

US LNG VS PIPELINE GAS: EUROPEAN MARKET SHARE WAR?

NATURAL GAS SPECIAL REPORT

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KEY TAKEAWAYS

- **US LNG export capacity ramps up to 18.6 Bcm, to hit 96 Bcm by 2020**
- **Will exporters to Europe engage in market share strategy as prices stay low?**
- **Only seven cargoes land in Iberian Peninsula, pipeline imports reach record high**
- **Cheniere sees 50% of its LNG exports to Europe; Russian exports to rise from 2020**
- **Gazprom increasingly leveraging volumetric, pricing and commercial flexibility**
- **US LNG: low spread environment offset by 'sunk cost logic', but credit ratings, spending fall**

An LNG giant is emerging

With the startup of the third train at Cheniere Energy's Sabine Pass LNG export facility in the Gulf of Mexico, the US has three operational LNG production trains with a total capacity of 13.5 million mt/year (18.6 Bcm/year).

As of March 15, Sabine Pass had loaded close to 90 cargoes, with the majority headed to Latin America, and increasingly to northeast Asia.

A total of eight cargoes of US LNG have reached Europe so far. Four went to Spain, three to Portugal and one to Italy.

A first US LNG cargo was delivered to Turkey in late September, coincidentally just before Russia and Turkey signed their intergovernmental agreement on building the TurkStream pipeline.

Four more have reached Turkish shores since.

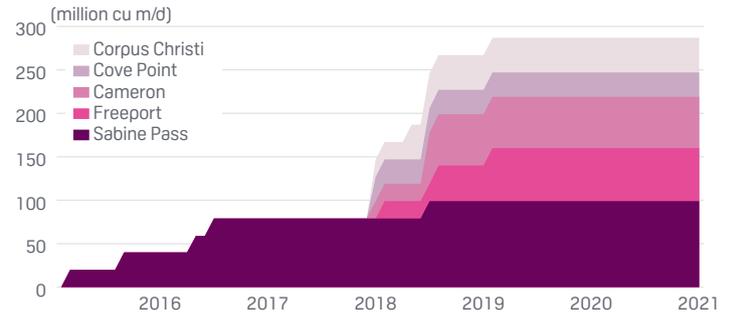
But the response to US LNG from the traditional suppliers of gas to the European market has already been marked – with gas demand only steady in Europe, pipeline flows from Russia, Algeria and Norway have been significantly up on previous years.

Are state-controlled gas exporters Gazprom, Sonatrach and Statoil following the now abandoned Saudi Arabia-led OPEC strategy in the oil market and producing at full blast despite low prices to retain European market share?

Publicly they have played down the prospect of a market share war between US LNG and pipeline gas in Europe, but some of the evidence at least suggests that Europe's traditional suppliers are loathe to lose ground to US LNG supplies.

While Sabine Pass for now has three operational trains, the ramp-up in capacity is set to accelerate in the coming years – a

US LNG EXPORT CAPACITY TO ROCKET



Source: Platts Analytics' Bentek Energy

total of some 70 million mt/year of US LNG export capacity is expected to be online by 2020.

One of the big questions is how much will come to Europe – Cheniere has said it sees some 50% of its total LNG exports coming to Europe in the future. Cheniere has plans for seven 4.5 million mt/year trains at Sabine Pass and Corpus Christi – so half of that would be the equivalent to as much as 15.8 million mt/year or almost 22 Bcm/year.

But as we close in on the end of the first quarter of 2017, the key northwestern European markets – where import demand is growing fastest due to decline in indigenous production – have not attracted any US LNG.

Indeed, the fact that Portugal and Spain were the first European countries to import LNG from the US is telling.

The Iberian Peninsula is considered an “island market” with poor interconnection to the rest of Europe, so the delivery of US LNG into the region is not likely to be seen as a sign that it will take hold in the wider European market.

Spain has an annual LNG regasification capacity of 43 million mt/year (59 Bcm/year) at its six LNG terminals, plus 28 Bcm/year of pipeline import capacity, including interconnectors with France and Portugal. That gives Spain a gas import capacity of some 87 Bcm/year despite only having consumption of some 30 Bcm/year.

Its import capacity is more than eight times higher than its current export capacity to France and Portugal of just 10.6 Bcm/year.

Spain imported gas from France almost every day in 2016 – although volumes came down since the start of the year from around 12 million cu m/d to around 2 million cu m/d – so it is clear that there is limited opportunity for Spain to move US LNG further into Europe.

In addition, the biggest supplier to Europe – Russia – does not supply the Iberian market with pipeline gas so it is unlikely to be concerned about US LNG headed to southwestern Europe.

Spain may well take the lion's share of US LNG in Europe – Gas Natural is expected to begin taking more regular cargoes in 2017.

Hub prices in Europe for most of 2016 remained low, too low some would argue to incentivize large-scale US LNG imports despite the corresponding low price at the Henry Hub.

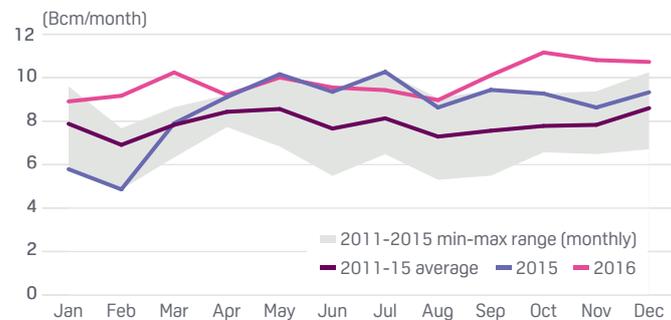
European prices were also lower than the netback to newer demand centers such as Dubai and Jordan in the Middle East, which have both taken US LNG since its startup.

There is evidence that the pricing elements of long-term contracts with the likes of Gazprom and Sonatrach have been tinkered with to incentivize buyers to take more pipeline gas into Europe. There could also be seller-nominated gas flowing to European hubs.

Russia clearly does have the option to undercut the US LNG price to ensure it keeps its share of its key European markets and could flood the market with cheap gas, maximizing revenues and cash flow at a time when producers worldwide are suffering from the impact of such low prices.

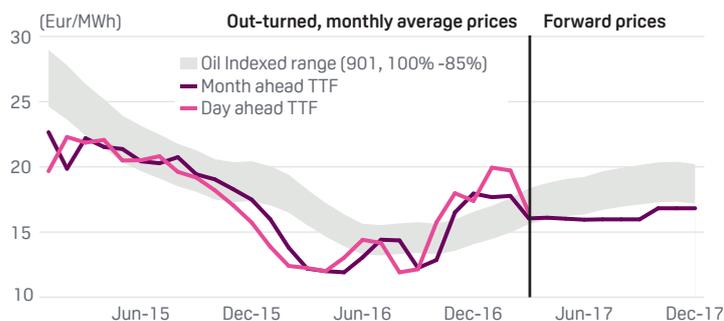
S&P Global Ratings in a July credit update said it expected Gazprom to cut prices to its European customers. "We assume Gazprom will have to provide discounts to its European customers to compete with supplies from other geographies," it said.

2016 RUSSIAN EXPORTS TO EUROPE AT RECORD HIGH



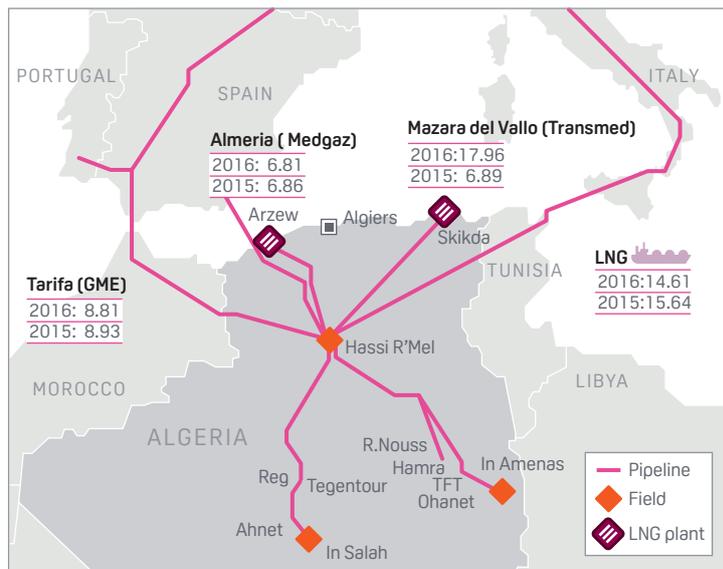
Source: Platts Analytics' Eclipse Energy

OIL-INDEXED GAS vs EUROPEAN HUBS



Notes: Forward curves based on Platts forward price assessments on Mar 10. Source: Platts

ALGERIAN GAS EXPORTS TO ITALY ALMOST TREBLE IN 2016 (Bcm)



Source: Platts Analytics' Eclipse Energy

It added that it anticipated a "more challenging operating environment" for Gazprom in 2016-2018 with material pressure on prices and high capital expenditures.

"We expect Gazprom's credit metrics will weaken in 2016-2018 with funds from operations to debt declining to about 45%-50% from the historical level of more than 60%," it said.

Higher volumes from Russia, Norway, Algeria

Data from Platts Analytics' Eclipse Energy show that a lot more gas from Russia, Algeria and Norway reached European shores in 2016 than was the case in previous years.

Russian pipeline gas deliveries to Europe in 2016 were comfortably above previous levels, according to the data.

Russia, thanks to the bearish oil price environment and an enhanced export strategy from Gazprom, increased its exports to Europe by 15% (through the Nord Stream, Yamal, and Brotherhood pipelines) to 118 Bcm, taking back its place as Europe's largest gas supplier in the process.

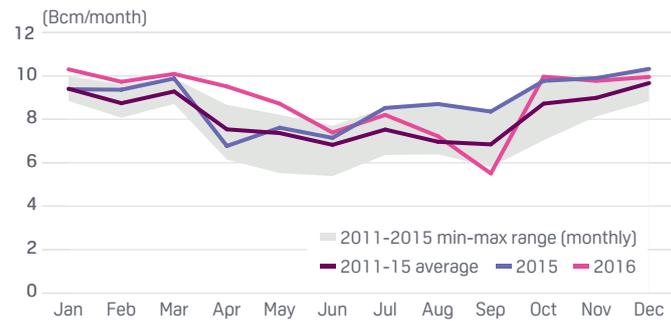
Algeria also proved a number of naysayers wrong in 2016, boosting its gas exports despite concern over whether it would be capable amid crushingly low prices and rampant domestic demand growth.

According to data from Platts Analytics, Algeria exported a total of just over 49 Bcm of gas and LNG in 2016, well up on the previous year's 37 Bcm.

This was broken down into 18 Bcm of pipeline gas to Italy, 16 Bcm of pipeline gas to Spain (with some flowing onward to Portugal) and 15 Bcm of LNG exports.

Supplies to Italy were up almost three-fold from just 7 Bcm in 2015 as Italian buyers made the most of competitively priced Algerian gas.

2016 NORWEGIAN EXPORTS TO EUROPE AT RECORD HIGH



Source: Platts Analytics' Eclipse Energy

Algeria has been able to boost gas output as new fields came on stream and the country has looked to stem its domestic gas demand growth.

The amount of gas exported from Norway via pipelines to Europe is also booming and hit a fresh record annual high of 107 Bcm last year, 1% higher than in 2015.

Statoil has – on more than one occasion – distanced itself from the idea of a market share defense strategy in Europe.

The company has said it is sticking to a strategy of “value over volume” – withholding supply during periods of low prices and boosting output when prices are high. It pointed to low output from its swing Oseberg field in 2016, saying that to raise output from Oseberg would require higher prices.

Comparing Oseberg production with the average day-ahead gas price does point to a correlation, according to Platts Analytics.

But, Statoil's other “flex” field, Troll, has been producing at high levels, which seemingly counters the “value over volume” strategy.

There are a number of factors at play that could explain why Troll gas output is up while Oseberg remains very low.

Both are oil and gas fields, so there could be a link to how much oil Statoil is trying to extract from the fields. The Norwegian company said in 2013 that “extensive use” of gas injection at Oseberg had made it possible to improve both the oil recovery rate and the expected lifetime of the field.

Another possible reason for the Troll/Oseberg mismatch could be linked to optimization of operating costs at the two fields. Statoil has been committed over the past few years to cost cutting given the low price environment, so it may be cheaper to keep one producing higher than the other.

In addition, it is possible that Statoil is keeping Troll gas output high to justify a higher production permit from the Norwegian government in the future. Oslo approved Statoil's application to increase the volume of the Troll permit for Gas Year 16 to 33 Bcm from 30 Bcm, a possible signal of intent from the Norwegians.

Meanwhile, Statoil vice president for marketing and trading, Tor Martin Anfinsen, said in May that the company followed the market and had no strategy on volume or price with regard to other suppliers.

“We produce what is available to be produced at any given time. We don't look to the left or to the right to see what the Americans or Russians are doing,” Anfinsen said.

US LNG economics

Gazprom, meanwhile, has also looked to play down a European gas price war. Gazprom deputy chairman Alexander Medvedev said in the spring there was “no need” for a price war, suggesting that US LNG would struggle to ever be competitive with Russian gas because of how low Russia's gas production costs can go.

And at the end of May, Valery Nemov, deputy head of contract structuring and price formation at Gazprom Export, said US LNG exports would be a loss-making enterprise in the next 20 years “with 100% probability.”

Higher Henry Hub prices would render US LNG exports uneconomic versus European pipeline supplies, he argued. And according to forecasts from Platts Analytics' Bentek Energy, Henry Hub prices are set to rise in the coming years.

Nemov also made the case that tolling fees for liquefaction at US LNG plants should not be considered “sunk costs” and that the economics of US LNG look considerably worse as a result.

“We would say that investments into liquefaction plants are ‘sunk costs’, but tolling fees are not,” Nemov said.

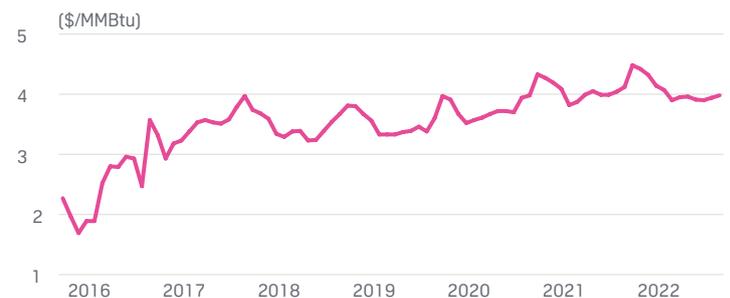
The CFO of Russia's Novatek, Mark Gyetvay, also slammed the “sunk cost” argument in favor of US LNG.

At a conference in London in June, Gyetvay said “someone has to pay” for liquefaction and transportation, and that the sunk cost argument was distorting the view of the global LNG market.

But more important than the profit or loss is the contribution margin – the money made by a trader on an LNG deal regardless of the sunk cost (see example).

What is sure is that US LNG is coming to Europe.

US HENRY HUB PRICES SET FOR GRADUAL RISE



Source: Platts Analytics' Bentek Energy

Industry officials believe Gazprom is almost certainly headed down the market share defense route in a bid to stave off US competition.

Russia – like Saudi Arabia in oil – is the only country with significant spare production capacity, estimated at 170 Bcm/year, so Moscow can take a strategic view.

It has flexibility on the volumes it can export, and also flexibility on the prices it charges its customers given how low its production costs are. This dual flexibility puts Gazprom in an enviable position.

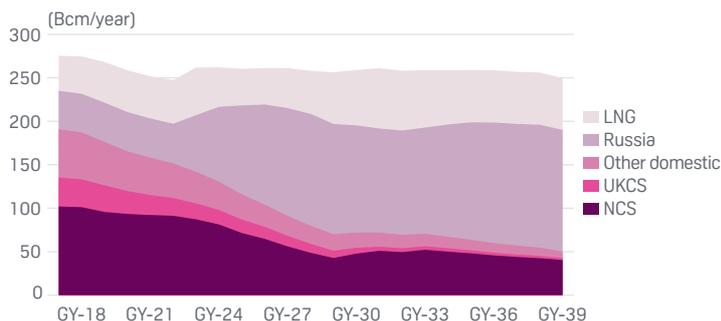
A move by Russia to maximize European exports seems increasingly likely, not least as Moscow begins to quietly suggest that its future gas supplies to China may not be as big as previously expected and its LNG export projects face renewed delays.

Its plans to build the 55 Bcm/year Nord Stream 2 pipeline to offset the rapid decline in European domestic production are evidence of that – despite the setback in August when Gazprom’s give European partners withdrew from a planned operating joint venture because of Polish competition concerns.

Still, forecasts from Platts Analytics certainly suggest that Russia is in the best position to ramp up supplies to Europe as domestic European production declines quickly into the next decade.

Other than a slight lull in supplies in 2017 and 2018 due to the extremely well supplied European market and the glut of global LNG, Russian supplies to northwest Europe are expected to rise strongly in the 2020s, according to Platts Analytics.

RUSSIA SET TO DOMINATE NW EUROPEAN SUPPLY



Source: Platts Analytics's Eclipse Energy

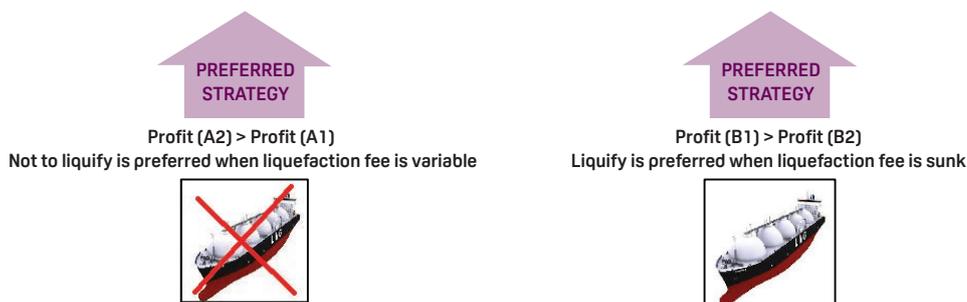
As a possible signal of its ambition to protect European market share, Gazprom has also been looking over the past year to find ways to tempt new customers with bargain deals and new sales techniques – including through auctions – or keep hold of existing buyers by agreeing to better supply terms and more contract flexibility.

And it is not just in Western Europe where Gazprom has shown signs of becoming increasingly competitive – in Romania there could also be a market share battle underway. Russian imports have regularly been cheaper than domestic production in 2016, which has led Romania to import significant volumes of Russian gas, especially since the summer.

Romania’s energy regulator ANRE said last year that the country could completely eliminate Russian gas imports in 2016 because its domestic production was able to meet its falling demand.

EXAMPLE OF ‘SUNK COST LOGIC’ APPLIED TO US LNG SHORT-TERM LIQUEFACTION DECISION (\$/MMBtu)

Strategy	Scenario A: liquefaction fee as a variable cost		Scenario B: liquefaction fee as a sunk cost	
	A1 : To Liquefy	A2 : Not To Liquefy	B1: To Liquefy	B2: Not to Liquefy
Purchase Price (Henry Hub)	3.0	3.0	3.0	3.0
Liquefaction fee	2.5	2.5	2.5	2.5
Shipping cost (Variable)	1.1	1.1	1.1	1.1
Sale Price (JKM)	5.0	5.0	5.0	5.0
Profit & Loss (Simplified)				
Revenues	5.0	0.0	5.0	0.0
Variable costs	6.6	0.0	4.1	0.0
Contribution margin	-1.6	0.0	0.9	0.0
Fixed costs			2.5	2.5
Profit & Loss (pre-tax)	-1.6	0.0	-1.6	-2.5



Conclusion: It's rational not to liquefy when the liquefaction fee is variable, but it's also rational to liquefy when the liquefaction fee is sunk (but P&L is negative)

Source: Platts

But if Russian contract prices to Romania fall below the price of local output, then Russian gas again becomes the logical choice.

So with Europe firmly in Russia sights, the key question is how Gazprom continues to respond to the startup of US LNG.

Gazprom's reaction to Lithuania's move to import LNG at the end of 2014 – offering a discount of 23% on pipeline gas supplies – is evidence that Russia does not want to give up its market share. And Russia has also discounted supplies to Ukraine in the recent past to try to make its price competitive with European gas now that Kiev can import gas from the west.

Clearly there is much to gain by having the optionality that Lithuania, Ukraine and now Poland – with its brand new LNG import facility – have.

For Russia, the key is that it can afford to cut prices to its European customers – like Saudi Arabia with oil, Russia has among the lowest gas production costs in the world.

It can continue to supply Europe and make money even if gas prices continue to stay so low or fall yet further.

Even with low Henry Hub prices, US LNG would unlikely be able to compete with Russian gas at the margins.

EU policy

But with Russia looking increasingly likely to build on its European market share in the coming decade, there is the risk that Brussels could look to intervene to prevent Russian market dominance.

EU President Donald Tusk said in December that one of the key objectives of the EU's energy union is to reduce its dependency on individual suppliers and diversify suppliers, sources and routes.

Therefore Russia's growing market share in Europe could potentially trigger some new policy-making in Brussels.

Any barriers put up to increased market dominance by Gazprom would, of course, favor US LNG.

US GAS PRODUCTION DIPS AT START OF 2016



Source: Platts Analytics' Bentek Energy

S&P GLOBAL RATINGS ASSESSES US GAS PRODUCTION PROSPECTS

S&P Global Ratings says US natural gas prices were volatile in 2016. Analyst Mike Tsai says that among the exploration and production companies that focus on natural gas, the direction of prices could have a significant impact on cash flows and credit measures.

"This is especially true for operators that were overleveraged prior to the start of the downturn in 2014," Tsai says. "Large cuts to their cash flows have made it more difficult to meet their debt obligations and resulted in declining credit measures."

S&P Global Ratings currently rates 13 companies for which natural gas constitutes more than 70% of production as of year-end 2015, including EXCO Resources, Vanguard Natural Resources and Chesapeake Energy.

"If natural gas prices fail to recover by as much as we expect, this could affect the ratings and outlooks of natural-gas-exposed operators," Tsai says.

Equally, Tsai says that other E&P companies that operated with low leverage and hedged natural gas volumes when prices were more favorable have seen some stability in their credit measures and resulting credit ratings.

S&P Global Ratings expects natural gas-directed spending by E&P companies to fall in 2016, and this, combined with its expectation that associated natural gas output with oil production will also decline, should help support improving prices as supply and demand begin to come closer to balancing.

But Tsai says he does not expect the financial stress to have a big impact on natural gas production in the US. "US gas production should rise to meet higher demand for LNG exports, exports to Mexico and US domestic demand."

But US LNG could face problems of its own – the current low prices are forcing ever growing numbers of US producers into bankruptcy. According to a recent report by Haynes and Boone, 90 gas and oil producers in the US and Canada have filed for bankruptcy between January 2015 and the start of August 2016.

Russia could face competition from other new sources of gas too, albeit mostly targeting markets in southeast Europe.

The huge volumes of gas discovered in the East Mediterranean could find their way to Europe, and then there are Iran and Iraq – two countries with vast gas reserves but not much in the way of export infrastructure yet.

Iran has plans to send 30-35 Bcm/year to Europe and Turkey after 2020, while a pipeline with 20 Bcm/year capacity will link the northern Iraqi region of Kurdistan to Turkey and Europe by around the same time.

And Azerbaijan can also offer optionality to southern Europe once the Shah Deniz 2/TANAP/TAP integrated gas projects come on stream toward the end of the decade.

Conclusions

While US LNG supply to Europe has so far been muted, limited to a few cargoes to the Iberian Peninsula only, export capacity is now ramping up quickly and is set to reach 96 Bcm/year by 2020.

US LNG pioneer Cheniere sees around half of its total US LNG exports finding a home in Europe, so traditional pipeline suppliers are having to prepare for new competition. Despite US LNG looking less economic at present compared with the recent past

due to narrow Henry Hub-NBP spreads, US LNG could still come to Europe in the coming years on a short run marginal cost basis.

Russia's Gazprom in particular stands ready to stave off US LNG using its unparalleled flexibility in volume and pricing strategy. Expectations are that Russia will be called on for additional supply to Europe as indigenous output continues to fall. In addition, the US faces its own problems in keeping LNG exports to Europe competitive, not least the financial difficulties many gas producing companies find themselves in.

Acknowledgements

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