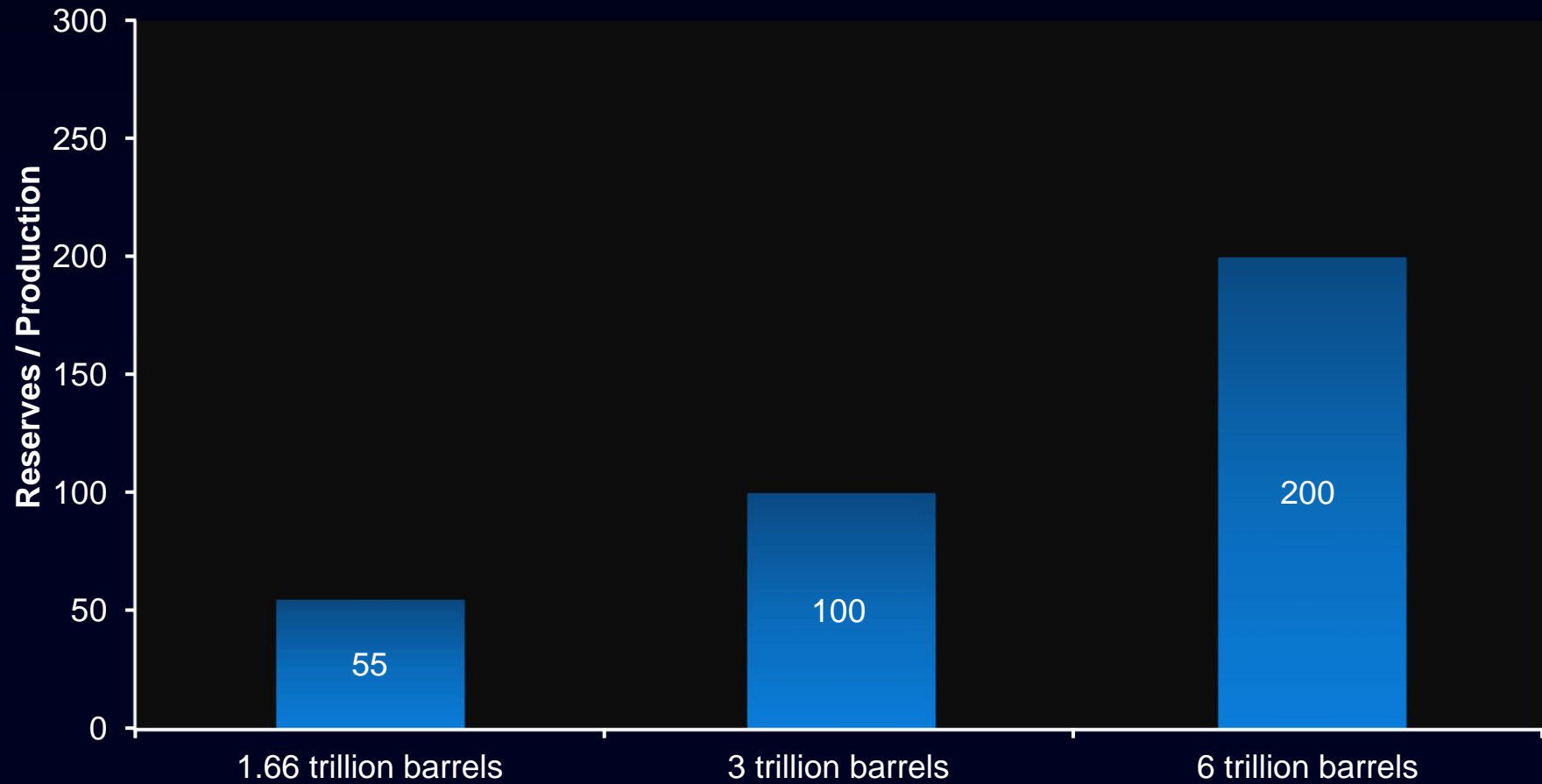


Total quadrillion British thermal units (QBtu)
US consumption (QBtu)

500.15
97.89

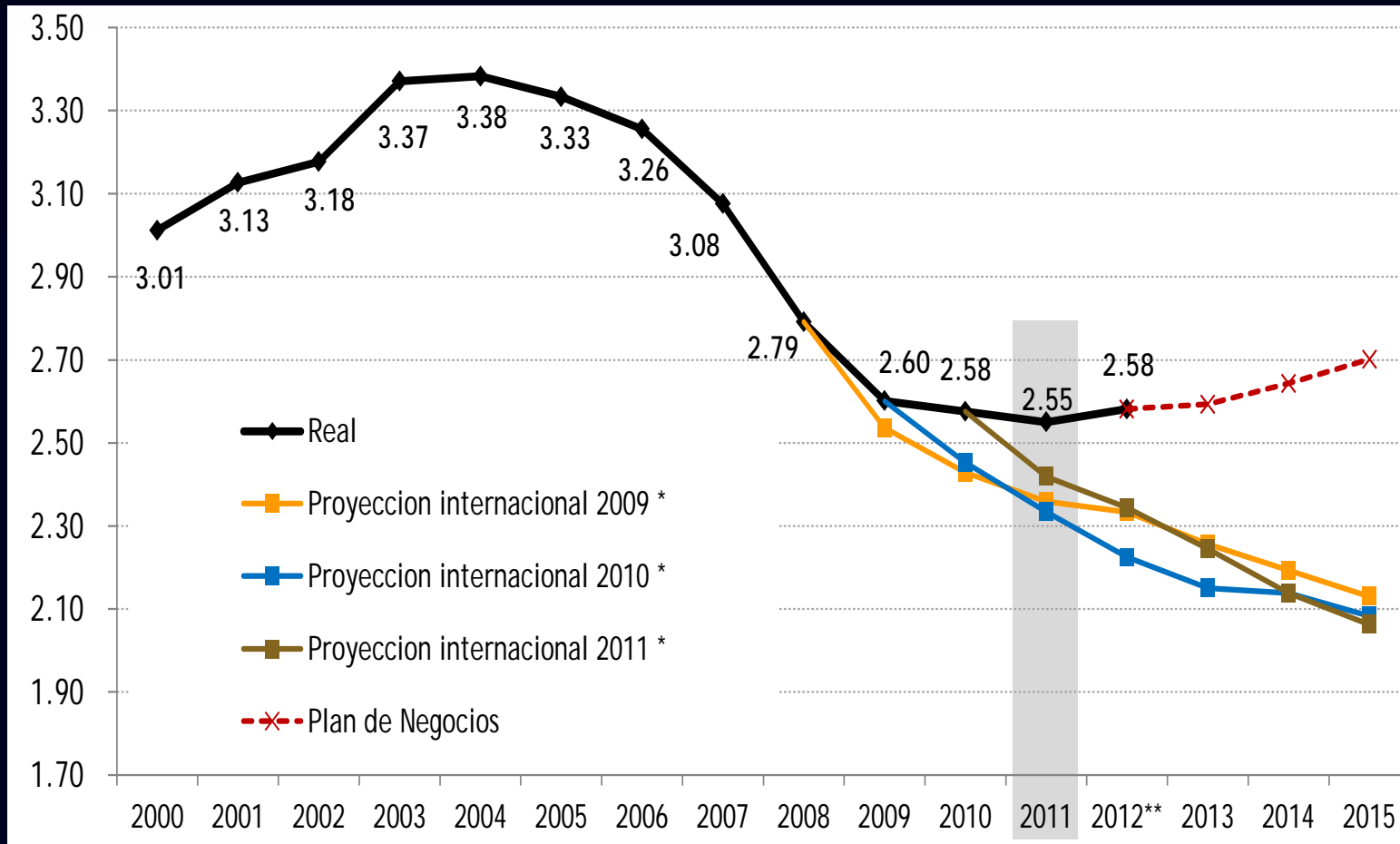
Source: EIA, International Energy Statistics database (as of July 27, 2010), www.eia.gov/emeu/international.
Projections: EIA, World Energy Projection System Plus (2010).

World Oil Reserves / Production Ratio vs. Global Resource Size



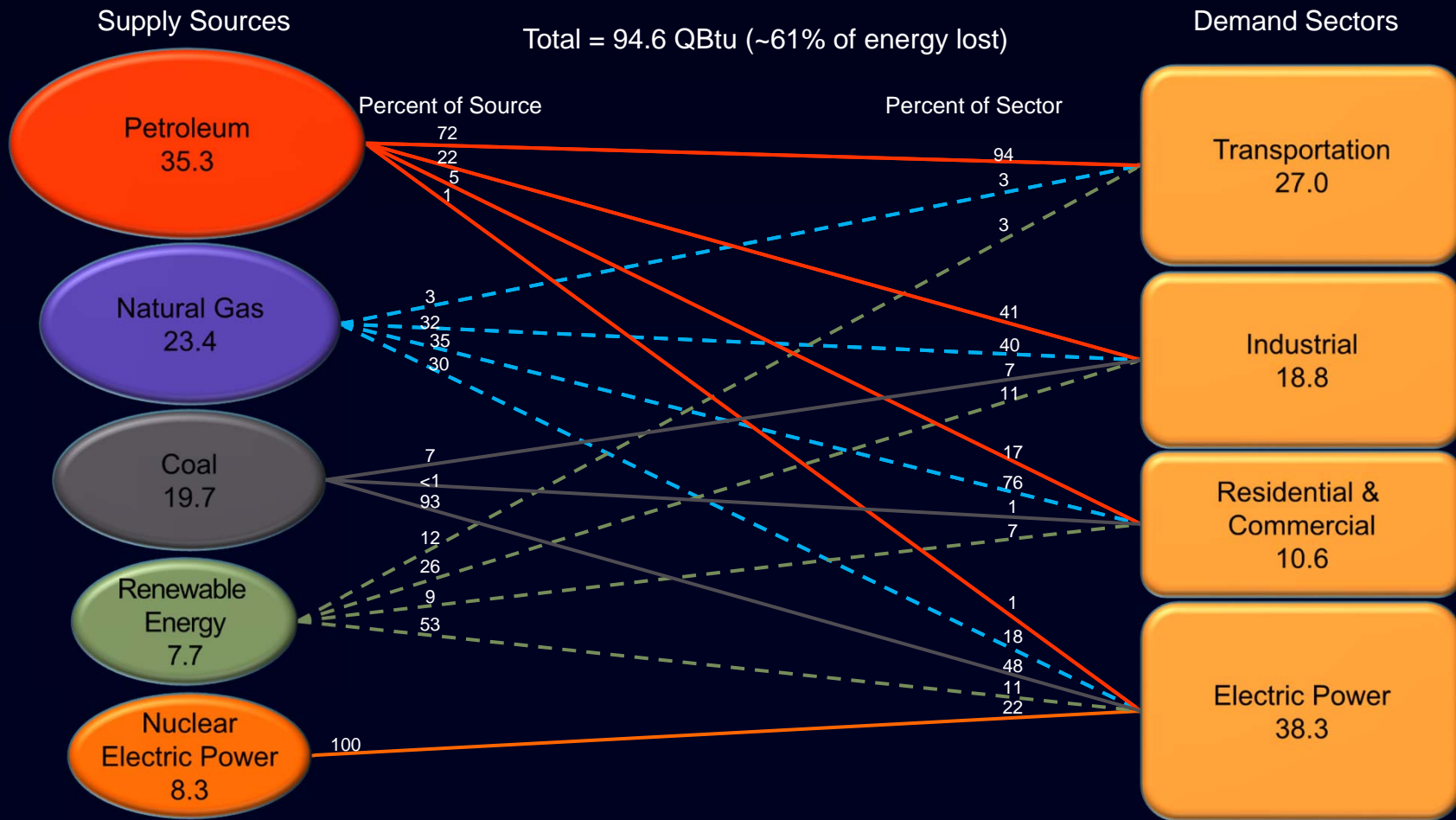
*Using 2010 production of 30 billion barrels
Sources: Energy Detente

Case Study: NOC Production



* Efficiency initiatives, collaboration and new technologies lead to: 0% decline rate, 100% reserves replacement ration (RRR)

Primary Energy Flow by Source and Sector

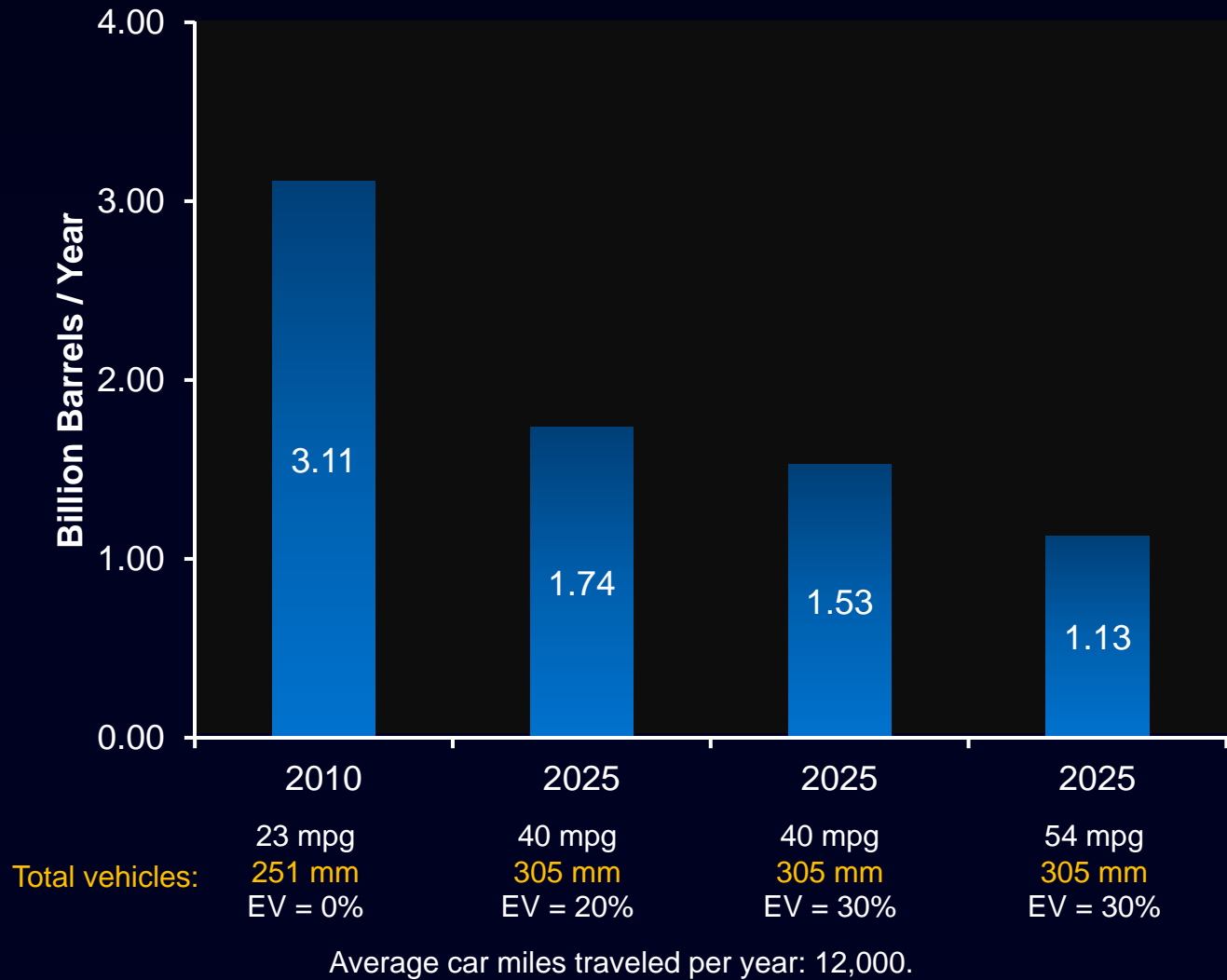


Note: Sum of components may not equal total due to independent rounding.
 Source: U.S. Energy Information Administration / Annual Energy Review 2009

Current Energy Reality

- Current energy deficit is 16%
- 60% of energy is wasted
- Natural gas provides 25% of energy consumption
- US has >100 years of gas supplies
- Gas is approximately 4.3x times cheaper than oil on MMbtu equivalent basis (9.2x times in March 2012)
- Renewables account for 8% of energy sources

Impact of Fuel Efficiency & EV on US Gasoline Consumption



North American Supply Growth

Figure 1. North American total liquids production could almost double from over 15-m b/d at end-2011 to almost 27-m b/d in 2020

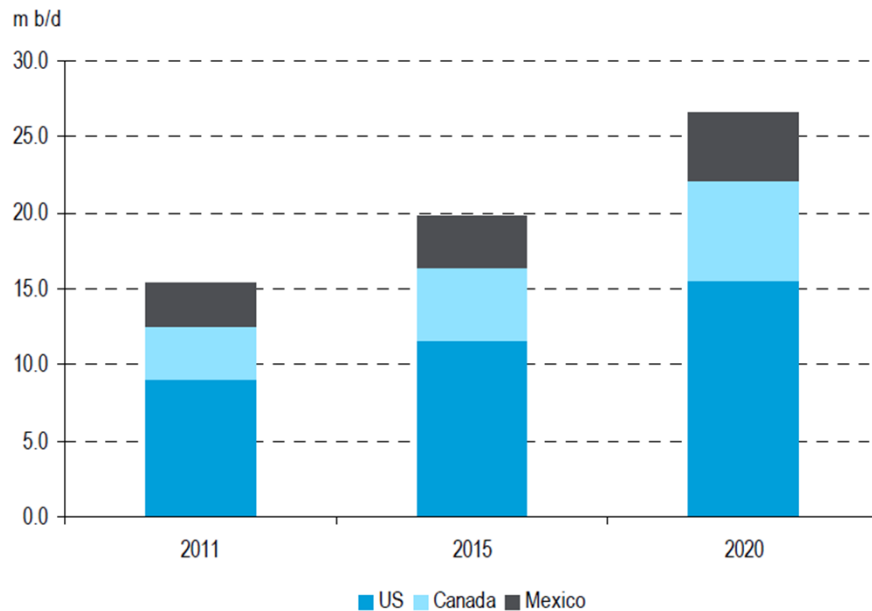
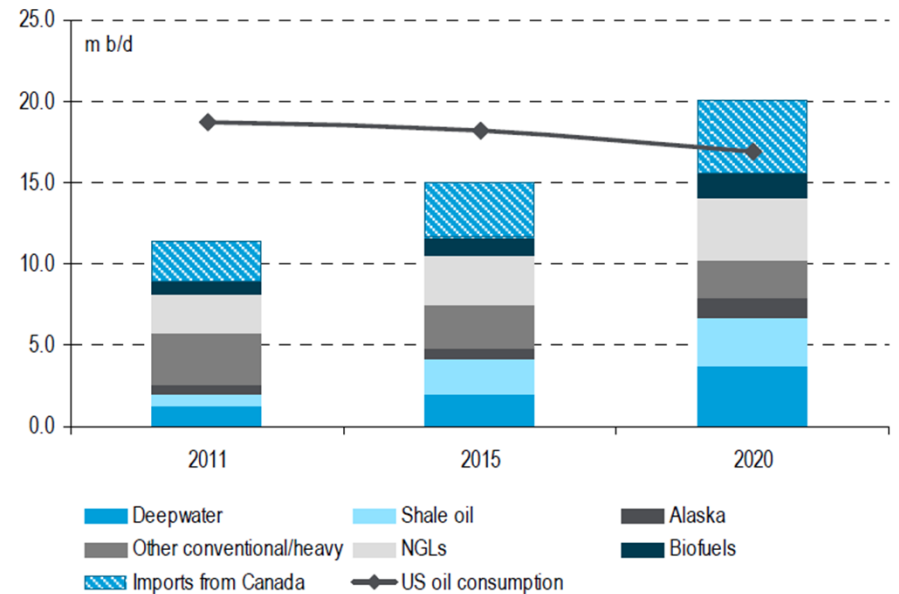
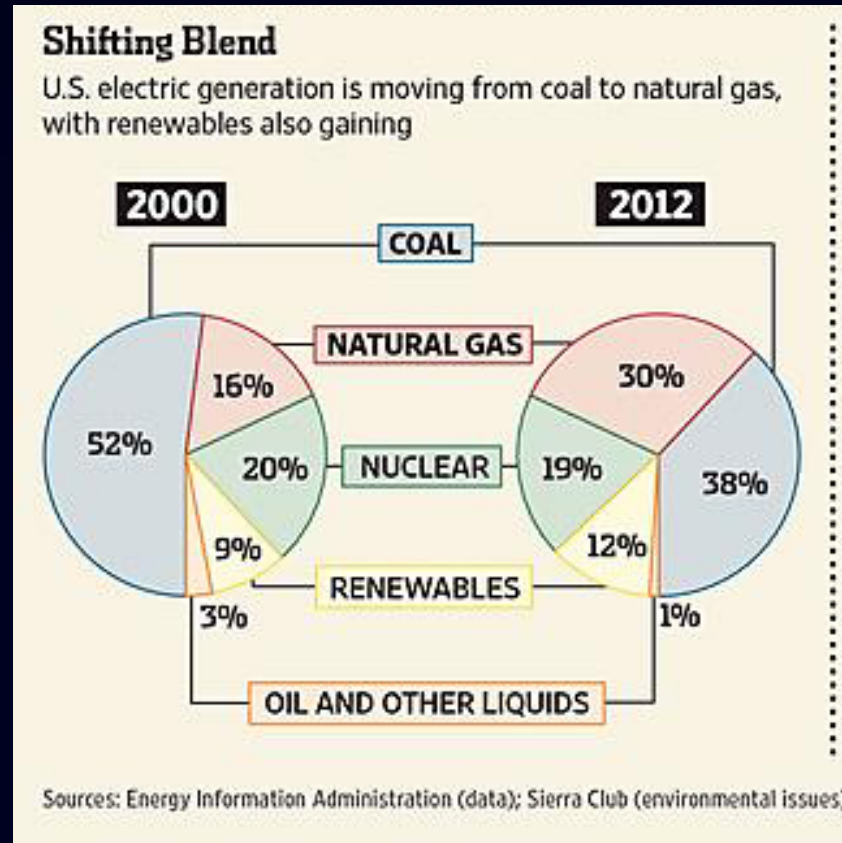


Figure 2. By 2020, the US could see combined domestic supply and Canadian imports reach over 20-m b/d, while US oil demand falls 2-m to below 17-m b/d leaving a 3-m b/d surplus available for export



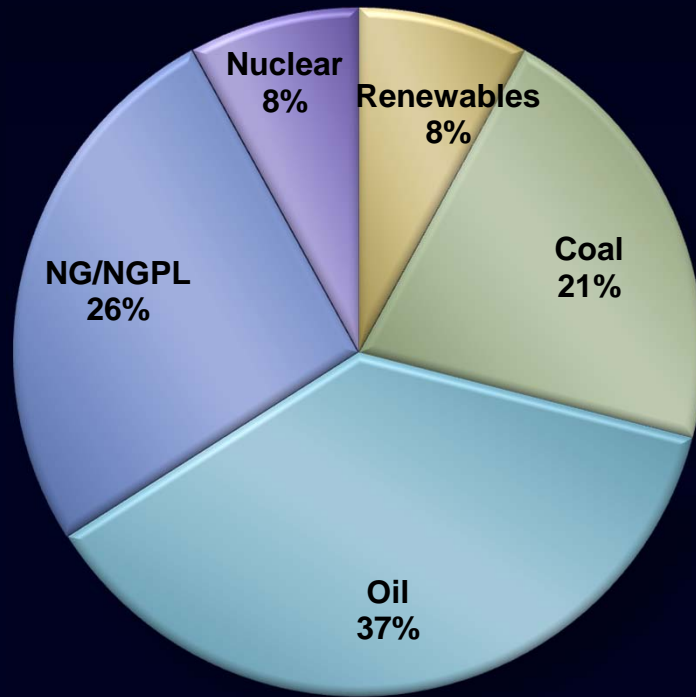
Source: Citi Investment Research and Analysis, Global Perspectives & Solutions 20 March 2012

Changing Trends



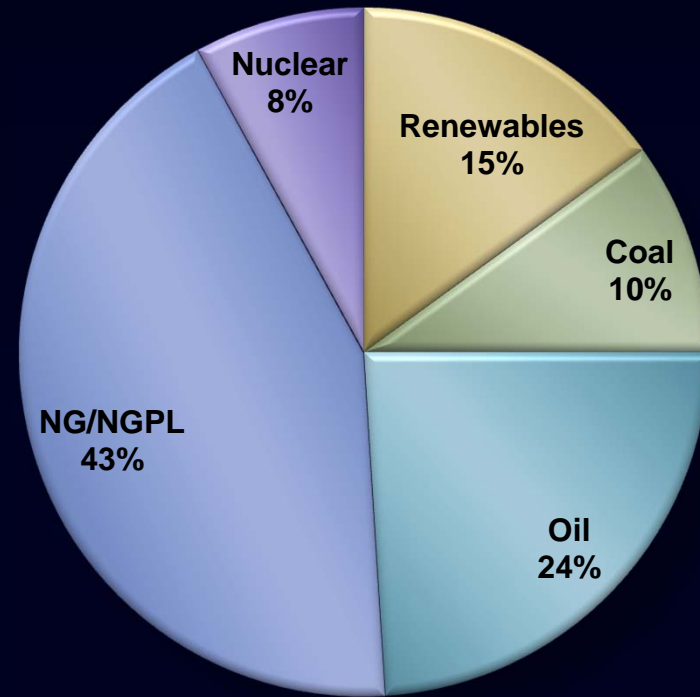
Source: *Natural Gas Rocks The Energy World*, WSJ - 26 Mar 2013

2010 versus Future Scenario



Total = 98 Qbtu

2010



Total = 103 Qbtu

Future

Source: EIA (2011), QRI

Back to the Future

The 103-year-old Detroit electric Model D, once thought obsolete, may have been well ahead of its time. As electric cars come into vogue, this rediscovered vehicle, which fell out of favour as the world turned to petrol cars but could cover 160km on a single charge, fetched \$55,000 USD (€41,000) at auction in the USA in January 2013.

** Detroit Electric (1907–1939) produced by Anderson Electric Car Company in Detroit, MI*

Source: *The Files* March 2013,
Holland Herald (KLM)



Concluding Thoughts

- The US is on track to be 90% plus energy-sufficient by 2020
- Technologies and public perception will dictate political and policy choices in shaping the future energy outlook
- Shale technologies – despite their game-changing impact – are primitive by tomorrow’s standards and are likely to see massive improvements in the years ahead
- Even under imperfect scenarios, prevailing outcomes point to enhanced sense of US energy security and independence
- Global energy geopolitics have tilted towards the US. The future energy outlook is far more distributed and less Middle-East centric.

Thank You.

A downloadable version of today's presentation
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