

# The 'game changer'

## *Geopolitical implications of the 'shale gas revolution'*

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Shale gas, shale oil, tight gas, and tight oil are unconventional types of energy that due to technological advances of horizontal drilling in combination with a process known as hydraulic fracturing, or 'fracking' for short, have greatly expanded the ability of American producers to profitably extract natural gas and oil from low-permeability geological plays, shale plays in particular. The 'shale-gas revolution' in the United States has profound implications for the global energy landscape and by extension for international relations. Thus, shale gas has been called a 'game changer'.

Since the advent of shale gas, the U.S., which had been a large energy importer for years, has now become almost self-sufficient in gas. U.S. demand for imported Liquefied Natural Gas (LNG) has dropped significantly, and roughly 95% of the demand for natural gas can now be met by domestic production.<sup>1</sup> The price of natural gas in the U.S. collapsed to a record low of U.S.\$ 1.95 per million British Thermal Units (BTU) in April 2012. Prices are currently hovering around U.S.\$ 3.5 -4 per million BTU.<sup>2</sup> In the U.S. particularly, lower gas and electricity prices have given a competitive edge to industry and set in motion a process of re-shoring, (i.e. the return of energy-intensive companies that had left the U.S. in times of high energy prices).

In addition to gas production, shale oil and tight oil production in the U.S. are also expected to surge to the extent that the U.S. may become the world's largest oil producer, overtaking Saudi Arabia by the mid-2020s. This article discusses some of the geopolitical implications of the shale gas revolution. The first part looks at some of the potential consequences of greater U.S. energy self-sufficiency. Next, it will touch upon the question whether Europe has the potential to follow in America's footsteps and what implications such a development may hold.

### Drivers of the U.S. 'shale gas revolution'

As the world's largest economy, the U.S. is a major consumer of energy. Until recently, the U.S. imported most of its energy needs. In 2011 and 2012, the U.S. imported between 40-45% of its total energy consumption. This import dependence has always been viewed as a liability by policymakers. For example, former president George W. Bush considered the U.S. dependence on imported oil to be an urgent national security concern.<sup>3</sup> The notion that the U.S. relies on energy imports from geopolitical challengers and countries with which it has stark ideological differences and that are (potentially) politically unstable such as Saudi Arabia and Venezuela does not sit well with American politicians. As a consequence, energy security, defined as the availability of a steady and reliable supply of energy at an affordable price, has traditionally ranked as a top priority on the agenda of U.S. policy-makers. Shale gas has been embraced as a means to rid the U.S. of its dependence on unreliable producer states.

### U.S. energy independence and the Middle East

Since the introduction of shale gas into the American energy mix, the U.S. has gone from being a net consumer

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of natural gas to being a net producer. This newly gained energy self-sufficiency will have major geopolitical implications.

First of all, it is not inconceivable that the U.S. may progressively disengage itself from the Middle East, where it traditionally holds a strong foothold. The strong military presence of the U.S. in the Middle East is related to its major strategic interests in the region. Since the Second World War, the U.S. has shown a keen interest in the region's energy resources and in particular the unhindered transit thereof. In order to secure its supplies the U.S. gradually built up a military presence in the Middle East to patrol the sea lanes, especially the Strait of Hormuz and other waterways that are vital for energy transport and to protect other energy-related infrastructure such as pipelines, refineries, and processing plants. This presence provided a solid ground to conclude strategic partnerships with important energy producers, such as Saudi Arabia, Kuwait, Qatar and other states of the Gulf Cooperation Council.

U.S. energy interests explain why the country went from siding with Iran and containing Iraq during the 1960s and 1970s to siding with Iraq and containing Iran during the Iran-Iraq war of the 1980s. Energy interests are also considered to have played an important role in the decision of the U.S. to intervene in the 1990-91 Gulf war when Iraq invaded Kuwait, thus disrupting the supply of Kuwaiti oil to the world market. The strategic alliance with Israel has been a constant in U.S. foreign policy since the state came into existence in 1948 and plays a dominant role in steering U.S. policy toward the region. Other interests include the countering of terrorism, Islamic radicalization, and sectarian violence and the curtailing of the nuclear ambitions of Iran that could trigger an arms race with other states in the region, and bringing an end to the violence in Syria. These objectives, and the U.S. interest in maintaining maritime security and stable global energy prices, will remain important elements of U.S. foreign policy, making it unlikely that the U.S. will fully withdraw from the region.

Having said that, the advent of shale gas and other unconventional fuels may accelerate the reorientation of U.S. foreign policy announced under the presidency of Barack Obama who spoke of a pivot towards Asia and the Pacific. If pursued, this partial disengagement of the U.S. from the Middle East could free up capabilities that can be used to advance U.S. interests in other parts of the world. It would certainly allow Obama to conduct a more assertive policy towards China, for example.

The reduction of the American military footprint in the Gulf may have consequences for the region's stability. Emerging economies with growing energy needs, China and India in particular, will most likely be interested in stepping into the vacuum. In order to secure its future energy supply, China has started to diversify its supplier base, mostly by acquiring access to energy resources on the African continent. India is following a similar strategy of trying to acquire energy resources abroad and may have an active interest in importing oil and gas from the Middle East.

What is important in this context is whether China and India will also seek to gain greater stakes in regional security in order to protect their economic interests. Such actions could dampen fears of supply disruptions and potentially bring down oil prices. However, it will take decades — if ever — before the Chinese and Indian navies can match the forces of the U.S. Therefore, it is not unimaginable that increased competition between China and India could destabilize the region. That such a prospect is plausible can be illustrated by several developments. First, after a series of pricing disputes between China and Iran prompted Beijing to reduce its imports of Iranian oil, India decided to substantially increase its imports of Iranian crude, thus effectively scooping up China's share. Second, coinciding with its increase in energy-related investments in the region, India has already increased its military presence by inaugurating a new naval and air base at the southern tip of the Andaman and Nicobar Islands in August 2012. China similarly has stepped up its presence in a string of ports and bases around India's southern periphery. Finally, a decision that set alarm bells ringing in India was that of the government of Pakistan to transfer the management of the Pakistani port of Gwadar to China, a location en route to key Strait of Hormuz shipping lanes. Meanwhile, India is eyeing the Iranian port of Chabahar for direct access to Central Asia, a mere 76km away from the Chinese-operated port in Gwadar.

The security implications of an American shift away from the Middle East can be potentially detrimental to global stability as the U.S. will be less likely to intervene in cases of instability or when conflict erupts. As indicated above, it is unclear whether China and India will be willing and/or able to take over the role of 'global policeman' occupied by the U.S. since the end of the Second World War. Moreover, it remains to be seen to what extent Russia will be willing to exert its influence to put pressure on Iran and Syria. The geographic proximity of the region may also create new security challenges for Europe, which will have to pay greater attention to its responsibilities to secure its backyard.



## Social contracts under pressure

Another set of challenges brought about by greater U.S. energy self-sufficiency involves the potential for a decrease in the resource income of energy-exporting countries. As noted above, the U.S. has been a large energy importer for years and was projected to remain so well into the future. Now, due to shale gas, LNG exports originally presumed destined for the U.S. market have been partly rerouted to Europe and notably to Japan, who since the Fukushima incident has been in great need of replacing lost nuclear power. This development has caused natural gas prices in spot markets to decline significantly, in effect turning Europe into a buyers-market.

This development also puts stress on the traditional construction in European and Asian markets whereby natural gas contracts are long term and pegged to the price of oil, coupled with a 'take-or-pay' clause that obliges the client to purchase a minimum amount of gas irrespective of market demand. With demand in Europe low due to the economic crisis and natural gas prices dropping due to the influx of LNG, many consuming countries and energy companies have entered into negotiations with natural gas producers to

revise their long-term contracts, opening up a larger share of the contract to spot pricing, in the anticipation that gas prices will fall further.

The competition from LNG has had the effect of worsening the negotiating position of Russia's Gazprom vis-à-vis European states. Forced to grant discounts to its key clients in Europe, the Russian government rightfully views this development as problematic. Such a reduction in prices negatively affects the income of energy-exporting countries. Moreover, the greater availability of LNG worldwide has prompted transportation companies as well as governments to look at ways in which LNG can be used in commercial transport. Similarly, natural gas could also replace oil in power stations, petrochemical plants, and domestic and industrial heating systems. Furthermore, it is unrealistic to assume that emerging economies will follow an energy-led development path identical to OECD countries. Instead, it is more realistic to anticipate that some degree of energy decoupling will take place. Energy security is a top priority for India and China, and stringent fuel-efficiency measures as such serve more than a purely environmental purpose. All of the above factors are likely to lessen demand for oil. Given the higher price of oil per

[The 'shale gas revolution': hydraulic fracturing, or 'fracking', has greatly expanded the ability of American producers to profitably extract natural gas and oil from new sources \(photo: Wikimedia/Joshua Doubek\)](#)

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energy content compared to natural gas, such a displacement is likely to hit hard those countries that rely on the income generated by oil sales. Taking into account that natural gas-exporting countries are often also reliant on oil exports, these developments are likely to worsen economic conditions in countries such as Russia, Algeria, Egypt, Qatar, Saudi Arabia, Azerbaijan, and Kazakhstan. The onset of shale gas thus acts as a catalyst for accelerating the shift from oil to natural gas.

Decreased government revenue may act as a major trigger for political and social instability because in many energy-exporting countries goods and services, including fuel, health, and education, are heavily subsidized by the government. These subsidies are part of a so-called 'social contract' between the government and the population, which serves as a safeguard against popular uprisings against the ruling regime. Examples can be observed in the so-called 'rentier-states' in the Gulf region. During the Arab revolutions of 2011, several Gulf states resorted to higher social spending in order to prevent the spill-over of social unrest from North Africa. In Bahrain, for example, the king gave each family about \$3,000 in order to dampen the desire to protest. This social contract, however, is precarious and becomes threatened when decreased energy revenues force governments to lower subsidies and social spending. Reduced energy revenues may result in a decline of the GDP, which negatively affects employment. High youth unemployment is a major factor for internal dissent. It may trigger social unrest and uprisings against the ruling regimes, especially in a context in which other factors causing popular dissent are also present, such as social inequality, corruption, poor governance, sectarian or ethnic tension, or lack of political freedom. The fact that many of the energy-exporting countries in Europe's neighbourhood are facing such problems makes decreased government revenues a genuine risk.

### Can the EU follow the U.S. example?

Another consequence of the shale-gas revolution is that countries around the world are keen to replicate the U.S. experience. Shale-gas resources can be found in many countries worldwide. Currently, commercial production of shale gas is limited to North America, but according to the available data, large technically recoverable shale-gas resources can also be found in China, Argentina and Algeria.<sup>4</sup> Traditional hydrocarbon exporters such as Russia, Saudi Arabia, and Libya are believed to hold significant reserves as well. However, given their vast conventional reserves, these traditional energy suppliers are in less of a hurry to develop their domestic shale-gas resources. In contrast, a country

like Jordan with no significant oil or gas reserves may be home to large shale-oil resources that could potentially give a great boost to the country's hydrocarbon reserves.

In Europe, the largest technically recoverable shale-gas resources are located in Poland, France, Ukraine, Southeastern Europe, the United Kingdom, Denmark, and the Netherlands. Many countries, especially net energy importers, have started conducting tests to see if they too can become more energy self-sufficient. Shale gas has been welcomed in Europe as a means to reduce its dependence on Russian gas. In order to dampen the dominant position of Gazprom on the European gas market and to lessen the geopolitical influence of Russia over Europe, the EU and European governments have increased their investments in European gas infrastructure and worked toward further liberalization of the European gas market. The emergence of shale gas could help the EU to meet its gas targets and reduce its dependency on external suppliers, Gazprom in particular. Proponents also hail the possible environmental benefits of shale gas, which may have a smaller environmental footprint than other fossil fuels and can be used to reduce Europe's CO<sub>2</sub> emissions that contribute to climate change.

It is unlikely, however, that European countries will be able to replicate the U.S. experience in the short term. Overall exploration activities are taking off relatively slowly due to technical, financial, and legislative challenges, and opposition from civil society. First of all, exploration activities are time- and capital intensive. In addition, differing geological circumstances may make the recovery of shale gas technically more challenging and therefore less profitable than in the U.S. Second, the rapid expansion of shale-gas development may be hampered by stricter regulatory and environmental standards, and different land ownership rights. For example, companies in the U.S. are not obliged to publicize what chemicals they use for fracking, and in some states fracking is exempted from the provisions of the Safe Drinking Water Act. In the EU, by contrast, all chemicals used for fracking must meet the requirements of the EU's REACH (Registration, Evaluation, Authorization and Restriction of Chemical Substances) regulation.<sup>5</sup> Finally, large parts of European society are concerned about the impact of fracking on the environment and human health. Popular protests have delayed or even led to moratoria on drilling for shale gas. Protesters are particularly worried about the impact of the chemicals used for fracking on the quality of ground water and drinking water. Under the pressure of public opinion, fracking has been banned in France and Bulgaria. Moreover, the mere announcement of shale gas exploration has led to protests, as illustrated by the

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March 2013 protests in Romania after several exploration licences were granted.<sup>6</sup>

### Final remarks

Irrespective of whether Europe and/or other countries worldwide are able to follow the U.S. example, shale gas and other unconventional fuels are already causing a major upheaval in the global energy landscape. The revenues of traditional energy-exporting countries are under pressure, and this pressure is unlikely to taper off in the foreseeable future.

The extent to which energy-exporting countries may suffer from instability depends to a large extent on the type of regime in the country in question. Research conducted by the Center for Systemic Peace underlines that 'anocracies'<sup>7</sup> are much more exposed to a change in energy prices than democracies or outright autocracies.<sup>8</sup> Having said that, countries such as Qatar and Saudi Arabia, although falling in the latter category and who thus may prove more stable over time, are also faced with post-Arab-Spring budgets that allow less leeway due to increases in social spending. Research currently undertaken by The Hague Centre for Strategic Studies (HCSS) & The Netherlands Organisation for Applied Scientific

Research (TNO) indicates that *anocratic* countries such as Algeria and Russia may be particularly vulnerable to instability caused by a gradual displacement of oil by natural gas on the global energy market.<sup>9</sup>

This means that Europe could be confronted with heightened instability in two of its most important natural gas-providing countries. This observation sheds a different light on the pursuit of energy security, measured in terms of a lessened dependency on what in political science circles are often seen as unreliable supplier countries. Pursuing energy security at all cost thus can fundamentally rock the foundations of energy-exporting countries. Pursuit of greater energy self-sufficiency should therefore always be carried out in a balanced manner, taking into account the possibility of greater instability in Europe's neighbourhood.

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*Increased competition between China and India could destabilize the Gulf region*

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