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# Rising U.S. LNG exports could lead to European gas price war

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An LNG tanker docks at the port of Rotterdam. Europe sees LNG as a way to diversify its sources of natural gas, much of which it obtains through pipelines from Russia (source: dpa)

The glut of liquefied natural gas (LNG) in the global market is growing as exports from the United States increase and demand from Asia wanes. These trends are fueling competition in regional gas markets, and none is as hotly contested as Europe, which could become the market of last resort (also known as a “sink” market) for U.S. LNG. If it does, a price war could break out as American LNG exporters battle Russia’s Gazprom and its pipeline-transported gas for market share. The geopolitical implications of such a conflict could be far-reaching.

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Until recently, most experts expected the majority of U.S. LNG exports would be



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shipped to Asia rather than Europe, since gas prices in Asia were much higher. However, by the spring of

2015 Asia's gas prices had already decreased 65 percent from around \$15.60 per million British thermal units, or MMBtu, their peak in 2014, to near European levels. This has given American companies a powerful financial incentive to export to Europe, and meshes with U.S. geopolitical interests to support the EU's efforts to diversify its gas sources.

Previous forecasts for the future of U.S. LNG exports have overlooked some fundamental changes in the gas markets of China, Japan and South Korea. There is already a global gas glut, and a new wave of LNG production (especially from Australia, which may replace Qatar as the world's largest LNG exporter) is set to hit the market in 2017 and 2018. In all, around 150 million tons of gas per annum (mtpa) is expected to be added to the market between 2015-2020. Almost half of this will come from the U.S. and 53 mtpa from Australia.

**“U.S. LNG exports must not only compete with other LNG supplies, but also with Gazprom's pipelines**

In Europe, however, U.S. LNG exports must not only compete with other LNG supplies, but also with gas coming through Gazprom's pipelines, priced around \$4-6 per MMBtu. In 2015, almost 90 percent of the Russian firm's natural gas exports went to Europe. For Gazprom and Russia, increased U.S. gas exports to Europe would present a threat to its market share of more than 30 percent, its pricing and its contract models, as well as Russia's geopolitical influence in Europe.

### **Market transformation**

The worldwide LNG trade has increased both in volume and in market share versus gas pipeline transports. In 1990, nine countries imported LNG and eight countries exported it. By 2015, those numbers had risen to 34 and 19, respectively. Prices are less frequently tied to the price of oil. Before 2010, 76 percent of contracts had oil-indexed pricing formulas. About half of the contracts concluded since then use gas-to-gas indexes. Fixed destination clauses in LNG contracts declined from 60 percent in 2014 to 40 percent in 2015. Technological innovation – such as modular construction of liquefaction plants and small-scale Floating Storage Regasification Units (FSRU) – have contributed to the LNG revolution.

The global LNG market has already doubled in size over the past decade. Its share of the total international gas trade increased from 23.5 percent in 1990 to 31.2 percent in 2014. The International Energy Agency (IEA) forecasts a 30 percent

increase in LNG export capacity by 2040. By 2030, if all proposed LNG projects are implemented, production would reach 780 mtpa, greatly increasing the gap between global supply and demand.

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### Global LNG market

- 2000: 100 mtpa
- 2010: 217 mtpa
- 2014: 231 mtpa
- 2020: up to 400 mtpa (planned projects)
- 2025: 650 mtpa (planned and proposed projects)
- 2030: 780 mtpa (planned and proposed projects)


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The rise and resilience of the U.S. shale gas industry is unprecedented. Once predicted to become the world's largest LNG importer, in November 2016 the U.S. became a net exporter of natural gas for the first time in nearly 50 years. By 2011, it had already become the world's largest gas producer, surpassing Russia. The first shipment of LNG from the U.S. Gulf Coast (through the Sabine Pass in Texas) set off in February 2016 headed for Brazil. Because demand in South America, the Middle East and India was stronger than expected, the U.S. made only four shipments to Europe in 2016: to Portugal, Spain, Italy and the UK (Scotland). There were also two shipments to Turkey.

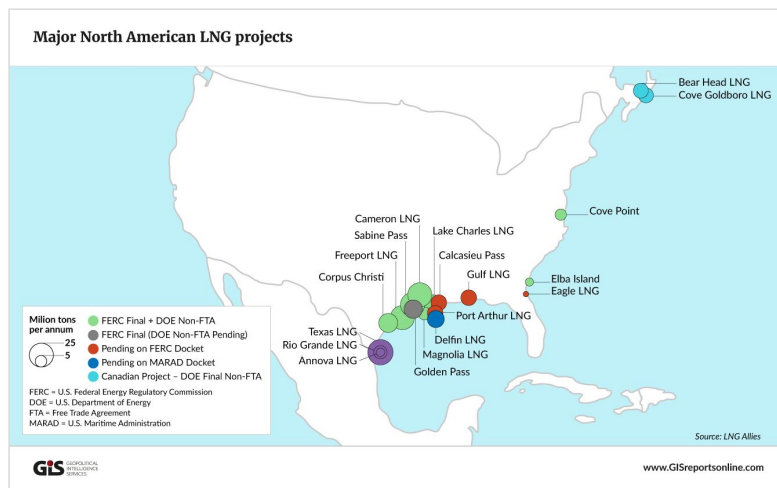
By 2018, the U.S. could become the world's third largest LNG exporter. American LNG exports are expected to rise from 41.1 mtpa (about 56 billion cubic meters, bcm) in 2016 to 50-62 mtpa (about 69-85 bcm) in 2019. This could increase further to more than 120 bcm/y by mid-2020, exceeding Australia's production. The U.S. has six LNG export terminal projects currently under construction. Another 15 are under review or have already obtained construction permits.

| Major U.S. LNG export projects     |           |              |              |             |
|------------------------------------|-----------|--------------|--------------|-------------|
| Project stage                      | Projects  | MTPA         | Bcm/yr       | Bcf/day     |
| <b>Under construction</b>          | 6         | 70.9         | 97.7         | 10          |
| <b>Permitted</b>                   | 2         | 41.3         | 57           | 5.7         |
| <b>Formal environmental review</b> | 8         | 91.3         | 125.9        | 12.7        |
| <b>Pre-environmental review</b>    | 5         | 105.1        | 145          | 15.1        |
| <b>Total</b>                       | <b>21</b> | <b>308.6</b> | <b>425.6</b> | <b>43.5</b> |

Source: Federal Energy Regulatory Commission & LNG allies


www.GISreportsonline.com

There are 21 planned or under construction LNG export projects in the United States. In 2012, the U.S. became the world's largest gas producer (source: macpixmap for GIS)



Many of the LNG projects in North America are on the U.S. Gulf Coast, while others are on the East Coast – making Europe a much closer destination for exports (source: macpixmap for GIS)

President Donald Trump may hasten the U.S.’s gas production and exports even further as part of his “100-day action plan” for achieving “complete U.S. energy independence” by revising environmental legislation and taxes for American energy companies. According to the *Nikkei Asian Review*, this could mean that the U.S. could become the world’s largest LNG exporter by 2019.

## Asian demand

Asia is the world’s biggest consumer of LNG. The current oversupply in global gas markets is the result not just of rapidly increasing gas production. It also stems from slower economic growth in China and India, increasing energy efficiency, the restarting of nuclear reactors in Japan and South Korea, as well as the strong position of cheap coal in the region. Together, Japan and South Korea consume 125 mtpa of global LNG exports and account for 70 percent of all Asian LNG imports.

Asia is many years behind Europe in its shift from long-term contracts to a freely floating spot market. China’s gas market is still underdeveloped, while Singapore’s consumer base and storage capacity are too limited for it to become an Asian LNG hub. Investment plans are also hampered by low LNG prices.

Given the high cost of Australia’s LNG export investment projects, switching those new plants off is not really an economically viable option. Instead, operators are forced to sell their LNG below cost in order to maintain cash flow. Most of Australia’s LNG exports will be sold in the nearby Asian markets, leaving only a few export options for new U.S. LNG exports.

## European gas market

Europe must cope with its legacy of high dependence on gas pipeline imports from Russia, based on long-term contracts, oil-price indexation and rigid contract clauses. Until the mid-2020s, European gas companies are contractually obliged to

import about 115 bcm annually. This will decline to around 65-100 bcm by 2030.

## “The EU’s efforts to increase competition have forced Gazprom to accept hybrid pricing

The EU’s efforts to increase competition and diversify imports have forced Gazprom to accept hybrid pricing, increasingly based on gas-to-gas indexation. The prospect for the EU to import any more gas has been dampened by a more than 20 percent decline in consumption between 2010 and 2014. Along with the revolutions in U.S. shale gas and LNG globally, these trends have transformed Europe from a seller’s market to a buyer’s market, decreasing the influence of Russia’s “pipeline diplomacy.” Although imports increased over the past two years, demand is expected to fall or stagnate by 2030-2040. However, imports could grow somewhat to replace the EU’s declining indigenous gas production.

Between 2013 and 2015, LNG imports decreased in European OECD countries, mainly due to lower spot market prices compared with those in Asia. The EU’s technical import capabilities are due to increase from 195 bcm in 2015 to 211 bcm by 2019. However, the bloc’s utilization rate of this capacity declined from 53 percent in 2010 to just 19 percent in 2014. Nevertheless, The EU Commission’s 2016 LNG strategy sets forth a goal of importing more to diversify its gas sources.

### **Scenario #1: High prices in Asia**

China remains the biggest LNG wildcard both in Asia and globally. While natural gas accounts for about 25 percent of the world’s energy mix, in China the figure is just 6 percent (it consumed about 205 bcm and imported about 72 bcm in 2016). China’s gas consumption will grow significantly, boosting its demand for gas imports, but by how much is unclear, due to uncertainties surrounding how much unconventional gas it will produce (currently about 25 percent of its total gas production). By the end of 2017, it is due to nearly double unconventional gas production to 40 mtpa from 2015’s figure of 22 mtpa.

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#### **China’s new gas consumption plan**

2020: 360 bcm/y (10% of total energy demand)  
2030: 600 bcm/y (15% of total energy demand; previous plan: 510bcm/y)

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As early as this year, China may become the world’s second-largest LNG importer (overtaking South Korea) and the world’s

largest (up to 120-150 bcm/y) by 2025-2030, surpassing Japan, which imported 118 bcm of LNG in 2015.

If China's domestic gas production proves disappointing and results in much higher demand for imports, prices could rise, overtaking those in Europe. That would make U.S. LNG exports to East Asia more profitable and decrease the amount headed to Europe. A price war between Gazprom and U.S. LNG exporters would become much less likely.

## **Scenario #2: Low prices in Asia and Europe**

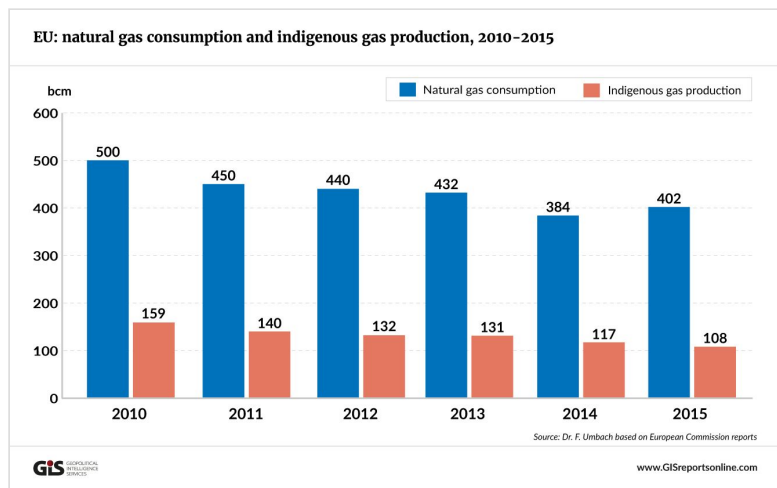
Last November, the Henry Hub price (the primary pricing point for North American natural gas) for U.S. LNG imports in Europe was around 50 percent higher than the price for Russian gas delivered through the Nord Stream 1 pipeline. American LNG exporters have struggled to sell in Europe at competitive prices without taking losses. However, their room for competition could grow in the coming years.

Europe has an important advantage in that American LNG tankers can take a shorter, more direct route there than to Asia. The expansion of the Panama Canal will allow larger LNG tankers to reach Asia from the U.S. Gulf coast in just 25 days (significantly shorter than the 45-50 days by alternative routes), but shipping along that route remains more expensive than shipping to Europe. Europe has three more advantages over Asia: its hugely underutilized LNG import and regasification facilities, its much larger underground storage capacity of 108 bcm (one quarter of the global total, and even more if Ukraine's underutilized sites are taken into account), and its better-functioning gas hubs (both physical and virtual) with spot market mechanisms.

**“If Europe becomes the only “sink” market for American LNG exports, the U.S. may become more dependent on the European gas market than Europe on U.S. imports**

Europe's demand for LNG imports is forecast to reach between 61 mtpa (83 bcm) and 108 mtpa (147 bcm) by 2030. If Europe becomes the only “sink” market for American LNG exports, the U.S. may become more dependent on the European gas market than Europe on U.S. LNG imports for its gas supply security, given its alternatives (Russia and other LNG suppliers). For now, however, Europe would welcome much more LNG from the U.S., due to its interest in diversifying its gas imports and ensuring U.S. engagement under President Trump.





Natural gas consumption in Europe has ticked up, after four years of declines. Imports could replace falling indigenous production (source: macpixmap for GIS)

## Price war implications

An escalating gas price war and fight for market share at the already low gas price levels would certainly be difficult for U.S. energy companies. Many Western experts claim Gazprom can easily compete as a low-cost producer – it has surplus production capacity of more than 100 bcm. Its most effective counterstrategy might be to dump large volumes on European spot markets (Russia could lower its 30 percent export tax if necessary) to undercut U.S. LNG prices.

However, such arguments overlook several factors. Firstly, American LNG exports can theoretically be sold in Europe for less than \$3.40/MMBtu, near or even below the break-even price for Russian gas from West Siberia. Secondly, Gazprom is facing increasingly difficult challenges. Its market value has dramatically declined since 2010 and it has lost significant market share in Russia to rivals (Rosneft and Novatek among others). Its Asia strategy is stalling – exports are seeing significant delays and it has yet to agree upon any more projects other than the 38 bcm “Power of Siberia” pipeline (its goal is to export 100 bcm to China).

Finally, the Russian state must cope with economic difficulties, made worse by Western economic sanctions and the rapid depletion of its strategic Reserve Fund. While Russia’s overall economy and state budget are dependent on high oil and gas prices, Gazprom can compete with U.S. LNG much better when they are low. As the oil price increases, the gap between spot prices and Russia’s export prices grows, putting Gazprom at a disadvantage.

**“Ultimately, neither U.S. LNG exporters nor Gazprom would really win a gas price war**

While Gazprom has already (unwillingly) adapted to changes in the gas market by accepting a hybrid pricing strategy in Europe, it is only partially able to fight back. Its new gas fields

in Yamal, which feed the Nord Stream 1 and 2 pipelines, are located in the Arctic, about 4,000 kilometers from the EU. The region's permafrost, long winters and low temperatures (to -50 degrees Celsius) make production and transport costs much higher. If Gazprom needed to price in all its investment and operating costs for the Yamal fields, as well as for its new pipelines from these fields to connections with the Nord Stream pipeline on its Baltic coast, the gas produced there could not compete in the European market.

Russian experts privately admit that the gas from the costly Yamal fields is essentially being subsidized by its highly profitable old gas fields. However, given the decline in Gazprom's profits due to low gas prices, corruption and other inefficiencies, the company is already facing enormous problems – even despite record gas exports to Europe in 2016. It has very little room for any sort of gas price war in Europe. Ultimately, neither U.S. LNG exporters nor Gazprom would really win a gas price war. European consumers could benefit, but only in the short term.

In the longer term, it could lead to less import diversification, failing investments and ultimately higher prices and volatility in Europe. Gazprom's business prospects might deteriorate and its market share further decline – leading it to reduce investments in new projects. That would have a big impact on Russia's economy and national budget, as well as its geopolitical influence. It is facing increasing competition from Iran, which has the world's largest gas reserves of nearly 34 trillion cubic meters and is eager to increase its own gas exports to both Asia and Europe.

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