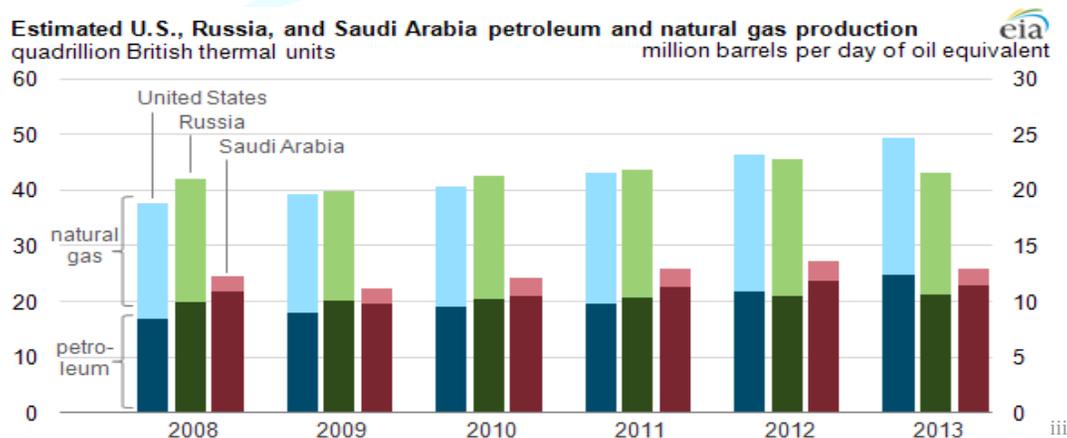




**US SHALE BOOM: TRANSFORMING THE ENERGY LANDSCAPE**

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With the recent boom in its shale production, the United States has a strong opportunity to re-shuffle cards on the international stage. Its decreasing energy dependence from overseas has radically increased playing room for diplomatic and military maneuvers for policy makers in Washington. US is set to push Russia to second place to become world’s largest producer of oil & gas in 2013. It is also speculated that the US will overtake Saudi Arabia which has been world’s largest producer of petroleum products. While the US and Russia have production equitably distributed among oil & gas, Saudi Arabia leans towards oil production. US overtook Russia to become the second-largest supplier of oil in 2012, but was just behind Saudi Arabia. Both the US and Saudi Arabia increased oil supply in 2013 with the US reporting the fastest production growth<sup>i</sup>. US already overtook Russia last year as it tapped more natural gas than Russia for the first time since 1982 to become largest gas producer<sup>ii</sup>.



The use of combination of horizontal drilling and disputed technologies such as hydraulic fracturing (or fracking) has dramatically increased opportunities in shale production, evident from rapidly rising productions in the Bakken oil field in North Dakota and the Eagle Ford shale formation in South Texas that have surged the nation's oil production 50% over the past five years. It has reduced US imports of natural gas and crude oil by 32% and 15% respectively in the past five years that has helped narrow down the US trade deficit. Though 1975 US federal law banned raw crude from being exported in the interests of national energy security, the shale boom has also led the US to become an energy exporter with petroleum products ranking second in value of all US exports during 2011 at \$111.1 billion<sup>iv</sup>. The net import share of total US energy consumption is expected to be 9% in 2040, compared with 19% in 2011 (the share was 30% in 2005)<sup>v</sup>. The US administration is also expected to implement the new expected Corporate Average Fuel Efficiency (CAFE) standards at 54.5 miles per US gallon (mpg). The new set of fuel economy regulations is expected to cut oil demand by 1.4 million barrels per day by 2020.

China on the other hand is estimated to import 70% of its oil demand paying \$500 billion for foreign crude oil annually by 2020 whereas US import requirements will reduce owing to its domestic production<sup>vi</sup>. China already overtook the United States as the largest crude oil importer on a monthly basis in Sept 2013<sup>vii</sup>. It is also set to overtake the US this year as the world's No. 1 buyer of oil from the OPEC. This has added to tensions because it leaves China dependant on the US military securing China's growing oil shipments in the region as at the moment China's power projection capabilities in the region are limited. For years Washington has policed chokepoints like the Strait of Hormuz and other volatile parts of the Middle East to ensure oil flowed around the globe<sup>viii</sup>. Hence to decrease its vulnerability on overseas oil, the Chinese government announced in Sept 2013 it will invest \$13 billion in domestic oil and natural gas exploration. A point to note however is that China's recoverable shale gas reserves are estimated to be 25 trillion cubic meters, 50 percent larger than those of the US which could be a later game-changer.

US increasing its domestic oil & gas production capacity have led it to decrease its import bill and leaving more oil supply on the global market. However this may be contradictory as decreasing US imports may lead to a glut in the oil market that could

depress oil and gas prices leading companies to slow production. Also as drilling in shale is expensive and more complex than conventional exploration, there are concerns that a market downturn could affect US output. Alexey Miller, head of Russia's largest energy company, OAO Gazprom has called expanding US shale output "a bubble that will soon burst." Abdallah Salem el-Badri, the head of the Organization of the Petroleum Exporting Countries stated the same in an interview that the US oil boom from shale will run out of steam by decade's end<sup>ix</sup>. In a counter statement, Ken Hersh, chief executive of NGP Energy Capital Management LLC, a private-equity fund stated that the immense amounts of oil & gas uncovered in recent years indicate that the US energy boom is not a supply question but rather about demand and the cost of production<sup>x</sup>.

To conclude we can raise numerous questions that arise on the viability and profitability of US shale reserves in the long-term. Fracking though making exploitation of shale reserves commercially viable has been subject of vigorous environmental debate for its impact on water sources and climate change. A poll last month by the Pew Research Center for the People and the Press found that opposition to increased use of fracking rose to 49% from 38% in the previous six months<sup>xi</sup>. However its instrumentation in bringing down the proportion of electricity produced by coal to lower US carbon dioxide emissions to an all time 18-year low in 2012 cannot be undermined. Though growth rates of US shale production are expected to become smaller in the future, various forecasts see US increasing the lead over Russia and Saudi Arabia until after 2020 and retaining it at least until 2030<sup>xii</sup>. If Russia and OPEC are correct in their perception of US shale boom being a bubble, even the coming decade or two will allow US to enjoy major advantages in the international power games changing course of many events.

*(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies CAPS)*

### Endnotes:

<sup>i</sup> PIRA: Shale production growth makes US largest liquids producer; Oct 16, 2013 available at <http://www.ogj.com/articles/2013/10/pira-shale-production-growth-makes-us-largest-liquids-producer.html>

<sup>ii</sup> The Wall Street Journal, U.S. Is Overtaking Russia as Largest Oil-and-Gas Producer; Oct 2, 2013 available at <http://online.wsj.com/news/articles/SB10001424052702303492504579111360245276476>

<sup>iii</sup> U.S. expected to be largest producer of petroleum and natural gas hydrocarbons in 2013, available at <http://www.eia.gov/todayinenergy/detail.cfm?id=13251>

<sup>iv</sup> U.S. petroleum product exports exceeded imports in 2011 for first time in over six decades; March 7, 2012; available at <http://www.eia.gov/todayinenergy/detail.cfm?id=5290>

<sup>v</sup> US oil boom could slash oil imports and strengthen USD; Aug 20, 2012 available at <http://webcache.googleusercontent.com/search?q=cache:http://research.nordeamarkets.com/en/2012/08/20/us-oil-boom-could-slash-us-oil-import-bill-and-strengthen-usd/>

<sup>vi</sup> China crude import bill 'to hit \$500bn by 2020; Aug 20, 2013 available at [http://www.tradearabia.com/news/OGN\\_241290.html](http://www.tradearabia.com/news/OGN_241290.html)

<sup>vii</sup> Data show China passing US as biggest oil importer; Oct 10, 2013 available at <http://www.cnbc.com/id/101102770>

<sup>viii</sup> Middle East Oil Fuels Fresh China-U.S. Tensions: Beijing Depends on U.S. Military to Secure Middle East Imports; Oct 10, 2013 available at <http://online.wsj.com/news/articles/SB10001424127887324755104579073283948517714>

<sup>ix</sup> The Wall Street Journal, U.S. Is Overtaking Russia as Largest Oil-and-Gas Producer; Oct 2, 2013 available at <http://online.wsj.com/news/articles/SB10001424052702303492504579111360245276476>

<sup>x</sup> ibid

<sup>xi</sup> ibid

<sup>xii</sup> Bloomberg, U.S. Becomes World's Top Oil Producer in 2013, PIRA Says; Oct 15, 2013 available at <http://www.bloomberg.com/news/2013-10-15/u-s-becomes-world-s-top-oil-producer-in-2013-pira-says.html>