



Consortium for Energy, Economics & the Environment

THE GEOPOLITICAL IMPLICATIONS OF U.S. SHALE AS A GLOBAL RESOURCE

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The past decade has seen substantial change in the U.S. natural gas and oil industry. Since 2000, rapid growth in the production of natural gas, oil and liquids from shale formations in North America has dramatically altered the national and global energy market landscape. Shale energy is providing national economic and security benefits as the U.S. has raced to become the second largest global energy supplier. The U.S. produced an average of 6.41 million barrels days in 2012, representing a 14% increase from 2011, according to the [U.S. Energy Information Administration](#). This represents the [largest annual gain in the number of barrels per day](#) since the industry began in 1859 when Pennsylvania's Drake well ignited the first American oil rush. Furthermore, the [U.S. is expected to emerge as the largest producer of oil and gas this year](#) surpassing Russia and Saudi Arabia.



Shale gas and oil constitute a new source of extractable energy for the post-industrial world. Countries that have considerable shale energy deposits (and those that are willing to drill for them) will be better positioned in the 21st century energy competition than those without such deposits. Similarly, shale gas will magnify the importance of geography in the U.S. and global markets. Countries that have shale deposits will help determine power relationships and alter the energy landscape that dominated the 20th century. “Because shale gas can be transported across oceans in liquid form by states’ coastline and with extraction technology, that only increases the preciousness of geography, rather than decreases it,” according to [Robert D. Kaplan, chief geopolitical analyst at Stratfor Global Intelligence](#). The same geographic importance holds true on the receiving end of liquefied natural gas (LNG) shipments, especially in regions such as Europe and Asia where energy imports will boost economic growth.

In order to capitalize on the full extent of its power as an expanding fuel source, natural gas and oil from shale must not be disadvantaged by government policies such as export limitations that protect competing fuels, such as coal or nuclear energy – while at the same time being sensitive to local community, environmental and water supply outcomes.

Expanding shale gas production in the United States is already impacting markets abroad. [LNG supplies from the U.S. will be diverted to European and Asian buyers](#), presenting energy consumers in Europe with a supply alternative to the Russian pipeline as they plan ahead. It is also exerting pressure on the current practice of indexing gas sales to a premium marker determined by the price of global petroleum products. However, oil-linked prices are likely to dominate global LNG markets in the near term with growth in short-term or spot trading, as noted by Chloe Hang in the March 18, 2013 issue of [Inside FERC](#). Because of this competition, Russia has begun accepting lower prices for its natural gas and is now allowing a portion of its sales in Europe to be indexed to spot natural gas markets, or regional market hubs, rather than global oil prices. This change in pricing terms signals a major paradigm shift for global energy economics, according to a [report by the Baker Institute](#). [Hang](#) also notes spot and short-term deals are also rising from 13% of the LNG

market in 2005 to 31% in 2012. Where the relative mix settles between short- and long-term may end up in balance because of pricing shifts yet to unfold.

In Asia, the formula in long-term contracts usually takes the form of a percentage of the crude oil price, plus a fixed differential. "It is a long run to go [before LNG prices de-link from oil prices]..." writes [Hang](#). Asia will be a major market for U.S. LNG exports reaching 40% of U.S. market share of Japan, China and Korea. A major displacement effect from U.S. LNG exports by 2028 will be posted to Australia, Thailand, China and Indonesia.

Shale developments in the United States are inciting revelations about possibility of technically and commercially viable shale gas resources in other areas around the world. Shale gas potential is being discussed in the United Kingdom, South Africa, Mexico, China, Argentina, India, Australia, Poland and [elsewhere](#). Capital, technology, legal system infrastructure, geology and property ownership support will determine the timing of eventual international development, but for now, the U.S. will enjoy almost a decade's head start over the global competition. The enormity of global shale gas potential will have significant geopolitical ramifications and exert a powerful influence on U.S. energy and foreign policy.

Geopolitical impacts

The geopolitical repercussions of expanding domestic shale gas production include the following:

Increasing Domestic Supply

- Virtually eliminates the U.S. requirements for imported LNG for at least 20 years.
- Lowers the global requirements for natural gas from geopolitically volatile regions.
- Opens U.S. export markets to Europe for coal, efficiency and clean tech products provided from U.S. manufacturers as they are used in the U.S. with proven results, offering export value to the European Union.

- Has already delivered large localized benefits to communities in the United States. Shale products have generated increased economic activity, developed a new tax base with increased revenues and broadened state prosperity. Even so, two-thirds of U.S. national shale potential still lies dormant in California. [California stands a good chance of emerging as the nation's top oil producer in the next decade, helping America towards what once seemed an unlikely goal of energy independence.](#)

Supply Changes & Insecurity in Volatile Regions

- Increases the opportunities for support of continued economic sanctions against Iran. Iran will have trouble advancing the development of pipelines to India or Pakistan until at least the mid-2020s, thus reducing a potential source of political tension between the United States and India.
- Creates a shift from uncertain oil supplies to greater use of natural gas without fear of increasing the power of large natural gas resource holders such as Russia, Iran and Venezuela.
- Reduces the threat that a natural gas cartel can be formed, and it will trim the petro-power of energy producing countries such as Russia, Iran and Venezuela.
- Diminishes the opportunity for Venezuela to become a major LNG exporter and thereby lowers longer-term dependency on Venezuelan LNG in the Western Hemisphere, Latin America, Caribbean and also Europe.
- Constrains and limits Iran's ability to tap energy leverage as a means to strengthen its regional power or to buttress its nuclear aspirations in the Middle East.
- Provides volatile areas in the Middle East and North Africa with critical time to sort out current political and social turmoil before their importance as energy suppliers grow. (China will be slower to respond with its shale resource because of geology, infrastructure and water supply limitations, according to a [recent article in the scientific journal Nature.](#))
- Compounds the declining use of Middle East oil which will free up U.S. military resources for possible Asia duty as threats from China and North Korea rise.

Changing International Relationships

- [Reduces Russia's market share in non-former Soviet Union Europe from 27% in 2009 to about 13% by 2040.](#) This diminishes the chances that Moscow will be able to use energy for political gain in the EU, and forces Russia to seek new markets incurring the associated pipeline and infrastructure costs.
- Reduces the future share of world gas supply from Russia, Iran, Qatar and Venezuela. [The Baker Institute report](#) also notes that without shale energy discoveries, these nations would have accounted for about 33% of global gas supply in 2040, but with shale reserves now in play, these levels are reduced.
- Reduces U.S. and Chinese dependence on Middle East natural gas supplies, lowering the incentives for geopolitical and commercial competition between the two largest consuming countries. Both countries are provided with new opportunities to diversify their energy supply from alternative sources in a free market with potential pricing advantages.
- Provides an opportunity for Japanese economic development and post-Fukushima recovery with LNG trade if found by the U.S. Department of Energy to be in the public interest.

Conclusion

Shale energy will limit the need for expensive imports of LNG into the U.S. reducing the U.S. trade deficit and helping to strengthen the U.S. economy. Shale gas will also lower the cost expected to be incurred by average Americans from reducing greenhouse gas emissions as the country switches to cleaner fuels. Greater shale gas production will create greater competition among suppliers in global markets. Steady U.S. and international prices for natural gas will foster security of supply and pricing benefits to U.S. manufacturing. U.S. exports should keep prices stable for natural gas in the U.S., but not increase volatility challenging the terms or prices of existing term contracts for suppliers, estimates [Hang](#).

The United States must promote a stable investment and regulatory climate that reduces uncertainty and encourages investment and development. Shale-producing states are already putting the U.S. onto that track, and enjoying the added benefits of job creation, infrastructure development and improvements, and market creation. To continue this momentum, the United States will need to adopt policies that ensure shale gas development can proceed steadily and predictably with sound environmental oversight for the long term while also attracting capital, maintaining existing resources (or securing new resources) for manufacturing, and ensuring benefits to the local communities whose landscapes and economies are now the agents of global change.

Additional resources

Rice University's James A. Baker III Institute Energy Forum and Harvard's Geopolitics of Energy Project have launched a two-year study on the geopolitical implications of natural gas. For more information about the project, visit

<http://bakerinstitute.org/research/geopolitics-natural-gas/#>.

A study released in June by Belfer Center for Science and International Affairs at Harvard University found that the shale oil revolution taking place in the United States could make the U.S. the top oil producer in the world in just a few years. Read the study "[The Shale Oil Boom: A U.S. Phenomenon](#)" [here](#).

Recent commentary by Center for Strategic and International Studies (CSIS) on "The Shifting Geopolitics of Natural Gas" can be accessed at <http://csis.org/publication/shifting-geopolitics-natural-gas>. CSIS is a bipartisan, nonprofit organization headquartered in Washington, D.C. founded in 1962.

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