

The Era of the Gas Mega-Players

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Within 10 years, three exporters will tower over the global gas world: Russia, the United States, and Qatar. Other exporters—Norway, Australia, Canada—will remain big players, but their influence will be regional, not global. New entrants will emerge, and existing players will expand their presence, but no country will match the big three in scale, growth, and reach. China will meanwhile become the largest destination for gas, surpassing Japan in imports and closing in on Europe as a whole.

These profound changes will rewire the gas system, making it more integrated and competitive. But the system may also allow these mega-players the opportunity to exercise market power, using levers at their disposal to influence prices and flows. Geopolitics might also weigh heavily as a possible driver of behavior or source of friction. The gas world will thus be pulled in three directions: more integration and competition, more efforts to exercise market power, and more geopolitics complementing and complicating market forces. The big question is which of these three competing forces will have a greater say in this new gas era.

Four Mega-Players

In 2018, there were six major gas exporters in the world, accounting for over 60 percent of global exports.¹ Of these, Norway, Australia, and Canada have limited near-term upside and largely supply one region—Europe, Asia, and North America, respectively. By contrast, the other three suppliers—Russia, Qatar, and the United States—have major expansion plans and can supply multiple regions. It is this combined effect—volume of exports, growth prospects, and geographic reach—that sets the big three apart from the rest, just as China’s scale and growth sets it apart among importers (more on that below).

Russia exported 248 billion cubic meters (bcm) in 2018, mostly via pipeline to Europe.² In the next decade, its liquefied natural gas (LNG) exports will almost triple to 68 bcm as the Yamal LNG project reaches full capacity and Arctic 2 LNG comes online (plus two smaller projects). On the pipeline front, Russia will add the Power of Siberia line to China (38 bcm) and likely two pipelines to Europe: Nord

1. Data from BP, *Statistical Review of World Energy* (London: 2019), <https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html>.

2. *Ibid.*

Stream 2 (55 bcm) and TurkStream (31.5 bcm). Russia's export capacity will thus grow by roughly 168 bcm and perhaps more, although whether this much additional gas is actually exported is another question (more on that below).

Qatar exported 125 bcm in 2018, mostly via LNG and mostly to Asia.³ Qatar Petroleum plans to expand its LNG capacity in-country by 43 percent;⁴ it will also build a major LNG export project in the United States.⁵ Qatar's LNG exports will grow by roughly 45 bcm once the planned expansion at Ras Laffan is done, its exports then topping 170 bcm. Given that Qatar Petroleum will also have access to about 22 bcm from its Golden Pass facility in the United States, the country's true control will be over 190 bcm.

The United States exported 96 bcm in 2018, 70 percent by pipeline, although it net exported less, courtesy of sizable pipeline imports.⁶ Pipeline exports have grown steadily and will continue to do so—per the Energy Information Administration, pipeline exports will be 66 percent higher in 2028.⁷ But the true upside, and the reason the United States will be a major global player, is LNG. Exports in 2018 were just 28 bcm. Once all projects under construction come online in the mid-2020s, U.S. LNG exports will reach over 140 bcm, a five-fold increase.⁸ And there is more upside beyond that.

The contrast with the other three main exporters is clear. Norway's exports will hover around 120 bcm in the coming decade.⁹ Canada will start LNG exports, but pipelines will remain its main outlet: net exports are likely to be similar in 2028 as in 2018.¹⁰ Australia's exports will grow modestly due to projects ramping up, but no LNG export project has been sanctioned since 2012, although some are advancing; by 2028, Australia's exports might be similar to Norway's. And these exporters will largely serve the same regional markets they do today. In short, the world's other major gas exporters will not change much, seeing some growth perhaps, but nothing like the big three.

On the demand side, China's meteoric rise as a gas destination stands out. China started to import LNG in 2006, and pipeline imports only began in 2010. Yet in over a decade, China has become the focal point of the global gas market. From 2012 to 2018, China took in half of the growth in global LNG supply. In 2017, it surpassed South Korea to become the second largest LNG importer. And in 2018, it overtook Japan as the largest importer overall, including for pipeline gas. By 2024, the International Energy Agency expects China's LNG imports to surpass Japan's, rising 48 percent compared to 2018.¹¹ And there is more upside: pipeline imports from Central Asia keep rising, up 23 percent in 2018, as Kazakhstan and Uzbekistan ramp up supplies. By year-end, the Power of Siberia pipeline from Russia will start flowing as well, although it

3. Ibid.

4. "Qatar Petroleum advances LNG expansion of North field project," Oil and Gas Journal, April 15, 2019, <https://www.ogj.com/pipelines-transportation/lng/article/17279072/qatar-petroleum-advances-lng-expansion-of-north-field-project>.

5. "ExxonMobil, Qatar Petroleum to proceed with Golden Pass LNG export project," ExxonMobil press release, February 5, 2019, https://corporate.exxonmobil.com/news/newsroom/news-releases/2019/0205_exxonmobil-qatar-petroleum-to-proceed-with-golden-pass-lng-export-project.

6. BP, Statistical Review of World Energy (London: 2019), <https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html>.

7. Energy Information Administration, Annual Energy Outlook 2019 (Washington, DC: Department of Energy, January 2019).

8. Energy Information Administration, U.S. liquefaction capacity, updated August 30, 2019, <https://www.eia.gov/naturalgas/U.S.liquefactioncapacity.xlsx>.

9. Norwegian Petroleum, "Expected volumes of sales gas from Norwegian fields (1995-2035)," <https://www.norskipetroleum.no/en/production-and-exports/exports-of-oil-and-gas/>.

10. Canada Energy Regulator (formerly National Energy Board), "Chapter 3. Reference and High/Low Price Case Results" in Canada's Energy Future 2018, <https://www.cer-rec.gc.ca/nrg/ntgrtd/ft/2018/chptr3-eng.html>.

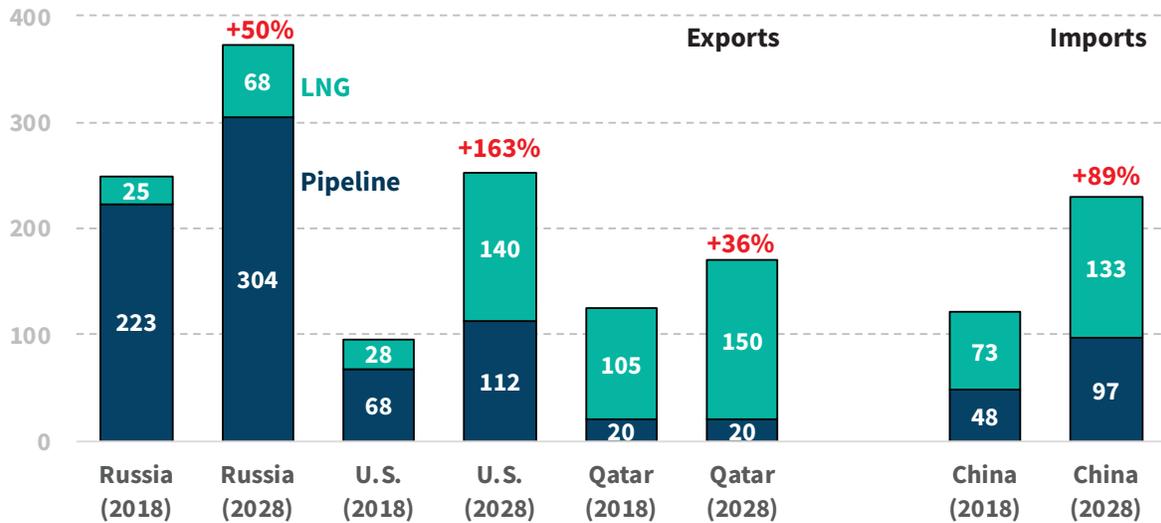
11. International Energy Agency, Gas 2019 (Paris: 2019), <https://www.iea.org/gas2019/>.

will be a few years before it reaches its full capacity. But within 10 years, China’s pipeline imports are likely to double and, perhaps, will grow further.¹²

The contrast with other importers is stark. Europe’s imports will rise, but the overall gas market is unlikely to grow and might even shrink. Europe will retain its global significance as a market of last resort, of course; but it is moving from the center to the periphery of the new system. Japan’s LNG imports will shrink, too—by a lot or by a little, depending on what happens to nuclear power and other fuels. But shrink they will. And no other market will come near these two. Germany’s imports will rise but so will its exports, mostly changing how Russian gas gets to Europe.¹³ India still imports half as much LNG as South Korea—it will be years before India becomes a truly global player. China’s rise will thus contrast starkly with modest import growth in Europe, decline in Japan, and smaller increases elsewhere. China will be the indispensable sponge, the place every gas molecule is trying to reach.

The Gas Mega-Players in 2018 and 2028

billion cubic meters (bcm)



Data for 2018 from BP, BP Statistical Review of World Energy (London: 2019). For Russia, the pipeline forecast includes Power of Siberia (38 bcm), Nord Stream 2 (55 bcm), and TurkStream (31.5 bcm), but the latter two are assumed to partially reroute gas now sent via Ukraine (only 50 percent of their capacity is shown as new gas). The LNG value includes Sakhalin-2, Yamal LNG, Arctic 2, Vysotsk, and Portovaya. For the United States, the pipeline value comes from Energy Information Administration, Annual Energy Outlook 2019 (Washington, DC: Department of Energy, January 2019). The LNG value only includes projects online or under construction in August 2019. The LNG figure for Qatar assumes an expansion to 110 million tons of annual export capacity. Pipeline exports are assumed to stay flat. China’s pipeline imports include 35 bcm from Turkmenistan, 10 bcm each from Kazakhstan, and 4 bcm from Myanmar. The LNG value is an extrapolation from International Energy Agency, Gas 2019 (Paris: 2019), which goes to 2024.

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More Integration, Competition . . .

Exports via pipeline have historically stayed within a region or, at most, been conducted between two regions, from Eurasia or North Africa to Europe, for example. LNG has been more diverse, but, in practice, most trade takes place either within the Asia Pacific region or from the Middle East to the Asia Pacific; together, these two flows alone accounted for 60 percent of the global LNG trade in 2018. Only Qatar has been able to supply meaningful volumes to two regions, Europe and Asia, even though its exports have been titled toward Asia.

12. For instance, see BP Energy Outlook 2019 (London: 2019), <https://www.bp.com/en/global/corporate/energy-economics/energy-outlook/demand-by-fuel/natural-gas.html>.

13. Nikos Tsafos, “How Nord Stream 1 Rewired German Gas,” Center for Strategic and International Studies Headlines versus Trendlines, July 30, 2019, <https://www.csis.org/blogs/energy-headlines-versus-trendlines/how-nord-stream-1-rewired-german-gas>.

All this will change. Russia will open a new pipeline to China and will expand its global reach through LNG. The most versatile global exporter, Qatar, will increase its exports and add a new source of supply in the Western Hemisphere. The United States, with its ability to reach Asia, Europe, and the Americas, will emerge as a significant exporter. And China will expand its LNG presence while building up a formidable network of pipelines from Russia, Central Asia, and Southeast Asia. For the first time, there will be multiple countries able to supply multiple regions, thus allowing market shocks to be transmitted from one place to another. This market may still lack a singular gas price, but it will be far more global.¹⁴

This will be a hard market to coordinate—there is unlikely to be a gas OPEC (Organization of Petroleum Exporting Countries). In the United States, export decisions are driven by many firms, mostly private, and no entity is in charge of the system, although government policy can have an impact (more on that later). In Russia, the rise of NOVATEK has broken Gazprom’s export monopoly, and Rosneft might follow suit, meaning there is now competition in Russian gas. Only in Qatar is there a shift to centralize decisions, largely in search of efficiency and a desire to optimize a growing portfolio. There is no reason to think that these three exporters would ever coordinate to drive a market outcome.

... But also Prospects of Market Power

Two major changes, however, will make this system more susceptible to the exercise of market power: the ability to increase or decrease volumes to influence prices. First, the world is slowly moving away from oil indexation—when prices are set in relation to oil, adjusting output does not have a clear and immediate impact on price.¹⁵ In a system set by real-time fundamentals, tweaking output can have an impact. Second, the historical tendency to operate pipeline and LNG at full capacity might weaken, in part because depreciated assets allow companies to make decisions based on short-run, variable costs and in part because more players might see the value in holding spare capacity at times.

Russia will have the most spare capacity, especially if both Nord Stream 2 and TurkStream are built out fully. Russia will be thus be able to adjust its exports to Europe, holding back volumes to prop up prices (like it did in 2010) or flooding the market (like today), whichever makes the most sense. Given Europe’s role as a shock absorber for the global market, this will turn Gazprom into a global balancer, albeit a limited one. Its power will be tactical, not strategic, able to accentuate or offset market swings rather than keep prices artificially high for too long.

Qatar might also behave strategically. So far, it has not; Qatar’s exports have shifted in response to market conditions, but output has been stable. The logic to produce at full capacity has been irresistible until now: to monetize resources in-country, aided by the economics of associated liquids which make exports profitable even at low gas prices. But a project in the United States that sources part of its gas supply from the grid will be a different story. At times, like today, the spread between U.S. and global spot prices might be negative. It is easy to imagine Qatar running its U.S. facilities at lower utilization rates to avoid depressing prices for its global portfolio. This will be a hard act to master, given how competitive the market will become, but Qatar might at least try.

China is another unknown. At times, the spot price for LNG in Asia is set in Beijing and driven by policy, not market realities. A decision to scale back the “dash to gas” could easily crash LNG prices, which have

14. Nikos Tsafos, “Is Gas Global Yet?” Center for Strategic and International Studies commentary, March 23, 2018, <https://www.csis.org/analysis/gas-global-yet>.

15. International Gas Union, Wholesale Gas Price Survey 2019, https://www.igu.org/sites/default/files/node-document-field_file/IGU_Wholesale_Gas_Price_Survey_2019_Final_Digital_100519.pdf

become overly dependent on Chinese demand. It is not clear that China will behave this way, but its rising prominence in this market makes it possible.

In the United States, there is no entity to fine-tune exports, and there is no government appetite to micromanage export volumes. But U.S. contracts have enough flexibility that companies might respond to price signals. Today, some companies may lose money on individual trades—yet they have not suspended exports. Over time, this might change, and the United States might emerge as a swing producer, or, more accurately, the country where supply is most price-responsive, scaling back involuntarily to balance a weak global market. Likely, this will not be a very elastic valve. It will take big discrepancies in prices to shut in exports, and tough economics might produce consolidation rather than a reduction in volumes. But in a market where no price-responsive exporter has ever existed, the mere possibility of one signifies big news.

Eventually, therefore, this gas market will have four main dials—three in the hands of governments, another in the hands of a dispersed private sector. In theory, the competition among these players and other market participants should be enough to ensure fair prices. But the temptation to behave strategically might be too great at times, trying to pull levers in order to influence prices. Even before considering geopolitics, we can expect countries to try to exercise market power, limited in scope perhaps, opportunistic rather than strategic, and coming from different corners at different times. There might be occasional deviations from a purely market-driven system, accentuated by the structural shift toward a new pricing system and the ability to hold spare capacity. Once we add in geopolitics, the picture becomes murkier still.

The Geopolitical Wrinkles

The geopolitics of this new gas world will be complicated. Russia's strategy is now "all of the above" when it comes to gas: exports to both Europe and Asia, via pipeline and LNG, through old routes and new ones, with partners that include the majors, European utilities, Japanese companies, and Asian national oil companies, fusing commerciality, geostrategy, and mercantilism. So far, this position and ambition has not translated into a new geopolitical stance. Besides courting friends and ensuring that Europe remains divided on Russian gas—both long-standing Russian aims—there is no effort to derive new political benefits. But just like Russia inserted itself into OPEC, it might exploit a similar opening in gas were such an opening to appear.

Qatar's thinking might shift, too. Historically, Qatar has been averse to playing politics with LNG, refusing, for instance, to offer cheaper prices to secure political favors and always driving a hard bargain for LNG. But Qatar's world has changed given U.S. ambivalence toward the Gulf and U.S. unwillingness to stand by Qatar in squabbles with Saudi Arabia (at least not as much as Qatar would like). It is not hard to imagine Qatar using LNG to bolster political ties. For one, it has an attractive carrot again: it can bring in partners for its LNG expansion. Maybe partners will be chosen purely on commercial terms, or Qatar might see this as an opportunity to broaden and diversify its relationships. The short-term impact of such a decision would be minimal, but the longer-term effects would be sizable if they foreshadowed a broader strategic shift.

China's growing import gas dependence will create its own realities, too. Until now, China's approach to LNG has mirrored that of other importers: sign long- and short-term contracts, secure equity stakes when possible, and extend finance, all while trying to diversify the import mix and ensure as much variety as is realistic.¹⁶ Its main strategic decision, so far, is to avoid relying on the United States. Companies have done

16. Nikos Tsafos, "How Is China Securing Its LNG Needs?," Center for Strategic and International Studies report, January 9, 2019, <https://www.csis.org/analysis/how-china-securing-its-lng-needs>.

some deals, but the overall low volume of transactions cannot be explained by economics alone and likely speaks to broader concerns that go beyond price and commercial calculus. China will also continue to build its import network. Soon, China's import portfolio will likely be the most diverse in the world, which is good for China and, likely, the world.

The U.S. strategy is multifaceted and, at times, less clear. The United States is encouraging countries to purchase LNG, either as an energy security measure for those countries or to lessen U.S. displeasure on other fronts, like trade imbalances, and gain favor more broadly. The effect has been small but notable. Several transactions have clear geopolitical undertones, for instance, Poland's heavy reliance on U.S. LNG contracts, Qatar's decision to build an LNG export facility in the United States, and Saudi Aramco's decision to make its first foray into LNG by contracting to purchase gas from the United States. (One might include the deal by three Chinese entities with the Alaska LNG project, although that deal lapsed.¹⁷) If the United States is able to leverage state-supported finance for gas projects overseas, this push might have even more traction.

The tendency to politicize LNG, however, might also backfire. The trade war between the United States and China is an obvious example, where LNG has been caught in a progressively escalating dispute, leading to a cessation of actual exports and dimming prospects for Chinese companies to act as anchor buyers for new U.S. LNG projects (something that, to be fair, they did not do even before the trade war).¹⁸ Despite this politicization, the pace of development for new U.S. LNG export projects remains robust, and 2019 is likely to be best year ever for the sanctioning of new U.S. LNG projects.¹⁹ The United States has not paid a price for politicizing LNG.

Yet it is not hard to see LNG getting entangled in trade spats, either in the near term or in the long term. The trade dispute between the United States and Europe is simmering but not extinguished.²⁰ If the United States escalated by imposing tariffs on autos, for instance, Europe could retaliate by targeting LNG, among others. Given how far we have come on the trade war front, none of these scenarios are unimaginable, even if they are unlikely. But a European hit on U.S. LNG would likely be severe, removing the single outlet for cargos in a depressed market.

Other trade scenarios that affect LNG are possible to imagine as well. There is a steady effort to integrate carbon into the world's trading system either by taxing the carbon content in goods or by levying tariffs based on countries' environmental policies (whether they are in the Paris Agreement, for example). Europe is also keen to measure the CO₂-equivalent emissions of different gas sources, with an eye, perhaps, to target gas with a higher footprint, a policy that could hurt U.S. gas plagued by steady stories of flaring and methane emissions. Whether other countries chose a conciliatory approach or a confrontational one will depend in part on U.S. strategy. But it is not hard to see LNG flows being distorted by trade policies or disputes.

Sanctions are another unknown. Energy sanctions are, so far, mostly focused on oil with an occasional nod toward gas (for instance, against NOVATEK). Sanctions on Nord Stream 2, if they were implemented, could potentially affect the project's completion and hence gas flows. They could also damage further

17. Elwood Brehmer, "AGDC president outlines path forward; China deal is dead," Anchorage Daily News, July 25, 2019, <https://www.adn.com/business-economy/energy/2019/07/25/agdc-president-outlines-path-forward-china-deal-is-dead/>.

18. Nikos Tsafos, "Will Chinese Tariffs Hurt U.S. LNG?," Center for Strategic and International Studies commentary, May 14, 2019, <https://www.csis.org/analysis/will-chinese-tariffs-hurt-us-lng>.

19. Nikos Tsafos, "U.S. LNG 2.0 Takes Shape," Center for Strategic and International Studies commentary, May 2, 2019, <https://www.csis.org/analysis/us-lng-20-takes-shape>.

20. Jana Randow, "Europe Just Reminded Trump Why He's Mad at Them on Trade," Bloomberg, August 16, 2019, <https://www.bloomberg.com/news/articles/2019-08-16/trade-war-latest-trump-eu-tariffs-exports-europe-germany-jze03wnr>.

the transatlantic alliance and perhaps trigger some of the retaliations described above. Or sanctions may be deployed against future projects that the United States opposes. Or sanctions might close off certain avenues for trade, impacting flows rather than curbing overall volumes. In a gas world where the United States is so prominent, the urge to exert geopolitical influence through LNG, however misguided at times, might be hard to resist.

In short, the global gas market will be pulled in three different directions over the next decade: the emergence of three globally important players—Russia, Qatar, and the United States—will force more interconnectedness and intensify competition, while China will become a key battleground where pipeline gas and LNG meet. These four players might try to exercise market power, tweaking with output to influence prices and could occasionally succeed in doing so. But these countries might also seek to convert market power into political power. And geopolitical frictions will prevent this system from being run entirely on market forces, with the United States, somewhat paradoxically, simultaneously pushing toward market forces but also pulling it apart through geopolitics.

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This report is made possible by general support to CSIS. No direct sponsorship contributed to this report.

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